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UNDERSTANDING THE NATURE OF "SUCCESS": AN ANALYSIS OF FISHERIES CO-MANAGEMENT REGIMES ON LAKE MALAWI.

Aaron J.M. Russell

A DISSERTATION

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ABSTRACT

UNDERSTANDING THE NATURE OF "SUCCESS": AN ANALYSIS OF FISHERIES CO-MANAGEMENT REGIMES ON LAKE MALAWI.

By

Aaron J.M. Russell

Having developed from a condition of resource abundance and low capital investment, few artisanal fisheries in Malawi were traditionally subject to any form of access-limitation. Since the 1930's, however, increased catch efficiency due to the new fishing methods, gears, and materials, combined with more recent trends of deteriorating spawning grounds and population growth, to cause the depletion of many fish stocks. For decades, the depletion of Lake Malawi's fish stocks, and the apparent disinterest among fishers to take action, was blamed on population growth and poverty, a classic example of the "tragedy" of open-access regimes.

Based on two years of ethnographic fieldwork, I present several case studies that challenge the assumptions that fisherfolk are unwilling or unable to effectively participate in fisheries co-management. Rather, the government's and donor agencies' formalized blue-print approach to the establishment of co-management institutions (known as "Beach Village Committees" or BVCs) failed to recognize the need for the informal consensus-building processes by which institutions gain local legitimacy. Instead of enlisting the support of the chiefs (who act as the primary community arbiters, mediators, and custodians of cultural norms), due to their perceived autocracy and corruptibility, the chiefs were largely excluded from the process.

I analyzed these case studies using an "organizational learning" framework, and differentiated between the outcomes of BVC empowerment (as envisioned by the government), and BVC conservation effectiveness. In most cases where BVCs tried to enact conservation regulations without the visible support of the chiefs, they have been confronted by significant resistance among stakeholders. In contrast, I present several case studies in which the active support of chiefs has enabled BVCs to achieve significant conservation outcomes due to the broad base of community support.

My analysis of organizational learning for empowerment and conservation outcomes in historical and present-day fisheries management settings in Malawi suggests that formal institutional design bench-marks are unreliable predictors of conservation success and institutional legitimacy. Instead, the extent to which stakeholders accept and support conservation regulations must be recognized as a reflection of the extent to which co-management leaders are empowered by the community.

I propose an "adaptive organizational learning" framework that explores the sources of resistance that have undermined the empowerment of fisheries co-management institutions in Malawi. By anticipating these forms of ignorance and resistance to institutional and behavioral change, resource management agencies and NGOs may be better able to support the development of the stakeholder awareness, capacity, motivation, and legitimacy that is needed to bring about the institutionalization of sustainable fishing practices.

DEDICATION

Voor mijn familie, een bron van liefde, vriendschap, inspiratie, steun, gezelligheid, en veel gelach.

Genk ich haag van och,
Want ge zijt sjoen en goet,
As ich o-ch nie haa,
Dan gonk ich doet.

J. v. M.

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Images in this dissertation are presented in color.

TABLE OF ACRONYMS

ADMADE	Administrative Management Design for Game Management Areas
BIRP	British Irrigated Rice Project
BOMA	British Overseas Management Administration, Colloquial Term for District Capitals (Malawi)
BVC	Beach Village Committee
CAMPFIRE	Communal Areas Management Programme for Indigenous Resources
CBNRM	Community-Based Natural Resource Management
CLWMP	Chia Lagoon Watershed Management Project
COMPASS	Community Partnerships for Sustainable Resource Management in Malawi
DANIDA	Danish Government's Foreign Aid Service
DFO	District Fisheries Officer (Malawi)
DFS	Dwangwa Fish Sanctuary
DNPW	Department of National Parks and Wildlife (Malawi)
DoF	Department of Fisheries (Malawi)
ELDP	Evangelical Lutheran Development Program
FAO	Food and Agriculture Organization of the United Nations
FD	Fisheries Department (Malawi)
GBP	British Pounds Sterling
GEF	World Bank Global Environmental Facility
GFTC	Department of Game, Fish and Tsetse Control (Malawi)
GTZ	Gesellschaft für Technische Zusammenarbeit (German Foreign Technical Assistance Agency)
GVH	Group Village Headman
IGA	Income Generating Activity
IMF	International Monetary Fund
JICA	Japanese Aid Agency
K	Kwacha (Malawian Monetary Unit) (US$1.00 roughly equivalent to K105 - 125 between 2003-2005)
KFA	Kambindingu Fisheries Association
LIRDP	Luangwa Integrated Resource Development Project
MAGFAD	Malawi-German Fisheries and Aquaculture Project

MALDECO	Malawi Development Corporation
MCP	Malawi Congress Party
MSY	Maximum Sustainable Yield
NARMAP	National Aquatic Resource Management Programme
NGO	Non-Governmental Organization
NP	National Park
NRM	Natural Resource Management
ODA	British Overseas Development Administration
PFMP	Participatory Fisheries Management Programs
PMF	Police Mobile Force (Malawi Police Force)
RENAMO	Mozambican Counter-Revolutionary Army
SES	Socio-Economic System
TA	Traditional Authority
UN	United Nations
USAID	United States Agency for International Development
VH	Village Headman
WESM	Wildlife and Environmental Society of Malawi
WWF	World Wide Fund for Nature

Chapter 1

"While I have been observing fishing activities along the open lakeshore, I have not had as much opportunity to observe them in the lagoon due to the fact that these activities are illegal during the closed season, and as they therefore take place at under the cover of darkness. An opportunity to participate in a lagoon patrol enables me to improve my understanding both of the poachers and the enforcers of this fishery regime.

We leave Ngala at around 7:30 pm, rowing in silence and in unison so as not to give anyone any warning of our arrival. Two hours later we enter the estuary, rowing as quietly as possible. There might be fishermen nearby and we can hear people in their homes on Bana Island as we pass. We also pass several hippos that snort and grunt but remain submerged.

Throughout the evening we surprise a number of poachers and confiscate their nets and catches. Eventually, we come upon another net that is stretched across the shallows and heavily entangled in the reeds. As we try to untangle it, the guys hear and see other boats in the Bana swamp area to the South. We race off across the lagoon with the engine roaring and come close on the heels of two canoes paddling furiously to escape us. We pull up in front of them and turn our attention to one of the canoes where two boys are seated. As we are confiscating their night's catch, the second canoe tries to escape. The weeds are too dense here for us to use the motor, so we race after them, paddling hard. We are very close, less than 5 yards from their canoe, but a narrow gap in the reeds that leads to Lake Malawi saves them, while our large boat gets stuck in the thick reeds.

This shallow area, with its thick reeds and abundance of aquatic vegetation, is prime hippo habitat. All the noise of the engine and the paddling has awakened many of these sleeping beasts, and all around us the darkness is filled with loud grunts and snorts as we paddle along the edge of the lagoon. One hippo gives us a bump from below and several others follow us as we paddle away, grunting their displeasure.

Its 3:30 in the morning by the time we return home and, though my arms are tired from rowing for hours, the evening's real victim is my rear end, sore and aching from hours perched on the side of the boat! We confiscated 7 nets tonight and the bottom of the boat is full of fish."

[Excerpt from notes on a fishing patrol in the Kambindingu Lagoon - 2003-11-04]

Lake Malawi contains an estimated 500-1000 fish species, including a large number of species in the Cichlid family found nowhere else, making it the most bio-diverse fresh water body in the world. In stark contrast with this ecological bounty, the nation of Malawi, which dominates the fishing pressure on Lake Malawi[1], is currently ranked as one of the poorest countries in Southern Africa[2] (UNDP 2005) in which an estimated 480,000-1,400,000 people are infected by the HIV/AIDS epidemic (UNAIDS 2006). The importance of the fishing industry to the current and future health of the nation can readily be realized by consideration of the following:

1) Whereas annual per capita fish consumption was at one time estimated to constitute around 70% of all animal protein consumed by Malawians nation-wide (Bland and Donda 1994), due to population growth the annual per capita availability of fish has declined from an estimated at12.9 kg in1976 to just 3.6 kg in 2001 (FAO 2005).3 While this decrease alarming for all Malawians, it is of particular concern for people living with HIV/AIDS who require up to 50% more protein than others (Mumba and Jose 2005).

2) Due to the unpredictability of rainfall during the last 5-6 years, successful agriculture has increasingly depended on larger capital inputs (i.e., fertilizer and labor). As fishing households are known to have comparatively larger incomes

[1] Lake Malawi forms a significant portion of the Malawi's Eastern border with Tanzania and Mozambique, where the lake is known as Lake Nyassa and Niassa, respectively. However, due to geography, much of the Mozambican and Tanzanian shorelines are characterized by steep mountains and narrow littoral zones, while much of the Malawian lakeshore is easily accessible and reaps the benefits from the biological productivity occurring in its wide littoral zones.

[2] There is a variety of indices that the UN and World Bank use to rank nations; the Human Development Index ranks Malawi as 165th out of 173 ranked nations.

[3] This amount is well below the 13-15 kg per capita supply recommended by World Health Organization

and amounts of assets than purely farming households (Allison and Mvula 2002), they are better able to afford capital inputs for agriculture.

3) In a national population of ~12 million people, fishing provides a primary or secondary source of livelihood for an estimated 350,000 fisherfolk (including fishing gear owners, crew members, and fish traders) (FAO 2005) and a vital economic support for as many as 1,000,000 people along the Malawian shore alone (Malawi 1999).

Over the course of the past century, these factors have contributed to the over-fishing of many fish stocks as increasing numbers of people enter the fishing industry. Figure 1-1, shows the overall catch trends in Malawi's three most significant lakes (Lakes Malawi, Malombe and Chiuta). While Lake Malombe's valuable chambo (*Oreochromys spp.*) fishery collapsed during the early 1990s due to over-fishing, Lake Chilwa's fisheries are vulnerable to cyclical droughts which dry out this lake almost completely. Lake Malawi's fisheries show an apparent continued increase, however there are clear signs that the commercial chambo fishery is under threat as growing proportions of catches are made up of juvenile fish. Meanwhile, numbers of fishing gear owners, fishing assistants, gears, and vessels continue to increase.

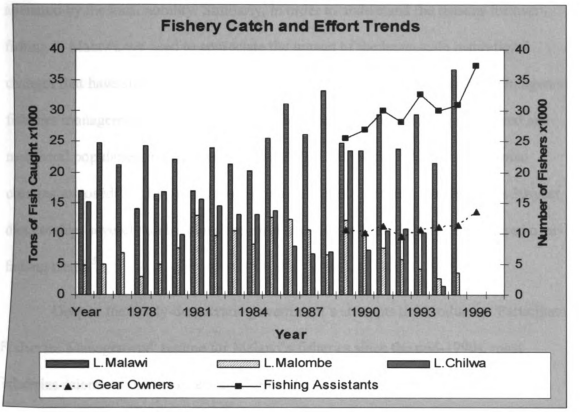


Figure 1-1. Trends of Fish Catches and Fisher Participation in Malawi's key Traditional Fisheries (Bulirani, Banda et al. 1999).

A common representation of natural resource degradation is that of the neo-Malthusian[4] "cycle of poverty", in which over-population is seen as both the causes and results of natural resource scarcity and poverty (Homer-Dixon 1999; Hartmann 2001). Indeed, this scenario was famously misrepresented by Hardin (1968) as "The Tragedy of the Commons", in which individualistic economic motivations led a population of poor English peasants to overstock, and thereby degrade their communally owned pasture. What Hardin omitted from his model where the institutional changes that led to this event: the peasants only overgrazed the commons after their other pasturelands were

[4] Neo-Malthusians as defined by Homer-Dixon (1999) "claim that finite natural resources place strict limits on the growth of human population and consumption; if these limits are exceeded, poverty and social breakdown result." While Homer-Dixon claims that he is not a Neo-Malthusian and recognizes that institutional change can produce environmental improvements, as Hartmann (2001) explains, "population growth is probably the single largest causal factor of environmental scarcity in both his [Homer-Dixon's] project's model and case studies."

alienated by the local nobility. Similarly, in order to understand the reasons for over-fishing in Malawi, we need to appreciate the impact of the large-scale institutional changes that have shaped and limited fishers' abilities to establish sustainable indigenous fisheries management institutions. In the case of this, the most densely populated and most rural population in Southern Africa (UNDP 2005; UNPP 2005), institutional changes imposed first by the colonial economy and government, and later by a 30-year dictatorship, severely undermined the local institutions that might have addressed over-fishing trends[5].

Despite the newly-democratic government's attempts to introduce a "Participatory Fisheries Management" regime for Malawi's fisheries since the mid-1990s, most fisheries scientists and managers are skeptical of local communities' capacities to implement and enforce fishing regulations. However, as I conducted my pre-dissertation fieldwork in 2001, I found that this generalization was inaccurate, and largely based on the predominance of management and science effort that had been expended in the Southern end of Lake Malawi. In contrast, I found that several communities in the less-studied Central and Northern lakeshore regions were creating (or had created) locale-specific fishing institutions to address both the declines in fish stocks as well as the social and economic problems that over-fishing produces. The excerpt that started this chapter highlights the enforcement being carried out by one such group of communities who have collaborated to establish the Kambindingu Fisheries Association.

A large number of factors that influence the emergence of community-based natural resources management (CBNRM) regimes have been described by authors such

[5] Population Density = 109 pop/km2; % rural population = 86.7%.

as Ostrom (1990), Baland and Platteau (1996), Wade (1989), and Agrawal et al. (2001). However, most of these case studies were of highly homogeneous, bounded communities that do not resemble the mobile, unbounded fish and fisherfolk communities of Lake Malawi. In the case of the Kambindingu Fisheries Association, these communities are made up of three major ethnic groups which use a variety of different fishing gears, many of whom are temporary residents who target a variety of migratory and local fish stocks. Despite all of these 'challenges', or perhaps because of them, this group of communities is presently serving as an example of how communities around Lake Malawi could manage their fisheries. My observations during pre-dissertation research guided my initial framing of my research questions and aim:

- **Question 1:** Why do some of Lake Malawi's fisherfolk display a disinclination to conserve the breeding stocks necessary for their fishing livelihoods when others are adopting drastic self-imposed fishing restrictions to ensure the long-term sustainability of their fish stocks?
- **Question 2:** To what extent are these divergent institutional scenarios reflections of unique local cultural and socio-economic contexts?
- **Question 3:** How have external factors like the historical regulatory vs. advisory roles played by the Malawian Fisheries Department (FD) in Lake Malawi's fishing communities affected local attitudes toward fish stocks?
- **Question 4:** Considering the locale-specific ecological characteristics of communities' targeted fish-stocks, how do these affect the ability and/or willingness of communities to accept specific resource conservation measures?

- **Overall Goal:** Looking at these factors and others, my research aim is to describe the facilitating contexts that can be provided to make stakeholder participation in Malawian fisheries management socially and ecologically sustainable.

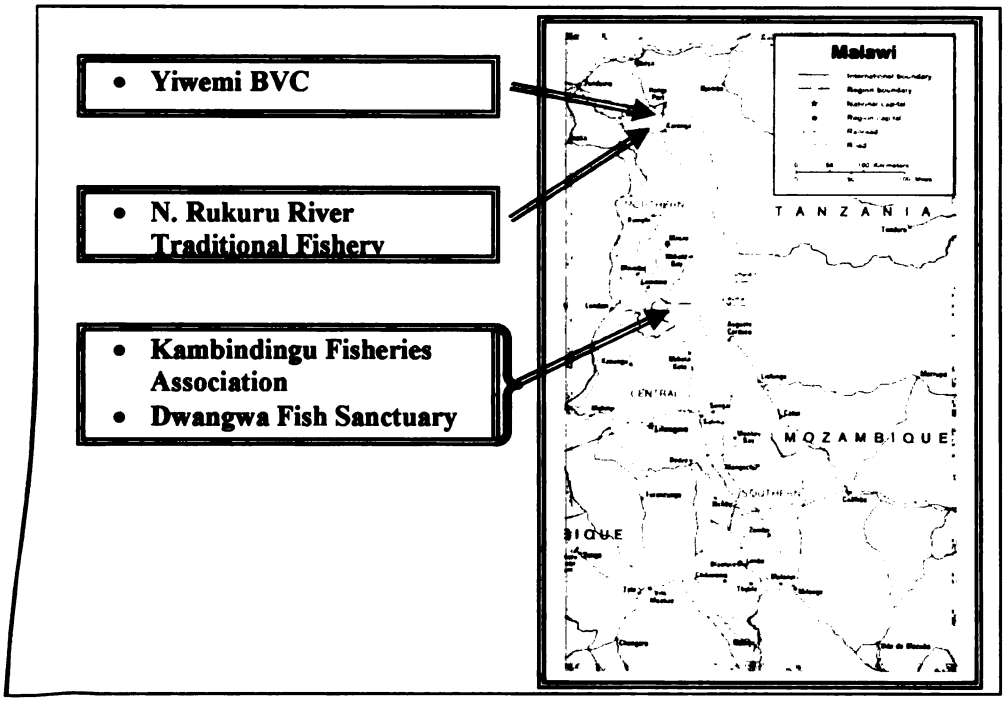


Figure 1-2. Map of Malawi, showing dissertation case study locations

My four case study sites are shown in Figure 1-2. These case studies differ widely in terms of the roles played by different stakeholders as well as the types of regulations that they have established. While constitutions, membership lists, and regulations may give us an idea of how the leadership of these institutions or other interested parties would like to represent themselves, these institutions are in fact highly relational, and are constantly being socially redefined by their members as depending on how they address a variety of social and ecological challenges. I, therefore, used ethnographic research methods over the course of nearly two years spent living in these communities, to study

how their institutions were created, how they are defined by their membership, how they operate, and what challenges they face.

Ethnographic research is inherently exploratory, and is hypothesis-creating research rather than hypothesis testing in nature. This dissertation is, therefore, organized in a somewhat different fashion from many in a quantitatively-oriented natural resource management department. A brief overview of the dissertation will help to prepare the reader.

- **Chapter 1: Introduction**
- **Chapter 2: A History of Lake Malawi's Fisheries** – In this chapter I first integrate a history of Malawi's fisheries with that of Malawi's economic and political development from pre-colonialism through colonialism to the 30-year post-independence dictatorship. Then, I present an overview of the variety of documented local fisheries management regimes that exist in Malawi today, most of which have arisen since the start of multi-party democracy in 1993.
- **Chapter 3: Research Methods** – Here I start by describing my selection of research sites, the ethnographic research approach, and the value of the individual types of data collected (interviews, participant observation, participatory rural appraisal, archive and secondary documentation, household surveys, and participation in workshops and conferences). Additionally, I discuss the ways in which these are used in ethnographic research to achieve credibility, and how the data was analyzed. Finally, I discuss some of the caveats in my research, relating to: the difficulty of delineating and defining "community", and the impact of my identity and that of my primary research assistant on the research process and outcomes.

- **Chapter 4: Presentation of Case Studies** – The four case studies of community-based fisheries management institutions are presented here.
- **Chapter 5: Analysis of Case Studies** – I first introduce the theories of organizational learning and ecological systems theory, and offer a framework for analyzing the emergence and development of institutions related to natural resources management. The above-mentioned case studies are then analyzed through this framework and I explore key themes that unify the Malawian fisheries co-management case study successes and failures.
- **Chapter 6: Conclusions** – I offer suggestions as to how governments, NGOs, communities, chiefs and donor agencies might achieve better results in their attempts to introduce and support community-based natural resource management regimes by adopting an adaptive organizational learning approach.

Chapter 2

A History of Development and Fisheries Management Paradigms in Malawi

Introduction to the political nature of development, fisheries and 'communities'

Over the course of the past century, fisheries management in Malawi has undergone a series of changes as local, national, and international stakeholders have gained and lost influence over national and local-level fishing governance institutions. Early fishing institutions were less well documented than those which have been recently established. However, written historical descriptions, oral accounts of the past by the elderly, and the extent to which they continue to be practiced today allow us a certain insight to their function in the past. Furthermore, the changing roles played by the three main 'actors' (fishing community members, chiefs, government) in fisheries management has also been a reflection of the prevailing spiritual values, national governance regimes, and scientific paradigms of their times, some of which were imposed by, or borrowed from the West.

As is illustrated by Figure 2-1, pre-colonial fishing activities were primarily regulated by chiefs and fishing community members themselves. Over time, however, first the community members, and then the colonial government gained, and lost, influence as national policies, economy, fisher population, and fish stock abundances evolved. Most recently, the government started a process of devolution of fisheries management to community-based stakeholder committees. As the specific contexts of

local fish stocks and the socio-economic trends in different communities vary, so too has the role of the traditional leaders varied. In some communities, traditional chiefs are the driving force behind community mobilization around the needs of the fishery, while other traditional leaders have failed to respond to their communities' needs and are being bypassed by emergent fishery stakeholder groups.

The evolving roles of different stakeholders in the management of local fisheries reflected changes in local political and economic dynamics. Early political governance and economic wealth tended to be dominated by local chiefs, whose roles as spiritual leaders and primary intermediaries between communities and the outside world allowed them to control many aspects of life in their communities, including that of larger-scale fishing activities. With the establishment of the British colonial government, and the imposition of hut taxes and peace in the territory, large numbers of men were led to seek jobs inside the Nyasaland economy, and later in the larger Southern African economy. Although the chiefs benefited as well, the wealth and technologies that these people brought back to their communities allowed many community members to exploit fish stocks with greater efficiency than ever before(Withers 1952; McCracken 1987). Combined with the growing transportation infrastructure within the country, many people were therefore able to supply new markets with dried fish, and consequently diminished the economic primacy of the chiefs (Nyasaland 1932; McCracken 1987; Haraldsdóttir 2002).

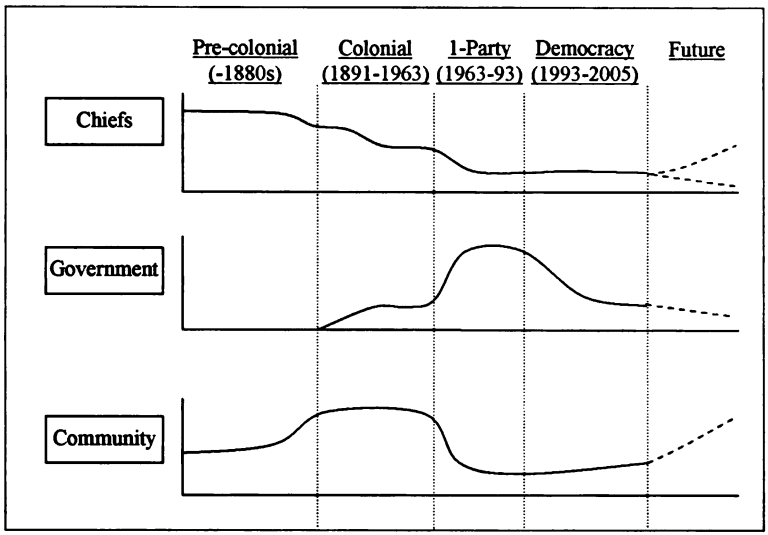


Figure 2-1. Trends of stakeholder roles in fishing institutions on Lake Malawi.

Overall, the colonial government avoided regulating the fishery, with the exception of protecting African fishers from European competition. Additionally, through the development of national transportation infrastructure, and by introducing industrially-manufactured fishing materials (nets, floats, boats), it actively supported the growth of the entrepreneurial African fishers. Gradually, however, the fish stocks started showing signs of becoming over-fished, leading the post-independence dictatorship to impose an increasingly centralized 'scientific' fisheries management (Chirwa 1996; Hara 2001). This management regime failed to ensure the sustainability of the fish stocks, and most recently, the trends seem to be coming full-circle as community- and chief-led fishing institutions are showing us possible avenues for the (re)creation of stewardship ethics and sustainable fishing institutions by fishers. While the dominant fisheries management regimes of different periods of history displaced prior institutions in many parts of Malawi, examples of all of these institutions have persevered over time, and modern-day fisheries management in Malawi can be seen as a patchwork of institutional

arrangements that reflect the full array of fisheries management paradigms. In the remainder of this chapter, I provide a history of the development of fishing technologies and institutions in Malawi over time, interspersed with a discussion of the (largely) Western ecological and governance paradigms that guided Malawi's various governments' attempts to imposed fisheries management regimes.

Pre-colonial 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 access to the catches. Small-scale technologies such as spears (*vyomba*), fishing hooks (*mbeja*), reed traps (*mono*), gillnets (*machela/chilepa*), and a variety of dip net forms (*njero/pyassa/khombe*) were constructed, owned and operated by individual fishermen (or sometimes the owner accompanied by an assistant) for use in rivers, streams, and the lakeshore (Livingstone and Livingstone 1865; Bertram, Borley et al. 1942; Hoole 1955; Mzumara 1967; Mandala 1990).[6] Although individual fishermen would regularly give tribute (in the form of fish) to a chief, the fishermen had few limits on the types of fish that they could catch, and had sole ownership of the fish caught in their fishing gear (Bertram, Borley et al. 1942 ; Wilson 1951; Mandala 1990; Chirwa 1997).[7]

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[6] A. Russell – Karonga District - Interviews with chiefs - 2004-03-10, 2004-04-08, 2004-04-12, 2005-03-20.

[7] Note: An exception in the case of some areas where specific species of fish may have been deemed to belong 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 Mandala, E. C. (1990). Work and Control in a Peasant Economy: A History of the Lower Tchiri Valley in Malawi, 1859-1960. Madison, Wisconsin, University of Wisconsin Press.-p.39.

A separate group of fishing technologies involved communal or group-construction, ownership and regulation of larger-scale fishing technologies, including beach seines (*mkwawo/khoka wa pansi*) used on the lakeshore, and plant-based poisons (*mkhondo/katupi*) 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 levels of chieftain-based regulations became institutionalized (Munthali 1994).[8] Geoffrey Wilson described a similar basis for the creation of land-based rules of tenure:

> *"Not all these uses of land give rise to laws, moral rules or conventions, but only those uses which tend to lead men into conflict with one another or into mutual embarrassment. The only reasons for the existence of rules of land tenure are firstly to prevent, as far as possible, such conflicts and embarrassments from arising, and secondly, to facilitate their resolution when aroused." (Wilson 1938)*

The most commonly used group-fishing methods and their regulatory institutions warrant further explanation as many of these methods and institutions continue to exist along-side new technologies and institutions today. Additionally, they may provide insights into the forms of traditional institutions that must be considered when creating new fishing institutions at local levels.

Beach seines were traditionally made from natural *Poulzolzia hypoleuca* fibres (known locally by diverse names: *chopwa, bwazi, thingo, mulusa, lukayo, gavi, khonje*)

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[8] In a speech given by the late Excellency-for-Life President, Ngwazi Dr. H. Kamuzu Banda, he supported the claim that in traditional Malawian societies, rivers, like wells and forests, were common goods, to which no one could be refused access. This would support the establishment of the institutions aimed at ensuring equitous access to river fisheries (such as the communal fishing weirs and uses of poisons), and if extended to the lakeshore, the use of beach seines. Banda, H. K. (1977). Address by His Excellency the Life President, Ngwazi Dr. H. Kamuzu Banda, to open the Advisory Board Meeting of the Commonwealth Youth Development Centre for Africa, Kwacha International Conference Centre, Blantyre, Malawi, Department of Information, Government of Malawi.

and might require up to a year to construct (Livingstone and Livingstone 1865; Hoole 1955; Kamanga 1974; Nsiku 2001).[9] The seines were taken far out into the lake by canoe, and then hauled in to shore, a process that took between 1-2 hours, and which required the collaborative effort of a large number of men (depending on the size of the seine, between 12 and 20). Those people who contributed their labor received a portion of the fish caught (Withers 1952; Hoole 1955). Additionally, in the case of beach seines owned by village chiefs (as many of them were), all members of that chief's extended family could expect to receive a portion of the fish caught. Apart from claims to the fish catches themselves, many portions of the shoreline had few natural beaches which were well-suited for the use of beach seines, and a large amount of labor was invested (under direction of the chief) in clearing the lake-bed of obstructions (drift wood, tree stumps) that might damage the seines.[10] Where these beaches were limited, some chiefs, such as Native Authority Maganga in Salima District, allocated the use rights to specific beaches to beach seine owners (Withers 1952). At other beaches, any community members could use the seining sites freely, however, visiting beach seine owners had to obtain permission to use the beach and usually (though not always) this involved giving a tribute of fish to the local chief (van Velsen 1964).[11] Additionally, in order to maintain a positive relationship with communities, most visiting beach seine owners traveled with fewer men than needed to haul the seines, allowing local men to earn a portion of the fish caught in exchange for their labor contribution (Withers 1952; van Velsen 1964).[12] The

[9] A. Russell – Karonga District - Interviews with a TA - 2004-04-12; A. Russell –Nkhotakota District - Interview with a fisher - 2004-02-27; see Hoole (1955) for a detailed explanation of how these natural fibres are used to make nets.
[10] A. Russell –Nkhotakota District - Interview with a chief - 2004-05-03;
[11] Ibid.
[12] Ibid.

opportunity to contribute labor in beach seining was also a valuable opportunity for inland communities to earn and buy fish for sale in their communities, especially during the dry season, when men's' labor was not required for farming (Withers 1952; Williams 1969; White 1987).

The application of poison to the upstream portions of rivers was another communal fishing practice organized by the chiefs (Wilson 1951 ; Charsley 1969).[13] The poison (called *mkhondo, katupe, dama, ndulusya*) was derived from the leaves, seeds or tubers of a variety of plants, including: *Tephrosia nyasae, T. vogelii, T. zombensis, Mundulea seicea, Lasiosiphon kraussianus, Cobretum ternifolium and Mucuna sp.*, some of which were cultivated for this purpose while some were also planted as hedges (Hoole 1955; Busse 1995). These poisons, when applied in rivers or wetlands turned the water a bright green color, and stupefied all fish in the body of water, making them float to the surface in a stunned though not dead condition (Bertram, Borley et al. 1942; Busse 1995).[14] The fish were then easily speared, netted and trapped by the men and women who waited downstream (Wilson 1951). This form of fishing was generally regulated by the chiefs, and but was infrequently used as the chiefs were well aware that the poisons killed all adult and juvenile fish in the body of water (Wilson 1951 ; Charsley 1969). Due to the need to apply these poisons in high concentrations, and contrary to subsequent colonial perceptions of these as a hazard to migratory fish populations, these poisons were mainly used following the end of the rainy season, when river flow had decreased substantially or in dried riverbeds that left isolated stretches of water (Bertram, Borley et al. 1942; Busse 1995 ; Chirwa 1996).

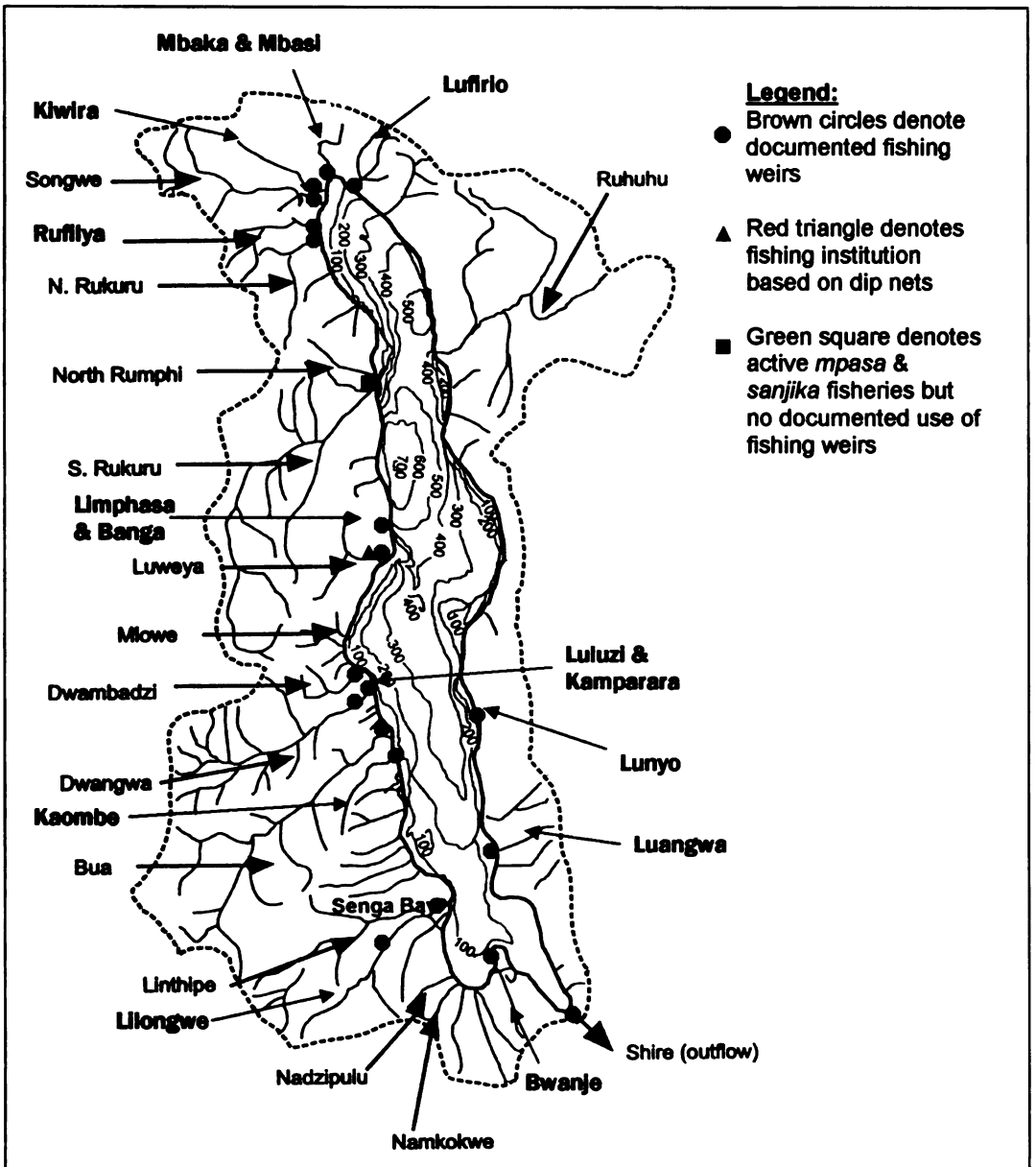
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[13] A. Russell –Nkhotakota District - Interview with a chief - 2005-03-20
[14] A. Russell –Nkhotakota District - Interview with a chief - 2002-07-15

The use of fishing weirs has been documented along many major African river systems, including: the Zambezi (Scudder 1960), Lake Victoria's Nyanza District (Fosbrooke 1934; Whitehead 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 most major and minor rivers that flow into the lake, including: Lufirio, Mbaka, Mbasi, Kiwira, Songwe, Rufilya, N. Rukuru, Luweya, Limphasa, Banga, Dwambazi, Luluzi, Kamparara, Dwangwa, Bua, Kaombe, Lintippe, Lilongwe, Bwanje, Luangwa, and Lunyo (Figure 2-2, below).

Additionally, fishing weirs were constructed in the smaller Lake Chilwa, and across the mouth of the single outlet of Lake Malawi, the Shire River. David Livingstone was the first European to record the use of these fishing weirs at the mouths of rivers feeding into Lake Malawi:

> *"Abundance of excellent fish is found in the lake, and nearly all were new to us. The mpasa, or sanjika ...was running up the rivers to spawn, like our salmon at home: the largest we saw was over two feet in length; it is a splendid fish, and the best we have ever eaten in Africa. They were ascending the rivers in August and September, and furnished active and profitable employment to many fishermen, who did not mind their being out of season. Weirs were constructed full of sluices, in each of which was set a large basket-trap, through whose single tortuous opening the fish once in has but small chance of escape. A short distance below the weir, nets are stretched across from bank to bank, so that it seemed a marvel how the most sagacious sanjika could get up at all without being taken." (Livingstone and Livingstone 1865)*



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 2-2. Lake Malawi's major tributaries with documented fish weirs. [15]

[15] **Documentation of the Tanzanian river fishing weirs Lufirio:** van Hekken, P. M. (1986). Leven en Werken in een Nyakyusa Dorp (Life and Work in a Nyakyusa village). Faculty of Social Sciences. Utrecht, Rijksuniversiteit te Utrecht: 436. Busse, J. (1995). Die Nyakyusa : Wirtschaft und Gesellschaft. Muenster, LIT Verlag.; **Mbaka:** Bertram, C. K. R., H. J. H. Borley, et al. (1942). Report on the fish and fisheries of Lake Nyasa. London, Crown Agents for the Colonies. Charsley, S. R. (1969). The Princes of Nyakyusa. Nairobi, Kenya, Published for the Makerere Institute of Social Research by the East African Publishing House. Busse, J. (1995). Die Nyakyusa : Wirtschaft und Gesellschaft. Muenster, LIT Verlag., **Mbasi:** Ibid.,

In Malawi these fishing weirs are called "*biiu*" or "*vyelo*", which differ significantly their style of construction and how they capture fish. However, both forms

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Kiwira: Charsley, S. R. (1969). The Princes of Nyakyusa. Nairobi, Kenya, Published for the Makerere Institute of Social Research by the East African Publishing House. Busse, J. (1995). Die Nyakyusa : Wirtschaft und Gesellschaft. Muenster, LIT Verlag.. **Documentation for Malawian river fishing weirs: Songwe (which is shared with Tanzania):** Ibid., **Rufilya:** A. Russell – Karonga District - Interviews with a chief - 2004-03-10, 2004-05-31; A. Russell –Nkhotakota District - Interview with a fisher - 2005-02-01, **N. Rukuru:** Lowe, R. H. (1948). "Notes on the Ecology of Lake Nyasa Fish." Nyasaland Journal **1**(1): 39-50., **Luweya:** Hoole, M. C. (1955). "Notes on Fishing and Allied Industries as Practised amongst the Tonga of the West Nyasa District [1934]." Ibid. **8**: 25-38. Jackson, P. B. N., T. D. Iles, et al. (1963). Report on the Survey of Northern Lake Nyasa, 1954-55. Zomba, Malawi, Nyasaland Government Printer. Nangoma, D. and S. Nyirenda (1991). Ndyaka Fishing Village, Northern Region. Lilongwe, Malawi, Bunda College of Agriculture., **Limphasa:** Borley, H. J. H. (1962). Annual Report of the Department of Game, Fish and Tsetse Control. Zomba, Nyasaland, Ministry of Natural Resources and Surveys, Nyasaland: 52. Jackson, P. B. N., T. D. Iles, et al. (1963). Report on the Survey of Northern Lake Nyasa, 1954-55. Zomba, Malawi, Nyasaland Government Printer., **Banga:** Ibid., **Dwambazi:** Hoole, M. C. (1955). "Notes on Fishing and Allied Industries as Practised amongst the Tonga of the West Nyasa District [1934]." Nyasaland Journal **8**(1): 25-38. A. Russell –Nkhotakota District - Interview with a chief - 2005-03-20, **Luluzi:** A. Russell –Nkhotakota District - Interview with fishers - 2005-03-06, **Kamparara:** A. Russell –Nkhotakota District - Interview with chiefs - 2005-05-03, 2004-07-03, 2005-03-02, **Dwangwa:** A. Russell –Nkhotakota District - Interview with chiefs - 2005-05-03, 2005-03-02, **Bua:** Tweddle, D. (1980). The Importance of Long-term Data Collection on River Fisheries, with Particular Reference to the Cyprinid (Opsaridium Microlepis, Gunther, 1894) Fisheries of the Affluent Rivers of Lake Malawi. Seminar on River Basin Management and Development., Blantyre, Malawi, CIFA. A. Russell –Nkhotakota District - Interview with a chief - 2002-07-15, A. Russell –Nkhotakota District – Fishing observation - 2002-07-15), **Kaombe:** Bertram, C. K. R., H. J. H. Borley, et al. (1942). Report on the fish and fisheries of Lake Nyasa. London, Crown Agents for the Colonies. Berry, V. and C. Petty, Eds. (1992). The Nyasaland survey papers 1938-1943 : agriculture, food and health. London, Academy Books Ltd., **Lintippe:** Bertram, C. K. R., H. J. H. Borley, et al. (1942). Report on the fish and fisheries of Lake Nyasa. London, Crown Agents for the Colonies. Tweddle, D. (1980). The Importance of Long-term Data Collection on River Fisheries, with Particular Reference to the Cyprinid (Opsaridium Microlepis, Gunther, 1894) Fisheries of the Affluent Rivers of Lake Malawi. Seminar on River Basin Management and Development., Blantyre, Malawi, CIFA. Msosa, W. (1999). Fishery Culture and Origins of the Ethnicity-Tonga People of Lake Malawi. Ancient Lakes: Their Cultural and Biological Diversity. H. Kawanabe, G. W. Coulter and A. C. Roosevelt. Belgium, Kenobi Productions: 271-280., **Lilongwe:** Lowe, R. H. (1952). Report on the Tilapia and other fish and fisheries of Lake Nyasa 1945-47., Fishery Publications of the Colonial Office: 1–126., **Bwanje:** Tweddle, D. (1980). The Importance of Long-term Data Collection on River Fisheries, with Particular Reference to the Cyprinid (Opsaridium Microlepis, Gunther, 1894) Fisheries of the Affluent Rivers of Lake Malawi. Seminar on River Basin Management and Development., Blantyre, Malawi, CIFA. Namagonya, S. S. R. and N. Zamadenga (1992). Msaka Fishing Camp, Chimphamba Village (Mangochi), Southern Region. Lilongwe, Malawi, Bunda College of Agriculture., **Luangwa:** Bertram, C. K. R., H. J. H. Borley, et al. (1942). Report on the fish and fisheries of Lake Nyasa. London, Crown Agents for the Colonies., and **Lunyo:** Ibid. 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 **S. Rukuru River:** 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. Tweddle, D. (1980). The Importance of Long-term Data Collection on River Fisheries, with Particular Reference to the Cyprinid (Opsaridium Microlepis, Gunther, 1894) Fisheries of the Affluent Rivers of Lake Malawi. Seminar on River Basin Management and Development., Blantyre, Malawi, CIFA.

of fishing weir involve the construction of large bamboo/reed barriers which are anchored to the river bottom by poles driven into the river-bed, and which span the entire breadth of the river. A number of gaps are left along the weir, into which different forms of reed basket-like entrapment devices are placed aimed at capturing the fish swimming upstream (on their way to the spawning beds) or downstream (after having spawned). For further explanation see footnote.[16] Due to the expected amount of water flow in the larger rivers, these barriers are usually constructed toward the end of the rainy season, after which the barriers are less likely to be washed away.

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*). Though the timing of their passage varies greatly between watersheds, they tend to coincide with the peak of the rainy season (generally between November and May).[17] A number of other fish that may be caught include: the Tilapiid *chambo* (*Oreochromys spp*), and a number of Clariid

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[16] *Biiu* is the general term for the fishing weirs constructed in the central region, and consist of a reed/log barrier with a series of gaps into which fishing traps (called *mono, pl. miono*) are placed. Fish enter, following the river currents that are funneled through the traps and are unable to exit. These traps can range from 30cm-2 meters in height, and must have to be removed regularly from the barrier to remove the fish caught. When used in swamps or lake, they may contain bait in the form of a maize or cassava meal porridge called *nsima* or *kondowole*, respectively. *Vyelo* is the name of the fishing weir used in the Ngonde-speaking part of Karonga. The *vyelo* is made up a series of boat-like capture devices, called *chelo* (pl. *vyelo*). As with the biiu, the river flow is funneled through the individual *chelo*, and the fish enters an enclosure from which it cannot exit except to jump out. In the process of jumping out, the fish land in a large boat-like reed basin, and the fishermen can remove them from the basin without having to remove the *chelo* itself.

[17] The earliest recorded spawning runs in the Lake Malawi watershed occur in the Luweya River, where they may start as early as mid-August, in the height of the dry season. Hoole, M. C. (1955). "Notes on Fishing and Allied Industries as Practised amongst the Tonga of the West Nyasa District [1934]." Nyasaland Journal **8**(1): 25-38.
Jackson, P. B. N., T. D. Iles, et al. (1963). Report on the Survey of Northern Lake Nyasa, 1954-55. Zomba, Malawi, Nyasaland Government Printer. In the past, depending on the rainfall patterns, informants tell me that the spawning runs in the N. Rukuru River extended from the rainy season until as far as August (2004-04-07-N.Rukuru-Kambitoto Fishers, 2004-06-02-N.Rukuru-Vyelo Observation).

catfishes, including *kadyakolo/mpusi/kuyu* (*Barbus eurystomus*), *ngumbo/chikas/chimwe* (*Barbus johnstonii*), *tamba* (*Barbus litamba*), and *mlamba* (*Clarias gariepinus*) (Hoole 1955; Jackson, Iles et al. 1963; Tweddle, Seymour et al. 1990).[18] The construction of smaller fishing weirs and strings of traps across estuaries and streams or in the lake itself were also widespread practices, and were used throughout the year (Bertram et al., 1942; Lowe, 1948b; Hoole, 1955; Jackson et al., 1963; Mandala, 1990).

Aside from the months when fishing weirs were in use, the rivers were open to all forms of fishing by both men and women. However, once the weirs were constructed each year, the exploitation of these spawning runs was strictly controlled by local chiefs and all other fishing in the rivers was banned.[19] Furthermore, there was 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. In the case of smaller fishing weirs in the lake or smaller streams and estuaries, these were constructed by a few (or single) individuals who retained exclusive rights to their harvests (Livingstone & Livingstone, 1865; Berry & Petty, 1992).[20] The design and institutions surrounding these fishing weirs are elaborated upon in the case study of the North Rukuru River in Chapter 4 that functioned in many ways identical to the fishing weirs described here.

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[18] A. Russell –Nkhotakota District - Interview with fishers - 2005-03-06, 2005-03-07, A. Russell – Nkhotakota District – Fishing Observation - 2002-07-15.

[19] A. Russell –Karonga District - Interview with a chief - 2004-05-31, A. Russell –Karonga District - Interview with fishers 2004-04-07.

[20] These included two smaller rivers north of Dwangwa: the Kamparara River which flows into the Unaka Lagoon, and the Luluzi River. The biiu across the Kamparara was divided between chiefs Mwamdimba and Kamkhondo, and has long since been discontinued (A. Russell –Nkhotakota District - Interviews with chiefs - 2005-05-03, 2004-07-03, 2005-03-02). The Luluzi River biiu continues to be constructed by a group of 5 older men, independent of any chiefs' regulation (A. Russell –Nkhotakota District - Interview with fishers - 2005-03-06). Also see Jackson's discussion of the Limpasa and Banga Rivers near Nkhata Bay. Jackson, P. B. N., T. D. Iles, et al. (1963). Report on the Survey of Northern Lake Nyasa, 1954-55. Zomba, Malawi, Nyasaland Government Printer.

Overall, traditional modes of fishing seem not to have been regulated unless they required a coordination of labor or if they had the potential to monopolize the harvest of local fish catches to the detriment of other fishers' needs. In these cases, the chiefs' who allocated usufruct rights (i.e. use rights) to the land to individual families, extended their mandate to regulate (and in some cases exclusive of) the use of key sections of rivers and shorelines for fishing (Hoole, 1955; van Velsen, 1964, 281-282; Mandala, 1990, 105; Livingstone & Livingstone, 1865). As many of these rivers form a natural jurisdictional boundary between chiefs' territories, they frequently required the sharing of fishing weirs between two communities. Along other rivers, the great demand for access to fish stocks by surrounding communities has led to the creation of further institutional arrangements to establish equity among communities (discussed in Chapter Four). Beyond their roles as temporal rulers of the land, chiefs, whose positions were attained through their warrior and leadership abilities, gained influence through their roles as mediators with the spirit world and were seen as influential on environmental phenomena such as size of fish catches, availability of rainfall, safety from crocodile and snake bites, etc (Charsley, 1969, 66-67 ; Mandala, 1990, 39 ; Busse, 1995, 281-282; Kalinga, 1974, 99; G. Wilson, 1939, 74; White, 1987, 164).[2122] An interesting adaptation of the traditional fishing rights in the Luweya River has resulted in the recent establishment of a similar system of fishing rights at the Luweya River mouth (see Figure 2-3).

[21] A. Russell –Nkhotakota District - Interview with a chief - 2004-05-03; A. Russell –Nkhotakota District – Fish Trading Observation - 2005-03-01.

[22] However, Willis's study of the reproduction of history and tradition by elders and chiefs also indicates that chiefs' spiritual powers over fertility and bounty always entailed a certain amount of contestation by other men, and cannot ever have been seen as absolute. Willis, J. (2001). "'Beer Used to Belong to Older Men': Drink and Authority among the Nyakyusa of Tanzania." Africa **71**(3): 373-390.

Luweya River Dipnet Fishing Institution

In the Luweya River, in addition to the construction of at least 2 fishing weirs, a restriction of access to migrating fish has been imposed by VH Ngombo's chieftaincy where the river is forced through a narrow canyon at Chiwandama Falls (as is indicated by the red triangle in Figure 2-2, above) (van Velsen, 1964; Hoole, 1955). In this case control over the fishery has been exerted through the chieftain's claim to ownership over rights to use a number of small rock ledges (measuring only a few square inches in size), known as vuu, from which fishermen are able to catch the migrating fish using dip-nets (van Velsen, 1964; Hoole, 1955). There are a total of 10 vuu over the falls, and the best are claimed by VH Ngombo, however he has allowed a few other chiefs and individuals to fish the vuu in return for portions of their catches or various forms of allegiance (van Velsen, 1964; Hoole, 1955). In this case, the general population is free to fish in other parts of the river (Hoole, 1955).

In an interesting parallel, gillnet fishers who specialize in catching sanjika at the river mouth of the Luweya River, established a similar system of exclusive ownership to specific fishing locations in the 1970-80s (Nangoma, 1991).

Figure 2-3. Luweya River Dipnet Fishing Institution

Social and Economic Change for the Northern Lakeshore Peoples during Proto-/Early Colonialism (1890-1910's)

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. The successful rebellion by the lakeshore Tonga from their enslavement by the Ngoni in 1877, enabled lakeshore communities to leave the protection of their fortified stockades (called *linga*), and settle along the central lakeshore (van Velsen, 1964, 17). Similarly, the Henga (a subgroup of the Tumbuka people) rebelled against the Ngoni in 1879 and settled in the extreme northern lakeshore of Nyasaland (Karonga District). This region also rapidly came under the administrative and economic control of the British administration and traders once the Swahili traders who posed a challenge to British rule and trade were beaten in a battle in 1894 (Kalinga

1974). Following these events, British missionaries established a number of schools and missions in the "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, 134; van Velsen, 1959; McCracken, 1977, 2002)

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 (Sanderson 1961; White 1987). Required to pay these taxes in cash, large numbers of men were forced to migrate to the European-owned coffee plantations in southern Nyasaland in order to raise the funds needed (White, 1987, 86 ; Ng'ong'ola, 1990;. However, this policy failed to attract sufficient, and well-timed labor to the plantations as most Africans chose to contribute the minimum amount of labor necessary for earning their hut tax money, and did so during the dry season when their own farming activities didn't require their attention (White, 1987, 86 ; Mandala, 1990, 103). To address the problem of southern Malawians' unwillingness to spend long periods of time away from home, the plantation owners successfully attracted laborers from northern Nyasaland. These northerners (including the Tonga, Tumbuka, Ngoni), who lacked opportunities for earning cash in the North to pay their hut taxes, proved ideal workers for the southern plantations as they were willing to spend extended periods of time away from home. 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: in the Rhodesias (today, Zimbabwe and Zambia), South Africa, the Belgian Congo,

Mozambique, and Tanzania, (McCracken, 1977; Mandala, 1990, 115 ; Ng'ong'ola, 1990; McCracken, 2002; Coleman, 1974; G. Wilson, 1939, 70. 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 (McCracken, 1977; White, 1987, 87 ;

The First Major integration of 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. A precursor to the ensuing transformations was the 1908-09 establishment of a roads network connecting nascent areas of economic and population growth in the plantation (Mulanje, Tyolo), administrative (Zomba) and commercial (Blantyre, Limbe) centres of southern Malawi (Perry 1969). While the majority of fish demand for these areas had previously been supplied by traders from nearby Lake Chilwa, this shallow lake dried up almost completely during 1913-15 and 1920-2 (Lancaster 1979). 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 Lake Chilwa, were key factors that prompted larger scale investments in fishing and fish trading in Lake Malawi (McCracken 1987).

Chief Mwamadi Matewere at Fort Johnston (today, Mangochi) was foremost in taking advantage of this sudden demand for fish. In 1917 he constructed a fishing weir across the entire mouth of the Shire river (the outlet of Lake Malawi, which first flows

into Lake Malombe, and then continues south to join the Zambezi River), and large numbers of fish traders started to make (on foot or by bicycle) the 80-120 mile trip between the southern tip of Lake Malawi and the various markets in the southern highlands cities (McCracken 1987). The post-war period, however, was a tumultuous time when many southern Nyasaland Africans were forced to relocate their homes, and adjust livelihood strategies to support themselves and to earn the money needed to pay their hut taxes. The 1918 global Spanish flu epidemic was followed months later by a small-pox epidemic, extreme flooding of low-lying areas in 1918-19, and then two years of extreme drought, resulting in the catastrophic famine of 1921-22 (Mandala, 1990, 110 ;. At Lake Malombe, cotton and crop fields which had been cultivated in the dry Lake Malombe basin were then inundated in the mid-1920's by a period of high rainfall leading to an influx of people into the growing fishing and fish trading sector (McCracken 1987). These pressures created cash shortages among the African population, forcing many to work in plantations to earn the money needed to pay hut taxes (Nyasaland 1923). Nevertheless, the colonial government noted Africans' disinclination to work in the plantation sectors:

> *"[T]hose natives who can be induced to grow economic corps for themselves chiefly belong to the class that would otherwise be content to lead an undisturbed village life, with few needs and but little compulsion to seek employment with Europeans in order to satisfy those needs."* (Nyasaland 1923)

, and their (particularly among those in the Central and Northern regions) preference for migrating abroad:

> *"The natives of the Central and Northern Provinces appear loath to work for European estates, and apparently rely on remittances from friends and relatives in Rhodesia or on their own savings to provide money for their taxes and modest domestic needs. [T]he European planting community is becoming increasingly alive to the fact that, if they are to continue to*

obtain an adequate supply of plantation labour, the conditions under which labourers are engaged and employed must be very carefully considered". (Nyasaland 1923)

In 1930 the colonial government provided a first estimate of the importance of the fish trading industry at over 10,000 people (Nyasaland 1930), and in one Southern district it was noted that up to half of the African male population was engaged in some aspect of the fish trade (Nyasaland 1931). The importance of the fishing industry for Africans' need to raise hut tax funds was also illustrated during that year when the revenue raised in taxes was significantly impacted by an extended cold season that delayed the commencement of the African fishing season (Nyasaland 1930). Additionally, a basic road network continued to be improved and expanded throughout much of the Nyasaland protectorate including connecting the main trunk road from southern Malawi through to Karonga in the North, and construction of feeder roads to lakeshore areas: Ekwendeni-Nkhata Bay-Chinteche, Kasungu-Nkhotakota, Dowa-Salima (Nyasaland 1930). These infrastructural improvements facilitated the growth of bicycle- and truck-transport during the 1920s, connecting the more isolated regions of the country to the regional and southern trade centers, and enabling the growth of the entrepreneurial fish trading class as far North as Nkhotakota (though due to the tremendous flooding of the Bua and Dwambazi Rivers, the northern part of the Nkhotakota District, where 2 of my case studies are located, remained isolated) (Nyasaland 1923; Nyasaland 1930; Perry 1969; McCracken 1987).

Although the immigration of men due to the colonial hut tax drastically changed the demographic makeup of lakeshore communities, the early colonial administration largely left the management of the fishing industry to itself. As quoted by McCracken,

the colonial sentiment toward the African fishing industry was summed up by the British Museum Nyasa Expedition leader, Dr. Cuthbert Christie,

> *"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 individual chiefs (such as those regulating access to communal fishing resources: access to seining beaches, fishing weirs, and the use of poisons in rivers) (Withers 1952; Chirwa 1996). In fact, not only were the chiefs the only regulatory force in fishing, as has been documented by Chirwa (1996), 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.

Whereas the southern lakeshore is relatively shallow and highly productive, a significant portion of the northern lakeshore is characterized by steep cliffs and a narrow littoral zone, meaning that the productivity of the northern waters was much less than that in the South (Lowe 1948). This made northern fishermen more dependent on the deep-water and migratory river fish stocks; however, this early colonial period saw great technological and fishing method innovation with the introduction of the *usikite* and *chilimira* open water seines. In particular, these communities were able to better exploit the pelagic *utaka* (*Haplochromis spp.*) and *usipa* (*Engraulicypris sardella*) fish stocks.

The *chilimira* was introduced to the northern Likoma and Chizimulo islands by Arab traders in the 1870's, and was brought to today's Nkhata Bay District around the

turn of the century (Jackson, Iles et al. 1963; McCracken 1987).[23] Although *utaka* had previously been caught near shore with beach seines, the *chilimira* allowed lakeshore communities to target the small *utaka* in the open waters, where they quickly learned to associate the presence of *utaka* shoals with the submerged rock formations known as *virundu* (sing. *chirundu*).[24] Several factors make this a challenging fishing method: the fishermen have to coordinate the activities of 8-9 crew members in 2 canoes, the boat captain has to be able to locate a *chirundu* that may be far out in the lake (up to a mile from shore) and too deep to see (generally between 10-20m, but sometimes up to 40m deep), they require a good understanding of the underwater "*mweza*" currents that are crucial for a successful net deployment, and at night, they need a "*siginala*" (signalman) who can locate shoals in the dark and coordinate the ascent of the net while luring the fish into the net with his light flare (Jackson, Iles et al. 1963; Kamanga 1974; Haraldsdóttir 2002).[25] Given the difficulty of finding these underwater rock formations as well as the detailed local knowledge necessary for effectively fishing each individual *chirundu*, the *virundu* in some areas were recognized as the private fishing grounds of the fishing crew that discovered it (van Velsen 1964). Where no ownership is claimed, competition from non-local fishers is still unlikely as lacking the detailed knowledge of the local fishing grounds a fisherman risks snagging (and losing) his fishing gear on the underwater mount (Jackson, Iles et al. 1963). Subsequently, imported mosquito nets were also incorporated into the *chilimira*, and when used at night with light attraction (a

[23] A. Russell – Karonga District – Interview with a chief - 2004-04-08.
[24] However, when used at night, a third canoe bears a flare to lure the fish into the middle of the net right as the net is being drawn to the surface.
[25] A. Russell –Nkhotakota District – Fishing Observations - 2004-05-02, 2004-05-11.

practice called *kauni* fishing), the *chilimira* became ideally suited for the smaller *usipa* as well (Bertram, Borley et al. 1942).[26]

The highly effective, though less complex *usikite* seine was developed as northern migrant workers' brought/sent back mosquito nets to their lakeshore communities (Hoole 1955). These light, fine-meshed nets were ideally used when the *mweza* currents drove the *usipa* into relatively shallow waters (less than 5 meters), allowed 2 men to encircle or swim through *usipa* shoals with their net spanned (Hoole 1955; Jackson, Iles et al. 1963). As with the *chilimira* net, this technique was frequently used at night in combination with light flares, enabling the fishermen to lure the *usipa* into the shallows where they could more easily be caught by the divers (Kamanga 1974).

The Impacts of Africa's Eden-like Representation in European imaginations

During the 19th and early the 20th Centuries, European knowledge of Africa and Africans was dominated by explorers' accounts of mythical peoples, customs, and wilderness. These images evolved into two parallel yet contradictory streams of thought, one seeing Africans as "noble savages" living in Utopist harmony with nature, while the other saw the African landscape and its inhabitants as being in need of European civilization, development and conversion (Adams and McShane 1992). This dichotomy reflected the contemporary opposition between US preservationists, like Henry David Thoreau and John Muir who wanted to preserve wilderness, and a utilitarian view of

[26] A. Russell –Nkhotakota District – Interview with fishers - 2002-07-12, 2003-11-01-Ngala-K.Phiri; A. Russell –Nkhotakota District – Enforcement observation - 2003-11-04.

nature represented by Gifford Pinchot, the first Director of the US Forest Service.[27] A key point of ignorance (or racism) that underscored both views of Africa was a failure to recognize that the mid 19th Century African landscapes' were not in any way 'natural', rather they were nature's response to the decimation and displacement Africans due to the slave trade, internal strife and the introduction of European diseases (White 1987; Mandala 1990; Adams and McShane 1992; Morris 1996).

One of the most noteworthy explorers in the context of opening southern Africa to Europeans was the first European to traverse the African continent, David Livingstone, whose trip to Lake Malawi in 1856 gave us our first extensive description of the Lake Malawi region and its people.[28] Explorers' descriptions were invariably intended to appeal to their European audiences and financial patrons, and therefore frequently misrepresented Africa in order to attract further financial support and common acclaim. Livingstone's depictions of Africa, its inhabitants and the potential for British colonialism to thrive there, as described in his published accounts, consequently differed diametrically from those in his private journals. Livingstone's public Africa was a paradise: accessible through navigable rivers, the land was fertile and produced foods in excess, the population were carefree and overwhelmingly friendly tribes; however, in his private Africa, there were dysentery, a lack of food, hostile tribes, frequent malarial attacks, and rather than being heroic quasi-Christians, he despised his Kololo guides who

[27] The origins for this dichotomy are traced to similar dichotomies in the Bible, Roman society, and the middle age story of Beowulf. Adams, J. S. and T. O. McShane (1992). The Myth of Wild Africa: Conservation without Illusion. New York, W.W.Norton & Company.

[28] However, despite his claims of being the first to actually visit Lake Malawi, a number of earlier Portuguese visitors provided us with short descriptions based on third-hand accounts or short visits to the region: Gaspar Bocarro (1616), Luis Mariano (1627), Francisco Lacerda (1798), two pombieros or half-castes who are not named (1802), Candido de Costa Cardosa (1848). In particular, Livingstone benefited from a sketched map given to him by Mr. de Costa Cardosa, though Livingstone would later deny meeting him. Ransford, O. (1966). Livingstone's Lake : the Drama of Nyasa. London, England, John Murray.

murdered and pillaged as they traveled and who sold members of their own clan into slavery (Ransford, 1966, 75-78 ; Adams & McShane, 1992, 14-17).

This representation of a bountiful, Eden-like Africa under siege from the (truly) rapacious Arab slave traders was first taken up as a call to arms by a number of religious societies, and later by the British government, who sent missions to the area that would become Nyasaland (now Malawi) (White, 1987). Nevertheless, reflecting the ecological utilitarian-preservationist divide, even Livingstone was conflicted over the benefits of colonialism and Western commerce, on one hand seeing it as a means to convert the people to Christianity and protect them from the slave trade, and on the other hand, recognizing that this would require the subordination of Africans to an external government's rule which could only engender their hatred (Adams & McShane, 1992).

Early colonialist attitudes toward nature have been explored extensively by Morris (1996) and Adams and McShane (1992). As many of the colonial plantation owners, missionaries, and administrators were avid hunters, the early game regulations were designed primarily to establish exclusively European hunting reserves reminiscent of aristocratic privileges in Europe. Reflecting this paradigm, all traditional hunting methods used by Africans (nets, traps, snares, poisons, pitfalls, the use of fire and dogs) were labeled as "irrational, cruel and destructive", and banned.[29] In addition, the establishment of a gun taxes effectively barred any Africans from legally owning guns. These hunting reserves were not, however, intended for conservation reasons. Rather, they were intended to provide habitat for large ungulates so that they could be hunted by

[29] The negative attitudes towards many of these hunting techniques were based on Europeans' exclusive hunting society's views of the hunting methods used by 'poachers' in Europe.

Europeans while not being destructive in surrounding communities' agricultural lands. Indeed, outside the reserves, there was no protection of these 'game species'.[30]

In relation to 'game' species, therefore, many colonialists regarded Africans as needing civilization. As was seen in the previous section, however, fisheries were treated differently during the early colonial years, with Africans being described in benign terms (i.e., the "noble savage" image). This would only change in specific cases (to be discussed) where the use of traditional fishing weirs and poisons were considered irrational and destructive.

The First Colonial Fishing Regulations and a Growing Entrepreneurial Class Cause the Decline of the Chiefs (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 next section), deforestation and the perceived unsustainable and unsporting traditional fishing practices led the government to impose certain restrictions in 1930's (Chirwa, 1996). A glimpse of the general social context is provided by one District Commissioner's observation that fully one-half of the adult population in his district was "engaged in work connected with the fishing industry and that its value to the District [was] not less than £1,200 per annum." (Nyasaland, 1931a)

[30] As described by Morris (1996) in Nyasaland's 1897 game schedule, 'game' referred specifically to: elephant, blue wildebeest, rhinoceros, zebra, buffalo, eland, warthog, bushpig, and roughly 19 species of antelopes. Carnivores and other smaller mammals were not considered game, however, and could be killed by anyone. The exact membership in the 'game' category would change somewhat in subsequent game schedules.

One event that prompted the change from a previously hands-off policy was the decreasing water levels in Lake Malawi between 1930-35 that enabled fishermen (both African and European) to construct a multitude of fishing weirs across the outlet of Lake Malawi into the Shire River. The competition over positioning of fishing weirs at the river mouth became a source of conflict between African chiefs and Europeans, leading the government to introduce regulations limiting this fishery. Chirwa (1996) and Msosa (1999) claim that the government lacked a scientific basis for judging fishing weirs as unsustainable, and regard these colonial regulations as based on a Eurocentric distaste for large-scale communal African fishing methods. They argue that traditional fishing weir traps allowed fish fry to pass through weirs unharmed, capturing only the adult fish, and that in times of high rains, water flow in most rivers would wash away the traps or prevent their construction, allowing some adults to pass en route to their breeding grounds. While this argument may hold merit in relation to the construction of fishing weirs to capture potamodromous fish like *mpasa* and *sanjika* in the rivers that flow *into* Lake Malawi, the particular low-water flow conditions at the Shire River mouth during 1930-33 may have warranted the regulations passed as the weirs could intercept most of the *chambo* that migrated to Lake Malombe to breed.

The application of fishing weir regulations to the other river fisheries around Lake Malawi, and the bans on the use of fishing poisons may, indeed, have been influenced by Eurocentric values, which Chirwa (1996) quotes in regard to this practice as, "destructive, primitive, unprofessional and unsporting", and were judged as a threat to fish stock recruitment (Chirwa, 1996). The sport-fishing values of *mpasa* and *sanjika* most certainly raised their profiles in the colonial government's policies, which did not

appreciate that African uses of fishing poisons and weirs had been sustainable in the past due to the constraints posed by the rivers themselves. As discussed above, the fishing weirs could only be constructed when river levels are low enough, allowing some adults to pass when they flood, and fish fry were able to pass through the fishing weirs unimpeded. Similarly, the use of poisons was generally regulated by chiefs for infrequent use in isolated riverbed pools, slow-moving water bodies, and smaller streams, where they were effective only in high doses (Chirwa, 1996; Msosa, 1999). Nevertheless, these practices were all banned due to a colonial dislike that may well be traced to the Eurocentric hunting values discussed above.

These fishing practices were therefore the first to be regulated in the Nyasaland Protectorate with the creation of Fishing Rules in the Game Ordinance of 1930 (for fishing weirs) and the Game Ordinance of 1937 (for fishing poisons). In accordance with these rules, any weirs constructed across the entire width of a river, and within 2 miles of the river mouth, had to leave a gap in the barrier at least 5% the width of the river to allow some proportion of the fish to pass (Nyasaland, 1931b). Regarding the use of fishing poisons, these were banned altogether (Nyasaland, 1937b). In addition to these regulations, concerns over logging of certain tree species in order to supply canoes led the colonial government to set quotas on the number of trees that could be felled for the construction of canoes and required the payment of a royalty to the chief on whose land the trees stood (Nyasaland, 1937a; Njaidi, 1995).

While conservation was a primary concern in passing these regulations, they took on an entirely new aspect with the formal implementation of "Indirect Rule" through the "Native Treasuries" and "Native Courts Ordinances" in 1933 (Mandala, 1990, 204 ;

Chirwa, 1996; M. M. Hara, 2001, 72). Whereas many chiefs' roles as intermediaries with the spirit world had historically given them a popular mandate to govern their areas, the gradual Christianization and capital accumulation of the Nyasaland population had diminished their authority (Mandala 1990 ; Willis 2001). 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 new-found powers and sources of wealth that the colonial government's indirect rule policy gave them (Nyasaland, 1934, 1949a; Woods, 1990; Willis, 2001).[31]

However, the unpopular nature of the tree tax and numerous other conservation regulations[32] meant that many village chiefs who supported the governments' regulations (which were a new source of power and wealth) faced a severe erosion of their communities' trust and cooperation (Nyasaland 1949; Chirwa 1996; Allison, Mvula et al. 2002).[33] In addition to being resented as an impediment to the fishing industry, the quotas

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[31] In fact, in many cases, Willis argues that our modern-day conceptions of pre-colonial chieftain powers are a figment of on-going chiefs and elders' re-creations of history and tradition as they struggle to gain access to resources by reenacting 'traditional' values that validate their spiritual roles. In some cases, weak chieftaincies therefore gained a great amount of influence over local communities with the spread of indirect rule (Willis, 2001). Similarly, in southern Malawi, many chiefs who claim a chieftain lineage actually gained their chieftaincies through their collaborative roles as civil servants in the colonial administration or the hated plantation foremen called 'capitaos' (Woods, 1990).

[32] In particular, farming regulations aimed at decreasing soil erosion were resented for the harsh punishments that could include hard labor, fines and prison terms (Thomas, 1975; Njaidi, 1995). The cruelty of the regulations was described by Malawi's first president, H.K. Banda: "If a person did not grow maize according to the regulations of the Department of Agriculture, if he did not plant his maize in ridges, he was sent to prison for six or nine months. Not only that. His maize was uprooted. The result was that the man served a term of imprisonment for six to nine months and when he came back, he found his wife and children starving." (H. K. Banda, 1976)

[33] This is strongly supported in a speech given by President H. K. Banda, stating that in traditional Malawian society, forests were common property goods, to which no one could be refused access or

and taxes on trees limited peoples' access to construction timbers for housing, and even some chiefs argued against this regulation (Njaidi, 1995; Chirwa, 1996). In some cases therefore, chiefs withheld their active support for these regulations. Additionally, the understaffed colonial game wardens were frequently willing collaborators with 'poachers', and therefore most conservation regulations were regularly ignored or circumvented during the 1930-40s (Wilson 1951 ; Hoole 1955; Njaidi 1995; Chirwa 1996). However, oral history evidence suggests that some chiefs in Karonga had become aware of the need to limit the use of poisons by the 1950s, and restricted them to use in smaller bounded wetlands, riverbed pools and river side-channels.[34]

The lack of a highly productive littoral zone along the northern and central lakeshore meant that these areas were more dependent on the river fisheries and off-shore *chilimira* fishery than the southern lakeshore. Consequently, any restrictions on construction of weirs, use of poisons, and harvesting of trees for canoes which were crucial for both *chilimira* fishing and transportation, had greater impacts on northern livelihoods than those in the South (Bertram et al., 1942).[35] Although the lack of personnel to enforce these unpopular regulations enabled much illegal felling, the quotas forced some in the Northern Districts to travel as far as Tanganyika to purchase trees or canoes (Hoole, 1955; Chirwa, 1996). During this period, the colonial administration did note the increasing return of northerners who proceeded to invest large amounts of

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charged for the rights to harvest timber (H. K. Banda, 1977b). See below for discussion of how these resentments were used by the post-independence government to centralize all power under the presidency, stripping the chiefs of any independence.

[34] A. Russell – Karonga District – Interviews with chiefs - 2004-03-10, 2004-04-19.

[35] Due to the topography of the lakeshore in the North, many areas are difficult to access other than by canoes. Additionally, whereas beach seining (the dominant large-scale fishing technique used in the southern lakeshore) only requires the use of 1 canoe, *chilimira* fishing (very commonly used in the North) requires the use of 2 when used during the day, or 3 canoes when used at night (the third being used to carry the flare that lures fish into the net).

money from their migrant labor into a variety of trades, which for the Tonga, in particular, cannot but have included significant investments in fishing gears (and the purchase of canoes in Tanganyika, as mentioned above) (Nyasaland, 1930).

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 allowing more 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 first European fishing investments took place in 1930 at the outlet of Lake Malawi into the Shire River (near Fort Johnston, now Mangochi), where first a Mr. Liegl, and then the Greek Yiannakis brothers copied the African fishing methods and constructed their own fishing weirs right on the upstream side of those owned by Chief Mwamadi Matewere and Chief Mponda, respectively (McCracken, 1987; Chirwa, 1996). Needless to say, these events created animosity between the African and European fishing crews, and following a fight between Leigl and Matewere's men, the government passed Lake Malawi's first fishing regulations, the Fishing Rules of 1930. These regulations banned non-Africans from fishing within 2 miles of the river mouth, banned all uses of poisons, and required that all fishing weirs be constructed with a gap in the middle to allow some fish to pass through (McCracken, 1987; Chirwa, 1996).

The Yiannakis brothers were not deterred, however, and leased several plots of lakeshore land near Chipoka (12 miles North of Fort Johnston), where they started fishing with imported beach seine nets in 1934, and added small scale trawling to their repertoire

in 1938 (McCracken, 1987; Chirwa, 1996). Additionally, they had purchased four trucks which they used to transport fresh fish to Zomba and Blantyre, and from 1938 they used these to export 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 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 contributed some *chambo*, and gillnets contributed mostly "*ntchila*" (*Labeo mesops*).[36] (Lowe 1952) The sharp growth of the non-African commercial fisheries in their early years, in particular during World War II, (Figure 2-4, below) was due to a steady increase in fishing effort.[37] However, due to poor enforcement of record-keeping standards prior to 1946, Lowe (1952) judged the number of fish caught in 1946 to be significantly lower than that in 1944, raising concerns that the fishery was being exploited beyond a the level of maximum sustainable yield (MSY). This conclusion was reinforced by the declines in the proportions of inshore *chambo* species (*T.shirana, T.saka, T.squamipinnis*), and increased catches of the open-water *T. lidole* and juvenile *chambo* (Lowe, 1952).

[36] 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.

[37] Data from the early non-African fisheries sector is scanty with a gap for 1940-41, and this graph must be considered an underestimate of fish caught. Figures for 1937-1939 are from Bertram et al. (1942), 1942-1946 are from Lowe (1952). Note: While Bertram et al.'s figures reflect those presented by Chirwa (1987), Lowe (1952) and Williams's (1968) inexplicably show lower catch data for the Yiannakis operations between 1937-1939 (29, 203, and 271 short tons respectively).

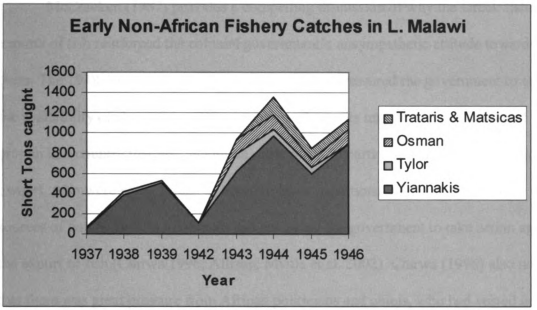


Figure 2-4. Early Non-African Fishery Catch levels in Lake Malawi.

In comparison with the colonial government's supportive attitude towards Anglo-Saxon planters, the non-Anglo-Saxon, non-Protestant, non-English-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 policy trend was partially motivated by the role that the fishery played in providing lakeshore Africans with a source to earn their hut tax revenues. 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 non-African 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).

McCracken (1987) provides a compelling discussion of why the Greek fishers' exports of fish reinforced the colonial government's unsympathetic attitude towards them. The 1938-1943 Nyasaland Nutritional Survey pressured the government to ensure the availability of cheap fish within the colony due to its importance as a source of protein in a country that was lacking in other meat. In particular, European plantation owners, who were being forced to improve labor conditions, also wanted to secure cheap sources of fish to feed their laborers and pressured the government to take action against the export of fish (Chirwa 1996; Allison, Mvula et al. 2002). Chirwa (1996) also noted that there was great pressure from African politicians and chiefs, who had vested interests in fishing, to reduce the influence of the Greek fishers for personal economic reasons. The government finally imposed a ban on fish exports following the 1949 famine, however, a distrustful relationship remained between the government and the Yiannakis Bros, leading some to call for the removal of the firm from the fishing industry altogether. 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).

The Rise of Scientific management, African entrepreneurs, and the First Enclosures of the Africans' Fisheries (1940-60)

The lack of a comprehensive research and management program for Lake Malawi's fisheries had largely been due to the low economic importance of the fishing economy as compared with exported cash crops such as cotton, tobacco and tea

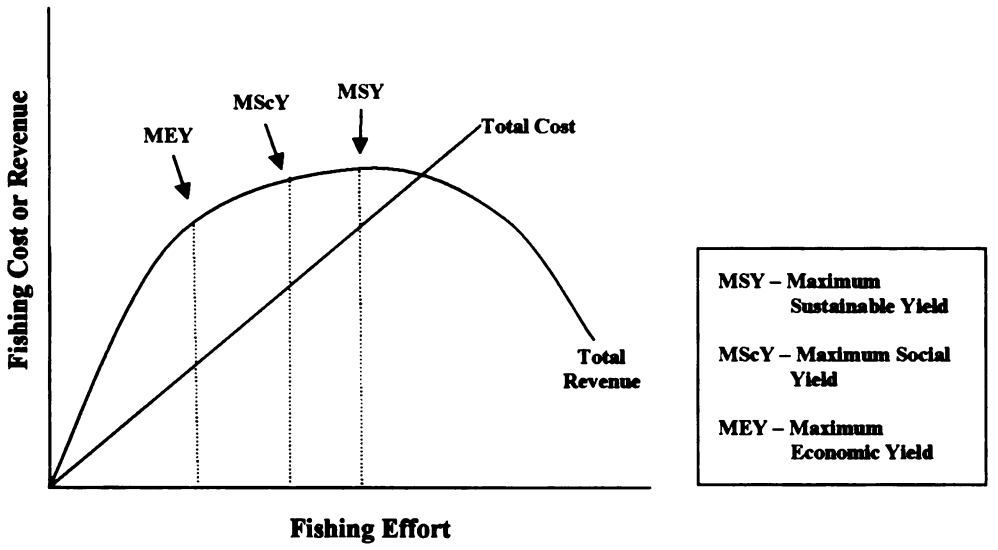
(McCracken, 1987). During the late 1930s-50s, however, a number of research programs embarked on a series of studies that documented the ecological, social, and technological characteristics of fishing industries in Lake Malawi, and thereby set the scene for an era of "scientific" fisheries management regulations:

- Nyasaland Nutrition Survey, 1938-1943 (Berry and Petty 1992);
- Report on the Fish and Fisheries of Lake Nyasa, 1939 (Bertram, Borley et al. 1942);
- Report on the Tilapia and Other Fish and Fisheries of Lake Nyasa, 1945-1947 (Lowe 1952);
- Report on the Survey of Northern Lake Nyasa, 1954–1955 (Jackson, Iles et al. 1963).

The Nutrition Survey, though interrupted by the Second World War, included the brief survey of the biology of Lake Malawi's fish stocks, and the technologies and techniques used by natives in Nkhotakota District to catch, process, and cook the fish (Berry & Petty, 1992). In conjunction with the Nutrition survey team, Bertram et al. carried out an exhaustive survey of Lake Malawi's fish stocks and fishing industries, and 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* (*Oreochromys spp.*) dominated 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). Jackson et

al.'s research was the first in-depth study of the biota and fishing technologies in the northern portion of the Lake.

Lowe's research on the *chambo* fishery was the first attempt to systematically apply Western fisheries management approaches to Lake Malawi. Indeed, less than a decade after the Bertram et al.(1942) report, Lowe's research showed that the outer limit of expansion in the non-African fishery (as stipulated by Bertram et al.) 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 which was available (Figure 2-4, above), suggested that the MSY for the most important *chambo* fish stocks in the south east arm of Lake Malawi had been exceeded and that the current harvests were catching a significant proportion of juveniles (see Figure 2-5, below for discussion of MSY) (Nyasaland, 1948; Lowe, 1952).



The Theory of Maximum Sustainable Yield (Larkin, 1977)
This theory postulates a maximum number of fish that can be extracted annually without threatening the sustainability of the stocks (MSY). Alternate optimal rates of extraction are MEY and MScY, which are the rates of extraction that ensure a maximum economic yield, and a user defined maximum socially desirable yield, respectively. Though valid in conceptual terms, the application of this model for most fisheries management has been widely criticized for a number of reasons, among which:

- Given that most fisheries are multi-specific in nature, MSY disregards the effects of inter-specific trophic relationships which may lead to the extinction less productive species or sub-populations;
- Management at MSY can cause qualitative changes in the fish stocks that reduce resilience to stochastic shocks, and between different species.

Figure 2-5. Explanation of the Maximum Sustainable Yield (MSY).

Lowe therefore, called for a comprehensive fisheries management policy that primarily aimed "to establish a rational fishery so that the optimum yield of *Tilapia* may be cropped from Lake Nyasa each year over an indefinable period." Her management recommendations entailed (Lowe, 1948a, 1952):

A. Interventions in the commercial (European-owned) chambo fishery

1. Minimum mesh size restrictions should be raised from two inches to four inches diagonal stretch.
2. Curtailing Commercial fishing effort in the Lake:
   - Commercial fishing in the southeast arm should be brought down to the levels recorded in 1946.
   - No further permits should be given for commercial fishing, although one permit might be feasible in the Domira Bay Area.

- Commercial fishing will achieve the greatest sustainability if it were nationalized and run as a public utility company.

3. A closed season for *chambo* fishing in the southern portion of the southeast arm of Lake Malawi during December.

B. Interventions in the traditional (African-owned) fisheries

1. Minimum mesh size regulations for *chambo* gears at four inches diagonal stretch.
2. Protection of the fish breeding (spawning and brooding) grounds. Two approaches could be used;
   - prohibiting fishing in certain areas, either altogether or in the breeding season
   - prohibiting fishing altogether in the breeding seasons through introduction of closed season
3. Exploration of alternate fisheries (*ntchila*, catfish, *mpasa*, *utaka*).
4. *Kambuzi* seines should be banned altogether once alternate fisheries are developed
5. Fishing weir regulation maintaining a 5% gap in the middle should be enforced, and may need to be wider in certain locations.

C. Possession of juvenile chambo: Killing or being in possession of juvenile *chambo*, called *kasawala* (measured at less than 6 inches) should be forbidden and any found in traders' possession should be confiscated.

As the conclusions from Lowe's report became known, there was increasing pressure on the government to address the seemingly imminent threat to the fishery. At the same time African nationalist politicians, who had their own investments in the fishing industry were increasing their pressure on the government to limit the activities of the European-owned fishing industries, and they gained a victory when the 1949 famine provided them with a humanitarian excuse to ban the European-owned fishing industry's exports to Southern Rhodesia (McCracken, 1987; Chirwa, 1996). The Officer-in-Charge of the Department of Game, Fish and Tsetse Control (GFTC), Mr. John Borley indicated the government's inclination to preferentially allow African fishery expansion rather than that of the European-owned fishery in Lowe's 10 January, 1948 "Memorandum on the Possible Expansion of the Lake Nyasa Fish Industry", stating:

"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 non-native fishermen, bound by capital investments, tend to increase the scale of [their] activities in order to offset the drop in catch per unit effort."

Mr. Borley also showed his awareness of the political repercussions that might arise out of enforcing controls on the African fishermen, who would see any limits on their activities as providing for the European fishery's needs (Lowe, 1948a). To address these issues, the Dept of GFTC had been established in 1945 and the first Fisheries Ordinance was passed in 1949 (Nyasaland, 1949b; Mzumara, 1978). Reflecting Mr. Borley's leanings (above), in addition to reiterating the previous years' fishing rules, the Fishing Ordinance followed Lowe's suggestions and required the registration of all fishing gears, and set minimum mesh size limits and a closed season explicitly targeted toward protecting the breeding *chambo* (Nyasaland, 1948, 1949a; Lowe, 1952). However, given the anti-colonialist political atmosphere, little effort was made to enforce these regulations against the African fishermen.

While the Dept. of GFTC tried to limit the growth of the European fishery at the southern end of the lake, it was greatly encouraged by the growth of the numbers of African businessmen who were returning from long stays in South Africa and the Rhodesias to invest in the fishing economy throughout southern Nyasaland (Tew 1950; Agnew and Chipeta 1979; Mandala 1990; Berry and Petty 1992; Hara and Jul-Larsen 2003). To encourage growth in this sector, the Dept. of GFTC carried out a number of activities: training workshops for fishermen in an array of subjects from accounting to fisheries regulations, provided loans for the purchase of fishing gear, subsidized a highly prized plank-boat construction yard, coordinated the sale of imported fishing twines and

baked clay weights, experimented with various fishing gears in an effort to improve existing fishing methods, and carried out a crocodile extermination program (Nyasaland, 1949a, 1952; Borley, 1954, 1955, 1960, 1962). The availability of nylon fishing nets was further boosted in 1949 by the Dept. of GFTC's subsidized establishment of the Nyasaland Fisheries Company, which started to manufacture nylon fishing nets within the protectorate (Chirwa, 1996).

This growing group of "big fishermen"[38] did, however, pose certain threats to the colonial government's control over the rural population. Having accrued their wealth from overseas labor rather than through local patronage networks, these entrepreneurs' social and economic ties to "outside" areas diminished the dominant role played by their local chiefs (Wilson 1939; Williams 1969; McCracken 1987; Chirwa 1996). Although it must be considered an underestimate, in 1962, the government recorded just over one hundred such full-time commercial fishermen in the southern part of Lake Malawi, Lake Malombe, and the Upper Shire River, who were catching roughly 1/3 of the total amount of fish landed by African fishers (Borley, 1962).[39] To illustrate the significance of the amount of capital that these businessmen raised (mostly through their labor abroad) and invested in fishing gears, the purchase prices of these fishing gears are presented below in approximate present-day values, and are compared with a number of other items that the

[38] Label first used by Pauline Phipps to describe those fishermen around Lake Chilwa who claimed to earn more than £1/day (today £9.47=$17.37Officer, L. H. (2004). "What Is Its Relative Value in UK Pounds?", Economic History Services.), roughly 15% of those fishers interviewed in her survey. Phipps, P. (1973). The 'Big' Fishermen of Lake Chilwa: a preliminary study in entrepreneurism in rural Malawi. Land and Labour in Rural Malawi. M. E. Page. East Lansing, Michigan, African Studies Center, Michigan State University: 39-48.

[39] Big fishermen's estimated catch of 1,400 tons of fish in 1962 compared with an estimate of 3,000 tons caught by all other "subsistence" and "semi-subsistence" fishers estimated at "many hundreds". Hara (2003) provides a detailed description of the emergence of this group of entrepreneurs around Lake Malombe, who he calls the "Lords of Malombe".

1939 Nyasaland Nutrition Survey found to be common in a lakeshore community in Nkhotakota District (Table 2-1, below).

	Cost in 1939 (in Pounds, shillings, pence)	Equivalent cost in 2005 (in GB Pounds) [D]	Equivalent cost in 2005 (in US Dollars) [E]
Fishing Gears			
Canoe [1]	£10-15	£412-619	$748-1,124
Chilimira purse seine [1]	£6	£248	$450
Beach Seine - Large meshed 600 ft. [1, 2]	£3	£124	$225
Beach Seine - Small meshed 150 ft. [1, 2]	£1, 10s	£62	$113
Gillnet [1, A]	£1, 10s	£62	$113
Mosquito Net (*usikite*) [2]	5s	£10	$18
Fishing Trap [2, A]	2d – 1s, 6d	£.34-3.10	$.62-5.63
Other costs of Living			
House (brick) [2, A]	£10 – 35	£412-1,445	$748-2,624
House (wattle & daub) [2, A]	6s – £1	£12-41	$22-74
Bicycle [2]	£2, 10s – £6, 10s	£103-268	$187-305
Bed sleeping mat (*mkeka*) [2]	6s – 10s	£12-21	$22-38
Hoe [2]	1s, 3d – 2s	£2.58-4.13	$4.68-7.50
Domestic Fowl [2, C]	4d – 6d	£.79-1	$1.43-1.82
Hut tax [2, B]	6s	£12	$22

Notes:
1 – Source: Report on the Fish and Fisheries of Lake Nyasa, 1939 (Bertram et al., 1942).
2 – Source: Nyasaland Nutrition Survey, 1938-1943 (Berry & Petty, 1992).
A – These prices reflect purchase prices, however, gillnets, traps, and houses are usually not purchased, rather they are home made. In the case of brick houses, the bricks may be purchased. Natural construction materials and food were also exchanged for each other through barter, or in exchange for labor (Berry & Petty, 1992).
B – The hut tax took roughly 2-3 months to earn through labor in plantations (Berry & Petty, 1992).
C – This is only form of livestock recorded in the study. Most cattle and goats were owned by inland communities (Berry & Petty, 1992).
D – Calculation of 2005 British Pound values were made using the converter created by Officer (Officer, 2004). All values over £10 (in 2005 valuation) were rounded off to the nearest GBP.
E – US Dollar values were converted from the estimated 2005 British Pound values using: 2006 XE.com (www.xe.com). All values over £10 (in 2005 valuation) were rounded off to the nearest US$.

Table 2-1. The cost of fishing gears, common household items, and hut tax in 1939, and their equivalent values in 2005 GB Pounds and 2006 US Dollars.

The second point of significance comes from the comparison between the amount of money invested in fishing gears (mostly through funds remitted from abroad) and the cost of the colonial hut tax, which illustrates the exploitative nature of the colonial

plantation economy.[40] Rather than sell their labor at the cheap price dictated by the colonialists, large numbers of Africans also entered the fish trading industry to earn the required amount of money for the hut tax (Vaughan 1982). This required greater investments in effort and time but allowed them the independence that laboring on an estate did not (McCracken 1987).

In addition to the growth of a "big fishermen" class, Williams (1969) identified a class of "entrepreneurial traders" that had emerged during the 1950-60's. Similarly, these were men who had worked in the civil service or abroad and invested their savings in bicycles or trucks for the transport of fish from the lakeshore to markets. By 1962, Hara (2003) reports that there were an estimated 400 such fish traders who bought fish from Lake Malombe alone. The minimum starting capital was generally around £20 and they could earn up to 150% profit over the purchase price of the fresh fish when they were retailed at the inland markets (Williams, 1969).[41] In addition to the entrepreneurial traders, there was a large class of small-scale seasonal or occasional traders who were

[40] The main avenue for African's seeking to earn their hut tax within the protectorate (particularly for those in the underdeveloped North) was to migrate to the plantations where they could earn their hut tax in exchange for 2-3 months of labor (Berry & Petty, 1992). The exploitative conditions that African laborers faced in plantations must be seen in context. The colonial government saw African agricultural practices as backward and was trying to force African's to contribute their labor for the growth of European-run plantations which it saw as the future of the colony's economy. These plantations, however, were also forced to compete against other, better situated colonies, as described by Walker (2004): "Landlocked and lacking the transportation, infrastructure, and commercial opportunities available in neighboring countries, Nyasaland's European-owned estates struggled financially throughout the period of colonial rule despite enormous advantages conferred upon them by the colonial government."

[41] However, there are several steps to this process and specific costs and uncertainties associated with each step: (a) buying the fish at the beach: requires good relationships with local fishing crews in order to get preferential access when fish are scarce or to get fish at cheaper rates; (b) drying the fish: this is particularly risky in the rainy season as fish may spoil if not dried quickly, also the trader must guard the fish against theft or predation, (c) transporting the fish to market: requires knowing the demand at specific markets and having reliable transportation to those markets; (e) retailing the fish at market: sometimes fish are sold wholesale to retailers or by the trader's assistant, requiring trustworthy relationships with retailers and assistants, good locations in the market. Williams (1969) found that while some traders perform the entire series of steps themselves, others concentrated on either steps (a+b) or (c+d). In steps (a+b) there is the opportunity cost of time spent at the beach which could be spent otherwise, although a (c+d) trader may be forced to wait for fish if their (a+b) trading contacts are unable to deliver on time, in which case the (c+d) trader's information regarding the demand and retail prices in the markets may become obsolete.

primarily responsible for bringing fish to the smaller inland village markets.[42] Much as with the "big fishermen", the relationships between traders and chiefs also became strained. Many chiefs who were involved in the fishing industry themselves chose to sell their entire catches to European and Indian-owned fish transport companies rather than in small quantities to local traders, whereas the foreign-owned commercial fishermen maintained good relations with these local traders by selling to them along the road (Nyasaland, 1932; McCracken, 1987).

Due to the government's concern over the decreasing influence of the lakeshore chiefs over the class of entrepreneurs and due to the government's poor record in enforcing its regulations on the African fishermen, the government passed the 1955 'Native Authority Ordinance Act. Through this act, the government required all fishermen to purchase fishing licenses from lakeshore chiefs (at prices that the government established), chiefs could establish rules to limit access to local fisheries as they saw fit, and chiefs had the right to impose price controls over fish sales (McCracken, 1987; Chirwa, 1996; M. M. Hara, 2001). Given the chiefs vested interests in the fishing economy and their existing unpopularity for acting as representatives of the government in the collection of hut and canoe taxes, these regulations resulted in increased animosity toward chiefs among fishers and traders (Chirwa 1996; Allison, Mvula et al. 2002).

In the end, because of a governmental policy intended to increase the influence of chiefs amid an atmosphere of growing anti-colonialism, most fisherfolk resisted, undermined, or ignored the chiefs' rulings, resulting in the chiefs' increased marginalization. Recognizing the impossibility of enforcing this regulation, the

[42] Some businessmen had also purchased a number of bicycles, renting these to those traders who had not yet accumulated the required amount of capital to purchase their own (Nyasaland, 1946).

Provincial Commissioner for Northern Nyasaland, recommended that the Act not be implemented at all (McCracken, 1987). Furthermore, anti-government feeling grew to such a degree that fewer and fewer Africans showed themselves willing to be associated with any "government" activity despite any scientific claims of livelihood benefits that might have been certain to accrue to them, including participating in fishermen's training sessions, or support of electric fences aimed at decreasing elephant raids on their own crops (Borley, 1960; Ng'ong'ola, 1990; Njaidi, 1995; M. M. Hara, 2001).[43]

Although the creation of Wildlife Reserves had relatively little impact on the northern lakeshore fisheries in general, the case of the Nkhotakota Wildlife Reserve is an exception that deserves mention for having created a similarly reversed effect to its intent. This large area of remote land (then, 880 km.^{2}), which was home to some of the largest elephant populations in the central region, was gazetted as a Forest Reserve in 1933 (Hayes, 1972; Morris, 1996). However, the main role of the Department of Game, Fish and Tsetse Control at that time was to control the amount of harm caused by wildlife on the agricultural fields of Africans rather than conservation, and little enforcement of the reserve rules against hunting and fishing was carried out (Borley 1954; Morris 1996; Morris 1997). The reserve was subsequently enlarged to 1802 km.^{2} to establish a more significant buffer zone between farming and wildlife lands, undoubtedly forcing some unknown number of Africans to move out of these areas (Borley, 1954; Mkanda, 1991). In addition to its bounty of wildlife, the Reserve is bisected by the Bua River which hosts

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[43] For a discussion of similar anti-colonial sentiment targeted at the agricultural extension services, see:.
Thomas, S. (1975). "Economic developments in Malawi since independence." Journal of Southern African Studies **2**(1): 30-51.
Mandala, E. C. (1990). Work and Control in a Peasant Economy: A History of the Lower Tchiri Valley in Malawi, 1859-1960. Madison, Wisconsin, University of Wisconsin Press.
Ng'ong'ola, C. (1990). "The State, Settlers, and Indigenes in the Evolution of Land Law and Policy in Colonial Malawi." International Journal of African Historical Studies **23**(1): 27-58.

one of the largest *mpasa* and *sanjika* spawning populations in the entire Lake Malawi basin. While the human population was small and dispersed, 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 (consistent with traditional river fisheries management practices on the Dwangwa, N. Rukuru and Lufilya Rivers). A local chief explains how the creation of the Wildlife Reserve in 1959 led to the decline of sustainable fishing practices along the river and an increase in the use of poisons as displaced communities adopted fishing methods that allowed them to catch fish more quickly in their clandestine night-time poaching activities.[44]

> *"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 (rather through the construction of fishing weirs). 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, though, there was no more conservation of the fish stocks as all the people were forced to fish a smaller stretch of the river."* [45]

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[44] Although Nkhotakota Forest Reserve was officially gazetted (established) in 1933, there was little enforcement of wildlife reserve regulations during the first decades of their creation (Borley, 1962; Hayes, 1972; Morris, 1996). Conservation measures were tightened in the 1950-60s, following passage of the 1953 "Game Ordinance", which de-listed a number of reserves, so that enforcement would be able to concentrate on the four largest reserves (one of which was Nkhotakota Wildlife Reserve) (Hayes, 1972; Morris, 1997). This would explain the chief's identification of the late 1950s as marking the enclosure of the Nkhotakota Wildlife Reserve, which was when Njaidi also identified an increased enforcement of conservation regulations throughout the protectorate (Njaidi, 1995). Nevertheless, it is significant to note that despite the widespread poaching, wildlife populations in the Nkhotakota Reserve remained at stable or increased during the 1950-60s (Borley, 1955, 1962).

[45] A. Russell – Nkhotakota District – Interview with a chief - 2002-07-15; The overuse of poisons that killed all fish, right down to the lake may be a concern about regular fishing practices as poisons are known to be used by at least 26% of fishermen (Tweddle, 2000).

It is ironic that the colonial establishment of this Wildlife Reserve to exclude all traditional natural resource harvesting resulted in threatening the sustainability of the fishery by displacing all river fishing activities to the remaining 15km stretch of river between the Reserve and Lake Malawi. Rather than creating an area protected from unsustainable fishing practices (such as the use of poisons) (Tweddle 1985) many fishermen have instead chosen to continue fishing the upper reaches of the river (within the Reserve) illegally, and due to their need to do so clandestinely, they have been forced to use the harmful fishing poisons that can provide them with a quick harvest.[46]

Slow Growth of Northern Fisheries and Northern Emigration to Southern Lakeshore (1950-60s).

While the high productivity of the shallow southern lakeshore coupled with its proximity to markets led to the early commercialization of the fishery during the 1920-30s (including the development of a mechanized trawler fishery), the transformation of the northern and central Lake Malawi markets was much slower. In these regions, towns (and markets for fish) and the roads infrastructure grew more slowly, and the widespread adoption of nylon fishing nets did not occur until well after World War II (Perry, 1969; McCracken, 1987; Chirwa, 1996).[47] The consequent avoidance by truck transport businesses of areas away from the main roads, meant that the fish trade in these areas remained the domain of local traders who peddled (by bicycle) fresh fish in small markets near the shore, and dried fish in the more inland villages of the Vipya Mountain range

[46] A. Russell – Nkhotakota District – Interview with FD staff 2002-07-15; A. Russell – Nkhotakota District – Interview with a chief - 2002-07-15.
[47] A. Russell –Karonga District – Interviews with chiefs 2004-03-10, 2004-04-08.

that parallels the lakeshore (Williams, 1969). One noteworthy exception in the North, was the N. Rukuru River weir fishery from which some *mpasa* were traded as far as Mbeya in Tanganyika (roughly 125km on modern roads, at least 150km back then) (Bertram et al., 1942). An additional difference between the accessible southern and the remote central and northern lakeshore regions was that fish trading had become a full-time occupation for many in the South, whereas it was a strictly seasonal activity in the North, with most men returning to their villages during the rainy season to help with farming (Williams 1969; Mandala 1990 ; Chirwa 1996). This meant that whereas the prices for fish had declined to rival those of meat in the southern highlands in the 1930s, fish remained a rare luxury for most of central and northern Malawi inland communities, at most eaten once or twice a month (Nyasaland, 1933; Berry & Petty, 1992).

Seeing the bounty of fish and the demand for fish markets in the South, the Tonga, Tumbuka, Ngonde who returned from their dominant positions within the colonial and migrant labor-force used their capital earnings to move to the southern parts of Lake Malawi, and established large settlements on the Nankhumba Peninsula that divides the southern end of the lakeshore (McCracken, 1987; Munthali, 1994; Haraldsdóttir, 2002, 65). Whereas in most of southern and central Nyasaland less than 20%, and frequently less than 10% of the adult male population migrated to work outside the protectorate, these proportions were far greater in the North. In 1937, the Ngonde of northern Karonga district had exported an estimated 25% of its male population to work in Tanganyika, the Tumbuka regions (Mzimba, Kasungu, South Karonga) exported over 40% of their male population, and the Tonga homeland, Nkhata Bay District, sent over

60% to work abroad (G. Wilson, 1939, 11 ; Tew, 1950).[48] These figures were reflected again in 1945, when only 5% of southern, and 11% of central Nyasaland's male African populations were estimated to be working abroad, and 22% of the northern male population was working abroad, with, again, Nkhata Bay District at the forefront, sending 60% of their male population (Lovett, 1997).[49] The migrants from Nkhata Bay were also noted to be among the least likely to forsake their home communities, and their remittances were seen as the primary source of economic prosperity in the district (Tew, 1950). To give an impression of the scale and importance of remittances in the national economy, remittances from abroad in 1960 were roughly 2 million British Pounds (GBP), while all agricultural exports brought in roughly GBP 11 million, and the African subsistence agriculture economy was estimated at GBP 15 million (Tew, 1950; Agnew & Chipeta, 1979).

Due to the accumulation of capital from high participation in the labor markets abroad, these northerners who immigrated to the South were able to set themselves up in business more effectively than many other local residents, and they invested much of this in purchases of fishing gears (beach seines, gillnets and *chilimira* nets) and modes of transporting fish to markets (trucks and bicycles) (Withers, 1952; McCracken, 1987; Haraldsdóttir, 2002). Combined with their financial backing, their introduction of the *chilimira* to the rest of the lakeshore enabled them to succeed in communities that up

[48] Karonga sent a relatively smaller proportion abroad than the other northern Nyasaland Protectorate districts, as a fair proportion were able to earn money by the sale of cotton, coffee, rice, beans, maize and beeswax. Additionally, of those that went abroad to work, their absences were much shorter (than those of many other Nyasaland residents), as most migrated to the nearby Lupa Gold Fields in Tanganyika, and therefore tended to spend 3-4 months away from home. This was also a prime market for the sale of their produce (G. Wilson, 1939; Tew, 1950).

[49] In a similar pattern to that seen in 1937, by 1950, the percentage of Ngonde migrating to work abroad was half that of the Tumbuka, at 11.6% (Tew, 1950).

until then depended entirely on the less effective beach seines to target the off-shore *utaka* (*Haplochromys* flock) and *usipa* shoals (McCracken, 1987). Furthermore, the *chambo* (*Oreochromys spp.*) of the southern Lakeshore were mostly destined for sale in the larger cities or exported to southern Rhodesia (today, Zimbabwe), and were thus too expensive for rural villagers in addition to being more difficult to dry for transport by small-scale fish traders. In contrast, the small *utaka* and *usipa* were easy to dry and were cheap enough for rural and poorer Africans to purchase, meaning that the growing rural fish trade proved an ideal economic niche that the *chilimira* fishers were able to quickly dominate (Haraldsdóttir 2002).

While the early *chilimira* fishing efforts around the southern lakeshore in the 1950s were mobile operations, the immigration of large family-groups commenced around 1960.[50] Initially, these immigrants' ability to mobilize greater amounts of labor and capital for fishing, and their disruption of the local economy resulted in a variety of conflicts with local community leaders (Borley, 1960, 1962; Munthali, 1994; M. M. Hara, 2001).[51] These tensions came to a head in 1960, when a year of poor *utaka* fishing in Nkhata Bay may have led to large immigration to the southern lakeshore. As Hara (2001) explains, though sparked by a conflict over a local fisher's failure to pay for a *chilimira* net that he had purchased from a Tonga fisherman, this conflict had its origins in the economic threat that the *chilimira* fishermen posed to local fishing livelihoods. As a result, the chief banned the Tongas from his community, and from fishing around the

[50] The Joint Fisheries Research Organization "Report on the Survey of Northern Lake Nyasa 1954-55" and the Dept. of Game, Fish and Tsetse Control Annual Reports of 1954-62 identified a number of islands and locations highly suited for *chilimira* fishing at Chia Lagoon, in the South-East arm, and around the rocky islands at the tip of the Nankhumba peninsula, but indicated that *chilimira* nets were only used sporadically there (Borley, 1954, 1955, 1960, 1962; Jackson et al., 1963).

[51] Borley (1960), Munthali (1994), A. Russell –Mangochi District – Interviews with FD staff - 2002-06-09, 2002-06-11.

islands offshore from his village. This eviction had the short-term effect of closing the local *chilimira* fishery, and most Tonga's returned briefly to Nkhata Bay. However, the Tonga, followed by Tumbuka, and Ngonde succeeded in establishing their families in several communities around the Nankumba Peninsula, an area that would be incorporated into Lake Malawi National Park in 1980 (Borley, 1962; Jackson et al., 1963; Grenfell, 1993; M. M. Hara, 2001).[52]

A final factor that contributed to the success of the northern immigrant's businesses was their lack of access to farm land in the South, which made them entirely dependent on fishing-related businesses for a livelihood, and they gained widespread recognition for their passion for fishing (Haraldsdóttir, 2002).[53] This freed northern immigrant women from their traditional agricultural roles (though this inability to produce their own staple food is also seen by some as a permanent threat to their livelihoods, see Haraldsdóttir (2002), and they became involved in fish trading. Their relationships with the main fishers (i.e., their relatives) then allowed them to establish a trading niche for themselves as they out-competed many non-northern traders, especially in the sale of dried *usipa* (McCracken, 1987; Haraldsdóttir, 2002).

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[52] Chembe was settled by Chewas and grew to a large settlement after the creation of the Livingstonia Mission nearby in 1875, and has the smallest proportion of northern immigrants (mostly Tumbuka) due to the conflict in the 1960s. Msaka/Chimphamba was also settled by Chewa, but by 1993, Tonga settlers outnumbered the Chewa indigenes. Mvunguti was settled by a usipa fisherman from Karonga in 1960, and most of the population is Nkhonde originating from Karonga. Zambo was settled by northerners in the 1960's. Chidzale was settled by northerners in the 1970s (Grenfell, 1993).

[53] A. Russell –Mangochi District – Interviews with FD staff - 2002-06-09, 2002-06-11; A. Russell – Mangochi District – Fishing Observations 2002-06-08; A. Russell –Mangochi District – Interview with a chief.

Independence, Governmental Centralization, and Reassessment of the Fisheries Department (1963-1975)

The end of colonialism brought a new government. However due to the great amount of popular 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). Doing little to address conservation for the first decade and a half of single-party rule, the government instead focused its attention on balancing its budget through growth in the plantation agriculture sector (J. Kydd & R. Christiansen, 1982). Primarily dependent on exports from European owned plantations (of coffee, tea and burley tobacco), the government nationalized a number of these plantations (many of which subsequently were at least partially owned by President Banda and senior members of his government) and oriented the national economy in support of t(his) sector. In maintaining a healthy GDP growth rate of 5.5% between 1964-1977, however, the government increasingly marginalized, suppressed, and impoverished the nation's smallholder farmers in a number of ways (Thomas, 1975; J. G. Kydd & R. Christiansen, 1982; Harrigan, 2003) (Allison, Mvula et al. 2002):

> *"The bias in favor of estates at the expense of smallholders took many forms: customary land was annexed for the estate sector; smallholders were legally forbidden from growing certain high value crops reserved for estates such as burley tobacco, tea and sugar; finance was siphoned from the smallholder sub-sector by the monopolistic state marketing board ADMARC with most of the resulting profits channeled into estates; and smallholders were relied upon to provide a marketable surplus of the staple food crop maize to feed estate and urban workers."* (Kydd and Christiansen 1982)

This income did enable the government to embark on large scale infrastructure development throughout the country, developments that would prove particularly important to the growth of the northern and central lakeshore economies. Until the end of the 1960s, the central-northern lakeshore region had been a backwater in the nation's development as no bridges spanned the great Bua and Dwambazi Rivers to connect this portion of the lakeshore to outside markets. Similarly, the northern Karonga shoreline did not have a road connecting it to Karonga, Mzuzu, and Tanzanian markets. Both of these areas were therefore transformed radically by the completion of a tarred lakeshore roads that connected the central lakeshore to markets in Mzuzu (to the North), and Nkhotakota, Salima, Lilongwe, and Blantyre (to the South), and the northern Karonga lakeshore with Karonga town and the towns of Kyela and Mbeya in Tanzania (Perry, 1969; Thomas, 1975; H. K. Banda, 1978).[54] Within the Fisheries Department itself, much effort was made during the 1960s in the construction of feeder roads to important fishing beaches, and the introduction of fish smoking kilns (FAO/UN, 1966).

Following the end of colonialism in 1963, a UNDP consultant, H.L.F. Renson was invited to assist the new government "in the planning of fisheries development and in the organization of efficient fishery services in Malawi" (FAO/UN, 1966).[55] An immediate result of this assistance was a reorganization of the Ministry of Natural Resources in 1965 when the Fisheries Department was placed under the Secretary for

[54] Note, however, that the major bridges across the Bua and Dwambazi Rivers have been periodically swept away, limiting the growth of the Northern Nkhotakota, and Southern Nkhata Bay Districts in particular. While these two rivers now have large new bridges (the Dwambazi as late as 2001), numerous smaller bridges continue to be washed every year. Also, parts of the lakeshore road were not surfaced with tarmac until the 1990s.

[55] The colonial Dept of Game, Fish and Tsetse Control ceased to exist in 1963. Tsetse Control, Fisheries management and commercial crocodile hunting were transferred to Dept. of Agriculture, while Game control and trout fishing came under the Dept. of Forestry (Borley, 1962).

Dept. of Veterinary Services, except for the tasks of fish culture extension which had been conducted by agricultural extension officers and which remained in the Dept. of Agriculture.

At this point, Renson also compiled a cumulative estimate of the total tonnage of fish being harvested from all of Malawi's water-bodies (Table 2-2, below).

Water Body	**Specific Lake Malawi Fisheries**	**Fish Harvested (in Tons)**	
Lower Shire River [A]			2000
Lake Chilwa			9800
Lake Chiuta			200
Lake Malombe + Upper Shire River			1700
Lake Malawi	Southeast arm - Industrial	2200	
	Southeast arm - African	1,800	
	Southwest arm - Industrial	(negligible)	
	Southwest arm - African	1700	
	Domira Bay + Salima	400	
	Nkota Kota + Chia Lagoon	500	
	North (incl. Nkata Bay and Likoma)	500	
Sub-Total Tonnage		**7100**	7100
Total Tonnage			**20800**
A – Tonnage is based on dried/smoked fish that are exported by railway to the Shire Highlands and Rhodesia only. The large quantities of fish sold by local fish traders had not been recorded at the time. (FAO/UN 1966; Mandala 1990)			

Table 2-2. Tonnage of Fish Landed in Post-Independent Malawi's Water bodies (from FAO/UN 1966)

Renson found that the fisheries management recommendations made by Lowe (1952) and Bertram et al. (1962) had been poorly implemented (FAO/UN, 1966). In particular, he noted the inconsistent and selective enforcement of regulations between "commercial" (read primarily European) ring-net fishermen and "traditional" (read African) gillnet/seine fishermen. While some effort was made to enforce minimum mesh size limits and closed season regulations designed to protect breeding *chambo* on commercial fishermen (however ineffectively), these regulations were not enforced

against the traditional fishery which targeted the same *chambo* fish stocks with their gillnet and beach seine (FAO/UN, 1966).

One area in which Renson identified potential for growth was the commercial *chambo* fishery in Lake Malawi, which he estimated could be expanded to roughly 3000 tons of fish per year (FAO/UN, 1966). Given that the Greek-owned Malachias Company had discontinued its commercial ring-net fishery in 1964, Renson therefore suggested that the government parastatal Malawi Development Corporation (MALDECO) enter into fishing by taking over the Malachias fishing license. Other suggestions included: rewriting the fisheries legislation, formal training and better supervision for field staff, improvement and consistency in the recording of fish catch and sales data, improvement of fish processing and market facilities, and the continued improvement of access roads to key fishing beaches towards the South of Lake Malawi.

Although Renson suggested that fisheries assistants be hired from fishing communities, he failed to emphasize the need for training of Malawians to take over the senior positions then held by expatriates. Consequently, as the British Overseas Development Administration (ODA) and other donor agencies contributed the majority of the new Fisheries Department's funding during the first 15 years of independence, they were able to exert great influence in how the department was to develop (Table 2-3, below).

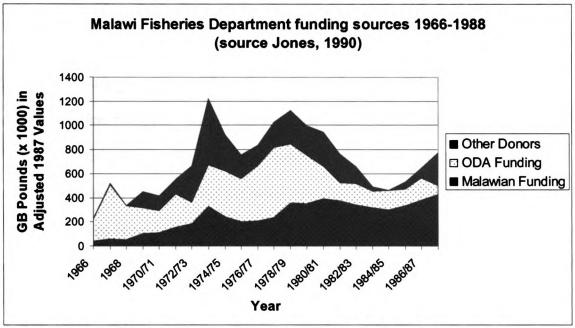


Table 2-3. Malawi Fisheries Department Sources of Funding, 1966-1988 (Jones, Akester et al. 1990).

In 1974, the Malawian Government's new-found concern about over-exploitation of the fisheries was reflected in the preamble to the new Fisheries Act (Malawi 1974) which stated:

> *"An Act to provide for the regulation and control of fishing, and of the purchase, sale, marketing, processing, import and export of fish, to provide for the conservation of fish and further to provide for matters incidental to and connected with the foregoing."*

The new Fisheries Act was particularly aimed at introducing regulation of the increasingly capitalized *chambo* fishery in Lake Malombe and southern Lake Malawi, and included a system of regulations for both the "traditional" and "commercial fisheries.[56] The commercial trawlers were banned from fishing in the narrow southern-

[56] It should be noted that these labels are used here more for ease of distinguishing the highly mechanized fishing fleets (that had previously been predominantly owned by Europeans, but in which a number of African businessmen and ex-Fisheries Department personnel had also invested) from the more "traditional" gillnets, beach seines, hooks, traps that had generally been used by Africans. The distinction is useful primarily to highlight the change in policy between the colonial and independent governments, as the colonialists had not enforced regulations on the "traditional" fishery. Though understandable in view of the

most portion of Lake Malawi where *chambo* passed on their way to breeding grounds in shallow Lake Malombe, and for similar reasons in respect to Lake Malawi *chambo* breeding grounds, all commercial trawl and ring net fishers were banned from fishing within 1 nautical mile (1.85 Km) of shore.[57] Furthermore, all "commercial" and "traditional" fishing gears received specifications as to their legal dimensions, mesh sizes, conditions of operation, and minimum take able fish lengths were established (see appendix A-copy/reproduce schedules).[58] Finally, a Nov.1-Dec.31 closed season was established for all ring net and beach seine in Lakes Malawi and Malombe, and for the beach seines operated in the Upper Shire River (which connects Lakes Malawi and Malombe), this "closed season" extended from Nov.1-Mar.31.[59] All of these regulations were circumvented regularly, however the closed season for beach seines would prove to be the most contentious (see below).

Growing Conflicts between Government and Fishers Leads to Declining Legitimacy of the Government and Fish Stock Collapse (1975-1993)

The president of the newly independent nation of Malawi faced a variety of threats to his personal power and the nation's economic independence from many segments of society. However, two groups received particular attention from him as he

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colonial Dept. of GFTC's lack of staff and the strong anti-colonial, anti-conservation sentiment among rural Malawians, this distinction had been identified as particularly counter-productive for regulation of the chambo fishery as 90% of chambo landed is caught in the 'traditional' fishery (FAO/UN, 1966). The 1974 Fisheries Act attempted to rectify this situation.

[57] Under subsidiary legislation to the 1974 Fisheries Act: "Fisheries (Prohibited Methods of Fishing) Order" and "Fisheries (Commercial Fishing) Regulations", respectively.

[58] Trawl nets, ring nets, chilimira covered by Fifth Schedule; Beach seines covered by Seventh Schedule; Gillnets covered by Eight Schedule; Minimum take able fish lengths covered by Ninth Schedule. Malawi, G. o. (1974). Fisheries Act: 53.

[59] Closed season for Ring nets covered by Fifth Schedule; closed season for Beach seines covered by Seventh Schedule (Malawi, 1974).

consolidated his power: the civil service that was dominated by northern ethnic groups (i.e., Tonga, Tumbuka and Ngonde), and the chiefs. These groups were easy targets for a president looking to diffuse the hatred of necessary conservation regulations as these groups had been the ones who implemented the harsh colonial conservation regulations, and indeed were accused by the president of having made the regulations more difficult to live under than necessary:

> *"When we were under the colonial rule, under the British, you, my people, were kept down. It was not so much because of the British district commissioner, but even worse, your own Africans – police officers, policemen, African clerks, and worst still, chiefs...To please the district commissioner, African clerks, African policemen, messengers and chiefs were more cruel to their people than the district commissioner himself."* (Banda 1977)

Additionally, either due to his genuine beliefs or due to the pragmatic conservation needs facing his country, the president tried to reverse the great tide of sentiment that had been built up against the colonial extension services by rewriting the Africans' experiences of the colonial administrations' conservation policies. Rather than acknowledging pre-independence Malawians' resistance to conservation regulations as due to resentment of the regulations themselves, he claimed that popular resentment had been primarily due to the harshness of the penalties that were imposed by the extension services and the laziness of the (African) civil servants (Thomas, 1975). Furthermore, he claimed that he had been able to reverse peoples' resistance to conservation regulations by the strength of his arguments and his benevolent policies:

> *"I alone could control my people, could stop them from breaking the law...When I took over the Ministry I told my people that I would send no one to prison for not planting maize in ridges. But I said, "I want you, my people, to plant your maize in ridges. I repeat, I will not send any one of you to prison. But if you do not plant your maize according to the*

regulations of the Department of Agriculture it will not be I, Kamuzu, as Minister of Agriculture who will punish you. I will do nothing. It will be the soil that will punish you. The soil will not give you good yields. My people listened to me. Very soon they saw the sense of it." (Banda 1977)

Unfortunately, this positive version of post-independence Malawians' perceptions of the governmental extension services was an illusion. While the estate-based economy had experienced exceptionally high levels of growth during the first decade after independence, the small scale farming sector had stagnated (Allison, Mvula et al. 2002; Chinsinga 2002). An increasing rural poverty deepened further when a combination of internal and external economic shocks forced the nation to enter into the International Monetary Funds (IMP) Structural Adjustment Programs and make further cutbacks in social spending (J. Kydd & R. Christiansen, 1982; Ihonvbere, 1997).[60] The subsequent diversion of resources to the estate agriculture sector amidst the stagnation of small-hold farming left an agricultural extension services demoralized by a lack of resources, staff and political will to see conservation regulations enforced (Thomas, 1975). Though the commercial fisheries never held the kind of importance for the government that the estate agriculture sector did, the Fisheries Department faced similar challenges to its enforcement of regulations against the subsistence and semi-commercial fishers. Allison (2002) describes how revenue from fishing licenses declined despite growth in fishers due to a shortage of FD operating funds needed for FD staff to visit beaches to collect funds. During the 1970-80's the focus of donor agency assistance was in increasing fisher efficiency through the transfer of technology (Allison, Mvula et al. 2002). However, the

[60] Some of the key factors were: 1978-79 shock to oil prices, a drought during the 1980-81 growing season, increased international interest rates, closure of the primary export route for Malawian agricultural goods due to civil war in Mozambique, the added burden of an influx of Mozambican refugees, and declining levels of development aid. Chinsinga, B. (2002). The Politics of Poverty Alleviation in Malawi: a Critical Review. A Democracy of Chameleons: Politics and Culture in the New Malawi. H. Englund. Blantyre, Malawi, Christian Literature Association in Malawi (CLAIM/MABUKU): 25-42.

new ice plants and trawler engines quickly became unusable due to a lack of spare parts and increasing fuel prices, and a centralized fish landing center at Lifuwu (in the South West Arm of Lake Malawi) was unusable by trawlers due its highly exposed position (Watson 1987; Allison, Mvula et al. 2002).

While concern over anti-colonial sentiment had kept the colonial fisheries authorities from implementing limits on Africans' fishing efforts, the independent government which claimed a mandate from the people could no longer allow its regulations to be ignored. The most unpopular regulation was the imposition of a closed season on beach seine fishing during the time when adult fish migrated to shallow waters and lagoons to breed. By this time, Lake Malombe and the southeast arm of Lake Malawi had become the primary fisheries supplying the demand of the cities and plantations, and had attracted much capital investment in the form of plank boats, improved nylon fishing nets, and outboard boat engines. However, within the context of a highly autocratic government, relatively little effort was made to sensitize fishers to the justification, and indeed, the existence of the fishing regulations, in advance of commencing enforcement activities, as highlighted by the Chairman of the Mwachikumba Beach Village Committee (Donda, 2000b):

> *"By mid 1970s, DoF [Department of Fisheries] started to tell people not to catch juvenile chambo, and I remember in 1974, about 3 or 4 chambo seine nets were confiscated from this beach for catching juvenile chambo. The Fisheries Department came with their [italics are from the source] regulations and asked people not to catch juvenile chambo. We viewed DoF people as policemen because they never talked to us or explained why catching juvenile fish was bad. As a result, we only stopped fishing when they were around and resumed fishing when they were gone, because we know they would go back to Mangochi where they were resident and we could continue fishing without any problems."*

An excellent detailed review of the growing animosity and violence between fishers and the Fisheries Department is given by Hara (2001) a brief summary of which I will present here. Following the passage of the 1974 Fisheries Act, fishing during the closed season (which was a widespread phenomenon) was punished first with fines, and then as fines were proving unsuccessful deterrents, by harsher measures such as jail sentences and the burning of confiscated fishing nets.[61] Over time, however, the fishers increasingly resisted the Fisheries Department personnel, and by the mid-1980s, the fishers, supported by traders and crew members increasingly threatened enforcement patrols with bodily harm. This growing threat led the Fisheries Department to request the assistance of the police force in conducting patrols. However, reports quoted by Hara (2001) reflect the government's increasing inability to enforce the regulations:

- *"On 22/11/86 at Mpondas beach, the inspection team which included the Officer-in-Charge of police for Mangochi District, had to abort an operation aimed at seizing fishing gear being operated illegally during the closed season after being challenged by fisherfolk armed with knives, sticks and oars. The Police Officer-in-Charge ordered the team to abort the operation and withdraw after realising that the team was ill-prepared and ill-equipped to deal with the potentially explosive situation.*
- *On 26/11/86 at the same Mpondas beach, physical violence erupted and on the same day at Nasa, a policeman was seriously wounded when fisherfolk attacked the team in order to snatch back their confiscated nets.*
- *On 23rd November 1988 the team, which included three policemen including the Officer-in-Charge, went back to Mponda and Malunda beaches. At Malunda they found 10 beach seines in operation, with more than 500 fisherfolk in attendance. On attempting to seize the nets, the team was attacked by the fisherfolk. Not even a warning shot in the air by the Officer-in-Charge could deter the fishermen.*
- *During the second week of December 1988, the team, which included police officers, went on patrol to Mpondas and Malunda beaches again.*

[61] For any person found fishing with illegal gear or during the closed season, the 1974 Fisheries Act provided for punishments of K100 fines or imprisonment for 6 months (Cap.66:05:53), and any fish, fishing gears, poisons, boats, engines or vehicles associated with the offence were forfeited without compensation (Cap.66:05:54) (Malawi, 1974).

An attempt was made again to confiscate the nets found in operation. The fishermen openly challenged the team to dare confiscate the nets. Meanwhile they continued with their operations as if the inspection team was not even there. Out-numbered and ill equipped, the team withdrew to the station without doing anything again."

Faced with this escalation of violence, and their impotence to stem the illegal activities of determined fishermen, the Fisheries Department then engaged the assistance of the riot control unit of the Malawi Police Force, the Police Mobile Force (PMF). However, on the first occasion in which the PMF was involved, their zeal to suppress the resistance led them to beat up all the people that they found on the beach, regardless of their role as fisher, trader or bystander. A number of people were arrested and many fishing gears and boats were confiscated. Unfortunately, the PMF readiness to use force only led to increasingly violent resistance by the fisherfolk themselves, which came to a climax when Fisheries Department and PMF officers tried to confiscate fishing nets from Mbaluku beach on Jan.18, 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 fisheries department inspector, and the police were only able to extricate themselves from the confrontation by firing warning shots from a machine gun.

In addition to the direct conflicts that occurred over fishing practices, the government came into conflict with fishing communities over the alienation of lakeshore property. During the autocratic years of the Banda era, large amounts of communally owned or used lakeshore were alienated by the government for the promotion of tourism and agricultural development (Derman & Ferguson, 1995). This ranged from the lease of small and large lakeshore plots of land for the construction of vacation cottages and tourist hotels, to the large swathes of land for the establishment of Lake Malawi National

Park (1980) in Southern Lake Malawi, Vipya paper mill (early 1970s)62, and the Dwangwa Sugarcane Estate (1976).[63] Although the conditions of these fishing communities' relocations or the limitations placed on their livelihoods varied, and while "compensation" was paid in some cases, Derman and Ferguson described these dispossessions as human rights violations because of the powerlessness of these lakeshore communities to resist the government's alienation of customary land and the massive disruptions of the social and economic fabric that this entailed (Derman & Ferguson, 1995). 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). The relationships between the fishing communities and Lake Malawi National Park and the Dwangwa Sugarcane Estate management would be difficult for decades to come, and are discussed below, and in Chapter Four, respectively.

In addition, the FD and the President themselves became among the most blatant power brokers in fisheries. As described by Watson (1987), Ferguson and Derman (1991; 2000) and Allison (2002), 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

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[62] This project took place at the base of the Vipya Platteau between Bandawe and Chiteche, in Southern Nkhata Bay District. Though this program was designed during colonialism, the relocations of fishing communities took place in the 1970s, during the Banda regime. In the end, the project was not completed.

[63] The site of this sugar cane estate, which plays a significant role in two case studies discussed in the next chapter, was first developed in 1970 as the British Irrigated Rice Project (BIRP). However, despite the success of the rice growing project, Banda's government then decided instead to allocate the land to the growing of sugar cane (Gosnell, 2004). The Lonrho company, which had successfully established the SUCOMA estate in 1964 at Ntchalo (in Chikwawa District) and maintained a close relationship with the government, was invited to establish another estate at Dwangwa (Amer & Hutcheson, 1967; Ihonvbere, 1997; Gosnell, 2004). The estate was established in 1973, and the first sugar was produced in 1979 (Gosnell, 2004).

arrangement which placed the government in direct competition with fisherfolk, the stakeholders on whose behalf they were supposed to work. Despite the concerns over this conflict of interest raised by Watson (1987), the Icelandic Aid Agency (ICEIDA) donated another research vessel to the FD in 1993 (named 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, Mvula et al. 2002). Similarly, following the nationalization of the Greek-owned commercial fishing fleet, the para-statal 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).

After the Mbaluku-debacle, the services of the PMF were no longer used by the Fisheries Department, and a brief exploration of the various factors that contributed to the FD's failure to implement their policies should be discussed. The escalation in the resistance by fisherfolk must be partially recognized as a symptom of a groundswell in the general population's disillusionment with the government's authoritarian and corrupt policies. During this period, an elite clique within the ruling political party (Malawi Congress Party or MCP)[64] dominated all aspects of government (Ihonvbere 1997) (Posner 1995), whose governance was described by Ihonvbere (1997) as "characterized by 'top-down' flow to policy directives and government decrees... [that were] largely 'irrelevant' to the needs of the people". In relation to the management of the fisheries,

[64] The Malawi Congress Party was Life President H. K. Banda's ruling political party, the only legal political party in existence during the 30 years of his dictatorship. Until the end of the cold war and the apartheid regime in South Africa, 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 renowned for its atrocities] forces in Mozambique (Posner, 1995; Ihonvbere, 1997).

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 for their own benefit (M. M. Hara, 2001). Through the authority of their MCP party memberships, these local politicians took over (or at least shared) many of the arbitration/mediation roles traditionally held by the chiefs, establishing their own systems of patronage within the communities, and undermining the authority of the chiefs (Nangoma & Nyirenda, 1991; Chagunda & Sibale, 1992; Mwandira & Samikwa, 1992; Namagonya & Zamadenga, 1992; R. H. V. Bell & Donda, 1993; Lowore & Wilson, 2000; J. Wilson, 2006). Similarly, whereas the government had made brutally effective use of the Malawi Young Pioneer movement (a militaristic youth movement) in enforcing government regulations throughout the country, Hara (2001) speculated that their absence in the fishing conflicts was due to their own participation in the fishing industry and their desire to avoid repercussions from relatives and political party leaders.[65] Overall, it was recognized that due to their inability to enforce regulations, the Fisheries Department's "tacit acceptance of this flouting of the regulations damage[d] the image and the authority of the Department of Fisheries" (FAO, 1993).

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

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[65] The role of the Malawi Young Pioneers in creating a culture of governmental repression has been described by several authors, a few quotes of which I provide here: "In Banda's Malawi, the Malawi Young Pioneers and the MCP Youth League had the notorious task of safeguarding discipline and obedience, often resorting to physical violence if there was any reason to suspect dissidence" (Englund, 2002); "Invented dissidents continued to be unnecessarily arrested, tied up hand and foot, blind-folded, beaten, shoved into sacks and dropped in the Shire River for the crocodiles...[T]he Young Pioneers, who were said to have been training with RENAMO [the Mozambican counter-revolutionary army] at one time, formed a major component of his intelligence system with their own spies, agents and informers who reported to him [the President] directly" (Mapanje, 2002). See also Posner (Posner, 1995).

> *"[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, Akester 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 assisting with the transfer of skills and training of Malawians during the 1960-70s, the ODA support had primarily attempted to continue providing a functioning fisheries department to the newly independent nation, meaning that most of the senior positions continued to be held, and fishery research focus continued to be determined by expatriates (Mzumara, 1978; Jones et al., 1990).

In addition to these operational challenges, which were not addressed by the ODA, its bio-centric research and technocratic management approach had left the Fisheries Department staff well-versed in ecology but entirely untrained in the social or administrative sciences (Jones, Akester et al. 1990; Ferguson, Derman et al. 1993). 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, Akester et al. 1990). As the *chambo* stocks in Lake Malombe and the southern Lake Malawi showed increasing signs of over-exploitation in the late 1980's, the value of social data remained under-appreciated by the foreign fisheries scientist community, and the donor agency-funded '*Chambo* Fishery Management Project' maintained a largely bio-centric research agenda which also saw the wealthiest (and politically aligned) fishing entrepreneurs, who fished for *chambo* as their main stakeholders (FAO, 1993; Ferguson et al., 1993). 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 were a source of local conflict and inequity (Ferguson et al., 1993).[66]

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 2-6, below) and the national single-party government.

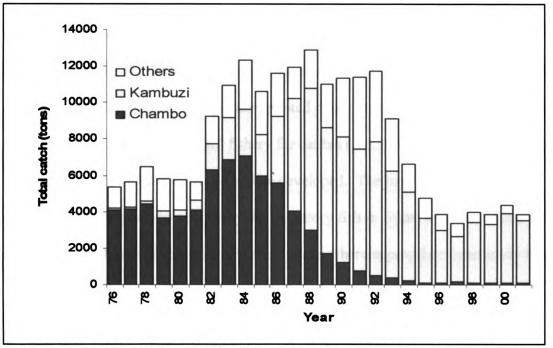


Figure 2-6. Decline of the *Chambo* fishery in Lake Malombe (Tweddle, Alimoso et al. 1994).

In the more remote and relatively less commercialized fisheries of the central and northern Lakeshore, and other remote locations (such as Lake Chiuta) the Fisheries Department did not establish a permanent presence until the late 1970-80s.[67] Therefore,

[66] 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 following case study, Lake Malombe.

[67] In Lake Chiuta, the first data recorders arrived in the mid 1970's, and the first extension staff arrived in the mid-1980s (Donda, 2000b). In the Central Lakeshore districts of Salima and Nkhotakota fisheries recorders staff arrived in 1974 and 1977, respectively, while they arrived in Karonga in 1978 (Tweddle, 1980). Although the Northern lakeshore is less productive than the South, this low investment in the North

precise data on the numbers and types of fishing gears used around the time of independence in these regions is unavailable. The only reference point that we have regarding the fishing economy of the North before Malawi's independence comes from the Jackson et al.'s survey in 1955. This survey showed that although nylon netting had first become available in the late 1940s, and while it was becoming widely adopted along the southern lakeshore by gill-netters, gillnets were "not an important fishing method in use at the time" among the fishers of the North (Jackson et al., 1963). In Jackson et al.'s (1963) research on the potential for expansion of the gillnet fishery, they determined that surface gillnetting near shore and in open water would not contribute very much to the local populations, but that an as-yet unexploited deepwater gillnet (as there is a relatively narrow shallow zone in the North) fishery for catfish (esp. *B. meridionalis, Bathyclarias spp.,* and *Mormyrus longirostris*) could be developed. The most active fisheries that they observed were: trap/scoop net fishery for migratory fish in rivers, *chilimira* fishery for *utaka*, and beach seine fishing for *usipa* and *utaka* where appropriate open sandy beaches were available. Additionally, Eccles (1960)described an active long line fishery for *Rhampochromys spp.* (known locally as *ncheni*) and *Diplotaxodon spp.* (known locally as *masuhungu*).

The Fisheries Department's commencement of recording fishing data in the North in the late 1970s provides our next impression of the characteristics of these fisheries. However, due to a combination of factors, the data collected cannot be judged highly reliable until the late 1980s, therefore, one should limit their use to the broadest possible

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may also have been connected with the Banda regime's overall anti-Northern Northern policies (Posner, 1995).

level by presenting the 1980-1990 data in an aggregate manner.[68] The data presented here refers specifically to the two northern districts where this thesis's case studies are found: Nkhotakota and Karonga (Tables 2-4 and 2-5, below).

In both Nkhotakota and Karonga, the single most productive fishing gear during the 1980s continued to be the *chilimira*, with its main target species, the *utaka*. However, this predominance was less in Karonga, reflecting the greater opportunities for gillnet fishing over Karonga's wider coastal shelf. Additionally, the fishermen of Karonga were making greater use of small-meshed gillnets, shown by the larger presence of *utaka* and chisawasawa in their catches, whereas Nkhotakota fishermen's catches were dominated by the larger *chambo* (47%) and catfishes. The mosquito nets and *kambuzi* seines played smaller roles in both districts, although during the mid-1980's mosquito nets in Nkhotakota were increasingly being used to line *chilimira* nets and beach seines. The ambiguity of how to classify these combinations of gears seems to have led the data recorders to count all nets lined with mosquito netting as mosquito nets, whereas this had been used exclusively to denote the small mosquito nets that were used by divers to catch *usipa* before 1982. Therefore, while 665 tons of fish were enumerated as being caught by "mosquito nets" in 1988, the number tons caught by classical mosquito nets probably didn't rise far above 40 (Tweddle, Alimoso et al., 1990). A similar decline was seen in Karonga's *utaka* catches during these years, however the presence of *chisawasawa*, *kambuzi* and *usipa* may be due, rather, to the absence of *virundu* in the north of Karonga,

[68] During 1986-88, a lack of supervision of field staff in Karonga led to suspected underestimations of the number of fishing gears used. When a thorough count was carried out in 1989, therefore, a false, sharp rise in fishing gears was noted (Tweddle, Seymour et al., 1990). Similarly, some of the data in Nkhotakota are suspected to have been falsified during this same period of time (Tweddle, Alimoso, & Sodzapanja, 1990). The isolation of these fishing beaches and the difficultly of timing recording visit with actual fishing events was seen as a particular challenge to the collection of fishing data.

and where fishing over the coastal shelf may catch a wider variety of species (Tweddle, Seymour et al., 1990). Longline fisheries were dominated by the catfishes and some potamodromous fish when they are in the lake. Data on traps and hand line fisheries are inherently underestimated as the fishermen will generally not bring their catches to the major fishing docks, yet they are probably the most common fishing gear found. Catches from traps were dominated in both districts by *chambo* and other tilapiid fishes. In both Karonga and Nkhotakota, handline catches were dominated by the larger predatory fish: Ntcheni (*Rampochromys spp.*), *mpasa* and *sanjika*, although catfish also were caught. In the Chia Lagoon, in Nkhotakota, scoop net fishing remains an important fishing gear that targets primarily ntcheni.

While estimates of fish catches and gear ownership are problematic given the caveats noted above, for the purposes of illustrating the scale of the fishery, I have presented the highest estimates of gear ownership and fish catches for each district below, which in most cases coincided with the end of the decade.

		Chilimira	**Gillnet**	**Mosquito Nets**	***Kambuzi* Seine**	**Longline**
Max. # of gears		352	2,257	37	147	313
Max. Annual Catch (tons)		5,389	1,222	1,192	1,036	252
% of Overall Catch		56%	23%	6%	9%	4%
% Spp. Catch for Each Gear	*Utaka*	92%	*		*	
	Chambo		47%		*	
	Kampango		18%			*
	Mlamba		10%			***
	Kambuzi				***	
	Usipa	2%			*	
	Mpasa/Sanjika		***			*
	Ncheni					*
* and *** are used to indicate those fish species of minor and major importance, respectively, where they were not enumerate separately or where catches were small overall.						

Table 2-4. Nkhotakota primary fishing gears used, primary species caught for each gear, 1980-89 (Tweddle, Seymour et al. 1990).

		Chilimira	Gillnet	Mosquito Nets	*Kambuzi* Seine	Longline
Max. # of gears		149	1,694	40	68	206
Max. Annual Catch (tons)		678	556	40[A]	81	47
% of Overall Catch		47%	34%	11%	4%	3%
% Spp. Catch for Each Gear	*Utaka*	74%	10%	*	*	
	Chambo		24%		*	
	Kampango		20%			18%
	Mlamba		6%			80%
	Kambuzi	7%		*	***	
	Usipa	7%		93%	*	
	Chisawasawa	7%	5%		*	
	Mpasa/Sanjika		***			
	Nchila		1%			

* and *** are used to indicate those fish species of minor and major importance, respectively, where they were not enumerate separately or where catches were small overall.

[A] Although mosquito nets were enumerated as having caught 665 tons of fish in 1987, this figure would be misleading, and therefore I show a more likely maximum catch of 40 tons (see discussion above)

Table 2-5. Karonga primary fishing gears used, primary species caught for each gear, 1980-89 (Tweddle, Seymour et al. 1990).

To illustrate the relative importance of these two districts' fisheries Figure 2-7 presents the estimated catches for these districts along side those of the overall Lake Malawi traditional fishery, the Lake Malawi commercial fishery, and the Lake Malombe fishery.[69]

[69] Source data for Lake Malawi traditional, Lake Malawi commercial and Lake Malombe fisheries Anonymous (1999). Fish Stocks and Fisheries of Malawian Waters Resource Report 1999, Fisheries Department, Government of Malawi.; Nkhotakota fisheries Tweddle, D., S. B. Alimoso, et al. (1990). Analysis of catch and effort data for the fisheries of the Nkhotakota area: Lake Malawi, 1976-89. Monkey Bay, Malawi, Fisheries Research Unit.; Karonga fisheries.

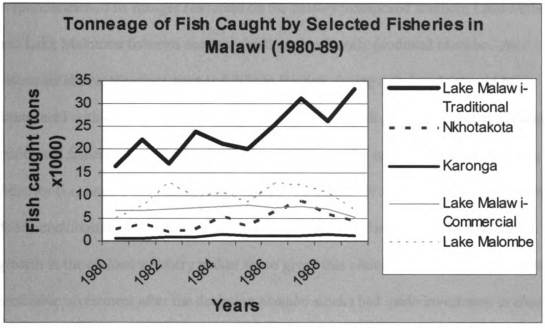


Figure 2-7. Tonnage of Fish Caught by Selected Fisheries in Malawi (1980-89), with particular note of Nkhotakota and Karonga Districts.

As can be seen, during this decade the Nkhotakota fishery roughly doubled in size and came to rival the Lake Malombe fishery and the Lake Malawi commercial fishery in yields. Nevertheless, there are a number of reasons for the Fisheries Department's early neglect of the Central and Northern lakeshore fisheries. These areas were the under-populated regions of the country characterized by a poor infrastructure of feeder roads to major fishing beaches. However, as has been noted by Ferguson and Derman (1993) and Hara (2001), the Fisheries Department's almost myopic focus on the *chambo* fishery, which is the most prized (for both its commercial and culinary values) by the expatriate and national elite as well as by the export market, cannot fail to be mentioned. Consequently, although the tonnage landed by the Nkhotakota *utaka* fishery rivaled the *chambo* catches of the commercial and the Lake Malombe fisheries, its much lower (economic and culinary) value cannot but have contributed to the government's valuation of these fisheries. The end result was that the Fisheries Department focused the

preponderance of its meager resources on the closely juxtaposed southern Lake Malawi and Lake Malombe fisheries sectors which predominantly produced *chambo*. As discussed above, the exact rises and falls in the data during this decade should be interpreted with caution. Qualitatively however, the overall growth in the Lake Malawi traditional fisheries has been attributed in particular to the expansion of the *chilimira* fisheries (i.e. *utaka*) in southern Lake Malawi (Olaf L.F. Weyl, Banda, Manase, Namoto, & Mwenekibombwe, 2001; Manase, Mwenekibombwe, Namoto, & Mponda, 2002). The growth in the *chilimira* fishery makes sense given that *chilimira* fishing was the most profitable investment after the declining *chambo* stocks had made investment in *chambo* seines increasingly uncertain (Table 2-6, below) (Mdaihli & Donda, 1992).

	Chilimira	**Gillnets**	**Chambo Seine**	**Kambuzi Seine**
Investment (boats and nets)	3,960	4,700	10,700	10,700
Annual Fixed Costs (boat maintenance, depreciation)	550	570	1,170	1,170
Annual Variable Costs (net maintenance, crew earnings, misc. costs)	7,200	1,300	9,500	2,900
Total Annual Cost	7,750	1,870	10,670	4,070
Earnings	10,000	2,400	19,000	4,100
Net Profit	**2,250**	**530**	**8,330**	**30**

Table 2-6. Mean costs, earnings and profits for key fishing gears used in Lake Malawi (priced in Malawi Kwacha) (from Mdaihli and Donda (1992).

Democracy brings pressure for participatory management but autocratic tendencies linger to produce a mixed bag of fisheries co-management regimes (1993-2005)

The first multi-party elections were held in 1994, a precursor to a bewildering wave of new development and governance paradigms that were to sweep across the nation. The donor agencies pushed their agendas of greater economic and political

liberalization[70], and the "new" political leadership seemed to embrace these concepts and all the "paraphernalia of democracy" associated with this change.[71] However, while some elements of the government apparatus and modus operandi changed, the autocratic tendencies that had molded all of 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 leader 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; R. H. V. Bell & Donda, 1993; Ferguson et al., 1993; Martin, 1993). However, as with the national leadership, while the Fisheries Department 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, 2000a; M. M. Hara, 2001). Similarly, while some within the

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[70] Although Western governments had not voiced much criticism to the Banda regime's brutality and corruption while Malawi proved useful in supporting the South African Apartheid regime in combating the rise of Marxist governments throughout Southern Africa (esp. in Mozambique), these positions changed following the end of the cold war and the demise of the South African Apartheid regime (Ihonvbere, 1997). Soon, western governments (including the UK, USA, Norway, and the European Community) and the World Bank, started cutting (or threatening to cut) aid funding in protest of the human rights conditions in Malawi (Derman & Ferguson, 1995). In the case of the US, this threat was communicated during a personal visit by Vice-President Quayle to Malawi in 1992 (Ihonvbere, 1997). These threats were highly effective in pressuring government to hold the 1993 referendum on multi-party elections as the Malawian economy which was already in a state of crisis, was highly dependent on foreign aid to fund its programs (Derman & Ferguson, 1995; Ihonvbere, 1997).

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

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. A brief history of the growth of "participatory fisheries management programs" (PFMP) in Malawi, which started at Lake Malombe, and which was then extended to incorporate an array of different fisheries, will allow us to appreciate the institutional innovations presented by the case studies to be discussed in the next chapter.

As the *chambo* stocks in Lake Malombe and the South East Arm of Lake Malawi showed increasing signs of over-exploitation, donor agencies funded the *Chambo* Fishery Management Project aimed primarily at collecting further biological and taxonomic data on the *chambo* fishery (and to a much lesser extent a few other fisheries) (FAO 1993). Reflecting this uncritically *chambo*-biased management perspective, little research was done to investigate the fishing communities' perspectives regarding the fishery, and rather than recognizing the *chambo* seine fishers as being a source of local conflict and inequity, these were seen as the primary stakeholders to be protected from other fishers who simply failed to appreciate the need for sustainable fisheries management.[72] Consequently, the management options that the FAO research consortium provided to the Fisheries Department reflected this bias and did not take into account the needs and value of the *kambuzi* fishery (FAO, 1993):

> A. There is effectively no management action and the fishery is allowed to continue with the poorly enforced regulations that are currently in place. Fishing effort is not assumed to increase further.

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

B. Management actions are focused on the restoration of the *chambo* stocks but with the maintenance of fishing with gillnets and *chambo* seines. All gear that is not selective for the larger sizes of *chambo*, i.e. *kambuzi* and *nkhacha* seines, will be banned. The current effort of the gears targeted on *chambo* will be maintained.

C. Management actions are focused on the restoration of the *chambo* stocks as in **B** above. However, in order to compensate the owners of banned gear, additional gillnets will be allowed to enter the fishery.

D. Management aims to allow the recovery of the *chambo* stocks while maintaining and protecting a *kambuzi* fishery. The use of both *nkhacha* and *kambuzi* nets continues to be allowed but with the mesh size regulated to a minimum of 25mm. This mesh size will be selective for larger sizes of fish.

E. As in **D**, the management option will allow the recovery of the *chambo* stocks and maintain and protect the *kambuzi* fishery. *Kambuzi* seines will be completely banned and the owners of the banned gear will be compensated by allowing them to convert to *nkhacha* nets.

Following the crash of the *chambo* fishery in Lake Malombe in 1993, the Fisheries Department and donor agencies alike recognized the inability of the government to control fishing effort through the centralized fisheries management 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" (M. M. 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 1992 (Ferguson, Derman et al. 1993; Gaiger 1994). This plan introduced the idea of a "participatory approach to management", and was guided by consultants, Richard Bell and 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 & 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 aesthetic 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 Fisheries Department 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 in this context, the fishing communities] must be incorporated into land-use plans."* (Bell 1987)

In addition to the LIRDP program in Zambia which combined development and conservation programs[73], the Zimbabwean CAMPFIRE program provided further

[73] Building on the success of the LIRDP program in the Luangwa Valley, the Zambian government instituted the ADMADE (Administrative Management Design for Game Management Areas) program in game reserves across the country. Through this program, a portion of the wildlife hunting safari revenues

encouragement as they were controlling poaching of wildlife by giving communities actual ownership (and monetary returns) over their wildlife resources (Murphree, 1993).[74] The growing popularity of (and financial support for) participatory resource management approaches among development professionals (Bland 1992; De Gabriel 1998) had led the Fisheries Department 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 (R. H. V. Bell & Donda, 1993). As the government lacked the resources to enforce the first option, and as the communities lacked the capacity to take over the management of the fishery in its entirety, the Fisheries Department 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 Fisheries Conservation and Management Act of 1997 was greatly amended based on a consultancy by Tracy Dobson (Dobson, 1996).

Lake Malombe Participatory Fisheries Management Program (PFMP)

With the collaboration of the GTZ[75], and the assistance of the UNDP/FAO, World Bank, and ODA, the Malawi-German Fisheries and Aquaculture Project (MAGFAD)

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are allocated to local community development programs, and in its first three years resulted in up to ten-fold decreases in poaching in some parks. Adams, J. S. and T. O. McShane (1992). The Myth of Wild Africa: Conservation without Illusion. New York, W.W.Norton & Company.

[74] "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" Association, C. (1998). CAMPFIRE Fact Sheet. Harare, Zimbabwe, African Resources Trust.

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

commenced with a pilot co-management program, the "Lake Malombe and Upper Shire River PFMP[76]" where, it was hoped community collaboration would bring about a recovery of the depleted *chambo* stocks (Bland 1992; Wilson 1993; Scholz, Njaya et al. 1998; Ferguson and Derman 2000). If this pilot program proved successful, the Fisheries Department intended to expand co-management to the South East Arm of Lake Malawi, and then on to the rest of Lake Malawi (R. H. V. Bell & Donda, 1993; Dawson, 1997; M. M. Hara, 2001). Seven areas of management intervention were stipulated in the Bell and Donda report (R. H. V. Bell & Donda, 1993):

- Community participation – Fishing community stakeholders would be organized at the community level in "Beach Village Committees" (BVCs), and in a Fisheries Association that encompassed representatives from all BVCs around Lake Malombe. Each BVC membership is 10-14 fishery stakeholders, elected by their community to participate on behalf of the community in conservation and management of the fishery. Village headmen act as ex-officio members, and BVC members are paid for their services in the form sitting allowances.

- Revision of fisheries legislation and policy [77]– Specific gear restrictions stipulated in the 1993 Fisheries Act were revised to give the BVCs a legal personality, empowering them to "participate on behalf of the fishing communities in conservation and management of the fisheries".

- Research and monitoring – Continued monitoring of the Lake Malombe and Upper Shire River aquatic ecology and continued data collection to inform

[76] PFMP-Participatory Fisheries Management Programme.
[77] Incorporated into the 1997 Fisheries Conservation and Management Act.

extension messages. Additionally, it called for socio-economic studies to provide insight into the emergence of resource access rights to enable the Fisheries Department to intervene if adjustments in the PFMP program are needed.

- Public Relations and Extension – To establish dialogue with fishing communities that will result in the formation of functional BVCs, to promote dialogue between BVCs and the Fisheries Department, and to facilitate the identification of fishing community problems, formulation of solutions, monitoring of the implementation of solutions by communities.
- Licensing – Required of all gear owners.
- Gear compensation and income generating activities (IGAs) – The cheapest way to promote the use of legal fishing gear was determined to be the government purchase of legal fishing gears for these fishermen. Loans were also to be given to fishermen and women's groups.
- Law enforcement – Law enforcement remained the job of the Fisheries Department.

What should be noted, however, is that this program started before any successful fisheries co-management regimes in Africa had been documented, and therefore, the Fisheries Department and its donor agency collaborators were attempting to design a management regime with only a rough theoretical framework to go by. A number of studies have assessed the successes and failures of the fisheries co-management regime around Lake Malombe:

- Dawson, K. A. (1997). Applying Cooperative Management in Small-Scale Fisheries: the Cases of Lakes Malombe and Chiuta, Malawi. Department of Fisheries and Wildlife. East Lansing, Michigan, Michigan State University: 53.

- De Gabriel, J. (1998). Evaluation of the Participatory Fisheries Management Programme for Lake Malombe and the Upper Shire. Malawi, Consultancy on behalf of Malawi Fisheries Department: 32.

- Donda, S. (2000). Theoretical Advancement and Institutional Analysis of Fisheries Co-management in Malawi: Experiences from Lake Malombe and Chiuta. Institute for Fisheries Management and Coastal Community Development (IFM). Aalborg, Denmark, Aalborg University: 329.

- Hara, M. M., Donda, S. J., & Njaya, F. J. (2002). Lessons from Malawi's Experience with Fisheries Co-Management Initiatives. In K. Geheb & M.-T. Sarch (Eds.), *Africa's Inland Fisheries: The Management Challenge* (pp. 31-48). Kampala, Uganda: Fountain Publishers.

Unless otherwise indicated, I will be making use of these primary sources to summarize the following key issues that have proved most vexing to the PFMP.

Disjunctions between government and stakeholders' goals. First and most significantly, the pre-implementation assessment of the potential for co-management at Lake Malombe had highlighted a difference in priorities between the donors and the Fisheries Department on one hand, and the fishing communities on the other: ***While the government and donors were preoccupied with recovery of the chambo stocks, fishing communities preferred not to make the sacrifices needed to enable chambo recover, as***

they prioritized encouraging an active kambuzi fishery (R. H. V. Bell & Donda, 1993; Ferguson et al., 1993).[78] Although the average profit for an individual *kambuzi* seine owner was much lower than that of a *chambo* seine owner, this difference in equity outcomes actually made a dominant *chambo* fishery less appealing to the average fishery stakeholder (Quan, 1993). As can be seen in Table 2-6, above, investment in *kambuzi* seines cost less than half that of *chambo* seines, and the profits were more equitably distributed among gear owner and crew, whereas *chambo* seine owners earned much greater profits than their crews (Mdaihli & Donda, 1992). Furthermore, the high prices that *chambo* fetched among the country's urban elites meant that they were too expensive for most fishery stakeholders to afford (R. H. V. Bell & Donda, 1993; Ferguson et al., 1993).[79] Therefore, while wealthy *chambo* seine owners, many of whom did not live locally or depend on fisheries as a livelihood (rather investing in it as a business venture), profited from local crews' labors, the crews (who depended on the fishing for a livelihood and source of food) could not afford to eat *chambo* themselves, and were less able to save the capital needed to purchase a fishing gear of their own. Consequently, the "co-operation" between governmental and fishing stakeholder in the Lake Malombe PFMP started with the government imposing a set of goals upon the fishing communities which were against the communities' values of social equity and livelihood security. In 2003, the government tried to claim that Lake Malombe fishers' prioritized restoration of

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[78] Note the growth of the "kambuzi" fishery as the fishery grew over-capitalized, and which then replaced the chambo fishery almost entirely. Consequently, beach seines were modified from 76-90mm mesh "chambo seines" to few-25mm mesh "kambuzi seines" and "nkhacha open water seines" that target the kambuzi fishery (a poorly defined group of species, dominated by *Lethrinops spp.*) FAO (1993). Fisheries management in the south-east arm of Lake Malawi, the Upper Shire River and Lake Malombe, with particular reference to the fisheries on chambo (Oreochromis spp.). Rome, GOM/FAO/UNDP Chambo Fisheries Research Project: 113p..

[79] The smaller kambuzi are much less highly prized (sold in 1993 at MK 0.60/kg) than chambo (sold in 1993 at MK 2.40/kg) (Mdaihli & Donda, 1992).

the *chambo* fishery over that of the *kambuzi* fishery (Malawi, 2003); however, these findings were called into question by the Fisheries Departments' own senior scientists, Drs. Steve Donda and Moses Banda, who determined that the research to support this had been poorly done and based on a biased selection of communities. [80]

Unrepresentative/undemocratic BVCs. Some of the BVC elections were open and democratic, while some BVCs were simply established by chiefly fiat. Even where the elections were democratic, the chiefs and FD Extension workers screened the candidates to ensure that they were types of people who they felt comfortable in working with or whom they felt should be in the BVCs. Membership in such a committee was understood to be a highly political issue, as monetary and social benefits accrued to such members. Consequently, ***while some BVCS were constituted of a mixture of gear owners/crew/community leaders, many tended to lack any crew member representation, and in some, fishers constituted a minority altogether*** (i.e. the members were businessmen or farmers)! Women (who had a stake a fish traders and processors) tended to be excluded altogether.

Conflicts between chiefs and BVCs.[81] In some cases, the BVCs were dominated by chiefs. However, in other cases, the BVCs represented a threat to the authority and incomes of the chiefs, and were therefore resented and undermined by chiefs.

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[80] 2003-09-17-Zomba - COMPASS Workshop Observation.

[81] As the traditional arbiters in village conflicts, chiefs were able to assess fines on community members and keep the money or goods (sometime fines were paid in the form of livestock or furniture) collected for personal use. As the BVCs were now assigned the roles of assessing and collecting fishing-related fines, chiefs lost out financially and in terms of personal prestige.

Poor Sense of Stewardship/Ownership.[82] ***BVCs generally regarded their roles as replacing that of the government*** after (they perceived) the laziness and ineffectiveness of the Department of Fisheries had resulted in the collapse of the *chambo* stocks. Therefore, they expected to be paid in return for their activities within the BVCs, and the opportunity to earn from participation is a significant reason for why the selection of BVC membership was a highly politicized activity. ***The most common reason for participation in a BVC was the anticipated financial benefits.***[83] The high level of involvement of (European) donor agency personnel may also have diminished the sense of local ownership over the resource.

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. Many BVC members were also unclear as to the reasons why the BVCs had been established and what their roles were supposed to be. This was partly due to the high level of membership turnover, and a lack of contact with FD Extension officers.

Lack of Trust in the FD. Although the MAGFAD leadership initially had supported funding the replacement of, or providing compensation for illegal fishing gears, a change in project leadership reversed this position (Pohlvogt & Walter, 1995), and indeed claimed that no commitment for the provision of loans for gear replacement had ever

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[82] Illustrated by De Gabriel's (1998) nuanced description of the Malawian concept, *Tangatha*: Traditionally, thangata was an accepted annual contribution of labor by community members in a chief's fields for which the chief would supply the workers with maize beer. This arrangement was legitimized by significant spiritual underpinnings, that related to the chief's role as supplier of fertility. This arrangement also served to maintain the chief's economic dominance and social prestige. However, in the modern era, thangata became associated with the exploitative European-owned plantations where people were forced to labor in poor conditions for little pay. BVC members saw their task as being akin to the latter form of thangata as they saw this as being properly the job of the Department of Fisheries, which having failed in its duties was foisting the task upon the communities.

[83] 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).

been made (U. F. Scholz et al., 1998). ***Nevertheless, as fishers had accepted the new fishing gear restrictions on the assumption that they would receive new fishing gears or loans*** to purchase these (though it should be noted that they did not all intend to discard their old gears), ***when the donor agencies and FD determined that they would be unable to sponsor the loan program, much trust that had been established between the FD and fishers was lost.***

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 (as seen in the points mentioned above). Furthermore, ***FD Extension officers did not interact with communities in transparent or democratic manners*** as they (and the chiefs) selected many of the BVC members as well as the recipients for loans. However, this lack of democratic values in the field staff must be seen as modeled on the hierarchical bureaucracy in which they worked, and the FD's short-term program goals that defined the field staffs' interactions with the BVCs. These symptoms are linked to the fact that the move to co-management was primarily motivated by the department's inability to manage the declining stocks rather than their conviction in the participatory process. Additionally, a GTZ 1995-96 evaluation of the MAGFAD program reflects a certain amount of donor skepticism of the participatory management paradigm, which it saw as having been imposed on the Fisheries Department by the consultants, Bell and Donda (Pohlvogt & Walter, 1995)[84]. Similarly, the FAO's reservations regarding the community-based management approach are seen

[84] This observation is further supported by observations that the FAO lacked confidence in the community-based approach, leading to a Allison et al. (2002)

as having contributed to the half-hearted and top-down approach to community-based management initially attempted in Malawi (Allison, Mvula et al. 2002).

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, 2000a). The BVCs formed a Fisheries Association, but most of the donor agency expertise and funding for loans and micro-loans programs ended in the late 1990's, cutting short almost all of these livelihood diversification initiatives (M. Hara, Donda, & Njaya, 1999). Additionally, GTZ ended its support of the program in 2002, which has undoubtedly had a negative impact on extension efforts. Nevertheless, despite the lack of strong governance structures for this lake, Lake Malombe's fisheries have remained relatively stable, ranging between 3000-4000 tons caught per year (mostly *kambuzi*) during the 1994-2001 period (M. C. Banda et al., 2002). Consequently, unless the local communities genuinely want to support the recovery of the *chambo* fishery (outlined in Banda et al. 2002), and can bear the financial burden associated with the necessary regulations, it might behoove the government to accept this state of affairs and focus their extension and enforcement efforts on optimizing the communities' management and harvest of the *kambuzi* fish stocks (Ferguson et al., 1993).

Mbenji Island Traditional Fisheries Management (primary sources (Scholz, Njaya et al. 1998; Scholz and Chimatiro 2004))

Mbenji Island lies off shore of Nema Village (north of Senga Bay) in Salima District, and plays host to a thriving *utaka* fishery (*Copadichromys spp.*). In contrast with the traditional river fisheries which date at least to the early 1900's, the fishery of Mbenji

Island is a unique case in Malawi as it only became a chieftain-regulated fishery as late as the 1950s, demonstrating the influence that some chiefs maintained despite colonialism and dictatorship. Presumably due to the growth in the numbers of imported beach seines during the 1950s, chief (now sub-TA) Msosa established a fisheries regime to ensure both the sustainability of the fishery and, as well as minimizing conflicts between fishers. The first goal was accomplished by setting a closed season from December-March/April (during which time no one was allowed to live on the island), and banning the use of particularly harmful fishing methods, such as using beach seines lined with mosquito netting or light attraction associated with night-time *chilimira* fishing. Social harmony was enforced by banning alcohol, marijuana, gambling and women [sic] on the island.

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 have endured has endured through several chieftaincy successions, and the FD has made much propaganda (through speeches and radio interviews with Chief Msosa as well as by inviting chiefs from around the country to visit the Island on the day of the opening ceremony) of it to encourage other traditional leaders to take a greater stewardship role over their local fisheries. This would prove to be an inspiration for TA Kanyenda in Nkhotakota, as will be seen in the case studies presented in Chapter 4. However the future success of this program has been called into question due to the

corrupting influence of the increased financial incentives in the form of sitting allowances and invitations to participate in workshops (including the invitation to Chief Msosa to attend a conference in Japan) that NGOs and the FD are providing in order to share the credit for this unique program.[85]

Lake Chiuta Fisheries Association

Whereas Lake Malombe was an entirely 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. Additionally, while Bell (1987) and Murphree (1993) may have been the most significant scientific influences who recognized the potential for rural stakeholders to participate in resource management, and while Mbenji Island shows the potential of chiefs to impose fishing regulations on their subjects, Lake Chiuta was 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.[86]

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 the island, Phiri la Mtsatsi, would abduct any fisherman found fishing around the island, in effect, creating a fish sanctuary (Donda 2000). The

[85] A. Russell –Mangochi District – Interview with FD staff.

[86] 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 is unlikely to produce the desired effect.

conditions that had protected this fishery from being commercialized changed in the late 1980s, when a road was constructed to the lake that linked this fishery to more distant markets (J. 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 who arrived later caused the 1990-91 collapse of the *chambo*[87] 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 caught immature fish of all species, and its dragging action on the lake bottom caused the destruction of *chambo* breeding grounds and made the lake water too turbid for domestic uses. Additionally, the *nkhacha* fishers sold their catches at cheaper prices than the locals, thereby undercutting local incomes (Dawson, 1997; Donda, 2000b).

These threats to local livelihoods, living standards, food sources and ecology came to a head with the collapse of the *chambo* fishery, and the local fishers called a meeting of all fishers 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 members to allow them to continue their fishing activities (J. Wilson, 2004).[88] 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 later

[87] 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*).
[88] They also reported this situation to the responsible District Commissioner, Traditional Authority, and District Fisheries Officer, but no action was taken (J. Wilson, 2004).

exposure to the governmental radio fisheries extension program, "*Usodzi Wa Lero*"[89], they learned of the newly established Lake Malombe PFMP program. The fishers established BVCs around their own lake, and called for a general meeting 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, 2000b). However, 200-300 of the *nkhacha* fishers refused to accept these regulations, and the BVCs forced these fishers to leave by burning down the straw houses inhabited by the *nkhacha* owners on May 19-20, 1995 (Dawson, 1997; Donda, 2000b; J. Wilson, 2004).

In 1996, the FD integrated the Chiuta fishers into the PFMP scheme in order to increase the transparency within, and legal backing for, the workings of the Lake Chiuta Fisheries Association (Donda, 2000b). BVCs were thereby empowered to formulate and enforce their own fishing regulations, and the FD acts primarily in an advisory role to the BVCs. Significantly, the seven village chiefs who had shown their 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 non-voting members (Njaya, Donda, & Hara, 1999; Donda, 2000b). Donda 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

[89] Usodzi Wa Lero translates to "Modern Fishing", and is a weekly 15-minute radio program targeted at disseminating fisheries-related information to fishing communities. This was initiated by the MAGFAD project, sponsored by GTZ, and was first aired on the most popular government-run radio station, MBC 1, on July 20, 1995 (Mueller & Saukani, 2002).

community (Donda, 2000b).[90] In addition to their effectiveness at enforcing fisheries regulations, the Lake Chiuta BVCs were instrumental in collaborating with the government in the FD's annual fisheries frame survey (Njaya 2002).

By 1998, the *chambo* stocks had recovered to their former levels, and following a study tour of the Lake Kariba (in Zambia) co-management regime, the Fisheries Association has continued to refine its regulations and in order to improve enforcement it has subdivided the Lake Chiuta Fisheries Association into two Area Fisheries Association (J. Wilson, 2004). As Lake Chiuta lies partly within Mozambique, an ongoing challenge to the fisheries regime comes from *nkhacha* fishers from the Mozambican shore (Njaya et al., 1999; Donda, 2000a; Mozambique, 2005).[91] 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 *nkhacha* seines from fishermen who had crossed over from the Mozambican shore.[92] The tensions between chiefs and fishers also flared up in 2005, when a chief was physically accosted by Fisheries Association members for having accepted further bribes from Lake Chilwa beach seine owners who attempted, again, to gain access to this fishery.[93]

The Lake Chiuta Fisheries Association faced a severe challenge to its authority in mid-2006 when the local Traditional Authority, TA Kawinga, denied their right to

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[90] Indeed, as a matter of policy, no sitting allowances have ever been given to the BVCs or Association at Lake Chiuta (John Wilson, 2002, Pers. Comm.).
[91] Note, however, that these may not necessarily be Mozambicans. After being chased away, several Malawian nkhacha fishers settled on the Mozambican shore (J. Wilson, 2004).
[92] 2006-08-16 – personal communication – John Wilson; Note, also that 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 (Mozambique, 2005).
[93] John Wilson, 2006, Pers. Comm.

enforce fisheries regulations altogether and overturned the fines that a BVC had levied against two migrant beach seine owners. [94] This ruling must be considered suspect as the TA has been accused by fishers of having accepted bribes from Lake Chilwa fishers; however, it does illustrate the current statutory weakness of BVCs in Malawi.[95] Indeed, while the 1999 Fisheries Conservation and Management Act calls for the official registration of all BVCs and Fisheries Associations, until this simple process is completed by the Fisheries Department, BVCs and Fisheries Associations will not have any legal backing for their enforcement of laws. In order to prevent corrupt officials or chiefs from severely undermining the legitimacy of the most successful example of fisheries co-management in Malawi, the Fisheries Department has to act quickly to provide these BVCs (and others around the country) with a legal mandate (Hara, Donda et al. 2002). The unresolved tensions between TAs/chiefs and the BVCs, and the BVCs' lack of legal standing have been pinpointed as the primary sources of instability in the Lake Chiuta fishery co-management regime, and it remains to be seen how the recent changes to the judicial system that have curtailed TAs' and chiefs' powers will affect their future support for the BVCs' activities (Hara, Donda et al. 2002).

Lake Chilwa and Mpoto Lagoon Fisheries Association

Lake Chilwa is a large shallow lake (roughly 700 km^2 and 2-3m deep) in Southern Malawi that 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

[94] John Wilson, 2006, Pers. Comm.
[95] John Wilson, 2006, Pers. Comm.

good year (Nyasulu, Namoto 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; U. F. Scholz et al., 1998).[96] 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 (J. Wilson, 2004). Because of concerns over the sustainability of fish stocks during the most recent recession of the lake, in 1995, the Fisheries Department and Traditional Authorities around Lake Chilwa decided to implement a co-management regime to limit the exploitation of fish stocks in these refugia (U. F. Scholz et al., 1998; Njaya, 2001; J. Wilson, 2004).

In 1995, a number of River Village Committees were established along all major in-flowing rivers to regulate fishing in river-bed pools, in particular to stop the use of small-meshed nets and plant-derived poisons (U. F. Scholz et al., 1998; J. 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 (U. F. Scholz et al., 1998; J. Wilson, 2004). The full list of regulations and their associated rationales as described by Njaya, (2001) and Nyirenda (2001)are shown in Table 2-7, below.

In spite of the above 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

[96] Significant recessions or complete droughts were recorded in: 1900, 1913-16, 1920-22, 1934, 1954, 1960-61, 1966-68, 1973 and 1995.

the lakeshore, and had little direct knowledge of the fishery (J. Wilson, 2004, 2006). Excluding most primary stakeholders, the BVC regulations were established by the Fisheries Department 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 control over the large numbers of fishers who operate from floating reed islands (regulations 9,11,13), the 6-month closed season on beach seine fishing (regulation 1), and the use of poisons in river bed pools as this is a traditional fishing method used by women (regulation 5) (U. F. Scholz et al., 1998; J. Wilson, 2006).

Regulations	Rationales
1) Closed Season for beach seines in L. Chilwa and Mpoto lagoon, Nov.1-Apr.30	Protect spawning stocks and reduce fishing effort
2) Closed Season in rivers, May-Sept.	Protect spawning stocks
3) Ban use of *Nkhacha* open water seines	Prevent habitat destruction and remove competition with existing beach seines owners
4) Release of any juvenile (*kasawala*) fish captured	Protect juveniles. Large fish fetch better prices
5) Ban use of poisonous plant substances (*katupe*)	Prevent indiscriminate capture of fish
6) Minimum mesh size on gillnets and beach seines	Protect juveniles. Large fish fetch better prices
7) Ban construction of fishing weirs (*biiu*) in rivers during L. Chilwa closed season	Protect spawning stocks
8) Ban use of scoop nets (*pyassa*) for tilapia	Unknown
9) Fishing allowed only during the day	Ease monitoring of landed fish by BVC
10) Poachers or thieves to be banished	Control of theft and ensure compliance to regulations
11) Fish traders should not purchase fish on the water or floating islands (*zimbowera*)	Ease monitoring of landed fish by BVC
12) Prohibit division of catches between crew members and net owners	Unknown
13) Require fisher registration with BVCs and pay governmental fishing license	Regulate effort, control movement of fishers, control of theft of gear, and provide revenue for the government and community
14) Traditional leaders and BVCs should be respected	Promote regulation compliance

Table 2-7. Lake Chilwa and Mpoto Lagoon Fishing Association regulation and their rationales.

Following the decline of MAGFAD and DANIDA[97] support for Fisheries Department extension programs in the late 1990's, the Fisheries Department gained the support of the USAID-funded COMPASS program. COMPASS supported the Lake Chilwa and Mpoto Lagoon Fisheries Association by sponsoring a series of workshops aimed at giving the existing regulations official governmental sanction, and provided the Association with a patrol-boat to enforce its regulations (COMPASS, 2002a, 2003, 2004). Despite the 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 remains problematic. Furthermore, Chilima et al. (2001) have 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 Fisheries Department 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, Morgan et al. 1979; Allison and Mvula 2002; Jul-Larsen, Kolding et al. 2003; Wilson 2004). While conclusions regarding these the effectiveness of the Lake Chilwa BVCs in management must be suspended, they are reported to have been

[97] DANIDA – the Danish Government's foreign aid agency.

effective collaborators in generating the conducting the FD's annual fisheries frame survey (Njaya 2002).

Chieftains establish BVCs at Chia Lagoon

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 & 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.[98] Upon the FD's suggestion, all 23 chiefs and two Traditional Authorities from the communities surrounding the lagoon visited Mbenji Island to learn from Chief Msosa's fishing regime.[99] 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 Dec.1- March 31. The first few years of closed season enforcement

[98] A. Russell – Nkhotakota District – Interview with a chief - 2002-07-15.
[99] Ibid.

brought about a recovery of the *chambo* stocks; however, community support for the closed season subsequently declined.[100]

In 1999, the FD attempted to revitalize the regime by bringing all the BVCs together under a single "Beach Management Group", however Seymour (2005) attributed the lack of BVC success since then 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". (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 (M. M. Hara, 2001; Seymour, 2005).[101] These conditions have subsequently 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,[102] 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 planned to ban a number of fishing gears, including the use of all *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.

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[100] Ibid.
[101] Ibid., A. Russell – Nkhotakota District – Interview with FD staff - 2002-07-15.
[102] Wildlife and Environmental Society of Malawi – Dwangwa Branch; Chia Lagoon Watershed Management Project (CLWMP).

The "Village Trusts" of Lake Malawi National Park

In addition to the Fisheries Department'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 (the 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 & Ferguson, 1995).[103] The primary reason for its establishment was to provide protection within a 100-meter 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. While this 87 km^2 area is quite small in comparison with the lake (6400 km^2), it

[103] A number of the components of the National Park had previously been gazetted by the colonial and post-colonial governments as Forest Reserves: the Maleri Islands Forest Reserve and South Nyasa Islands Forest Reserve (1934), Cape Maclear, Mwenya Nkudzi Hills Forest Reserves (1973). These were then consolidated with other areas into a National Park in 1980 under the National Parks Act, (Cap. 66.07), through the National Park, (Establishment), Order, of 24th November 1980, published as Government Notice No. 205 of 1980.

contains fully half of the 500-1000 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 entirety of the watersheds adjacent to the shoreline was incorporated into a contiguous park. The four pre-existing fishing communities[104]: Chimpamba/Msaka, Mvunguti, Zambo, and Chembe (which contains at least half of the human population in the park), were given permission from President Banda to remain as enclave villages within the park, however their fishing livelihoods were severely curtailed by the park's creation (Grenfell, 1993).[105]

While conservation was the stated goal of the park creation, towards the end of its regime, the Banda government recognized the possibility of untold riches if this park could be developed for high-class tourism. The Malawi Development Corporation, which was 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 (Grenfell, 1993; Derman & Ferguson, 1995).[106] However, 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 Department of National Parks and Wildlife (DNPW) developed a rival plan for small-scale tourism development in the park (Cubberly, 1991; Derman & Ferguson, 1995). Additionally, the DNPW, FD and Department of Water published a number of concerns regarding the

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[104] 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, S. A. (1993). Lake Malawi National Park Management and Development Plan. Malawi, Department of National Parks and Wildlife..

[105] 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.

[106] This hotel would include a casino, swimming pools, tennis courts, a golf course, and conference facilities for at least 200 people (Derman & Ferguson, 1995).

ecological threats that such a hotel would pose to the delicate mbuna habitats, (Grenfell 1993) although it should be noted that no one protested that building such a hotel would require most of Chembe village be moved to make room for the planned golf course (Derman & Ferguson, 1995). While President Banda's deputy, John Tembo pushed for the construction of the hotel, 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 & Ferguson, 1995). In the end, neither plan went through.

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 the sensitization of fishers rather than empowerment of them (Cubberly, 1991). The 1993 Lake Malawi National Park Management plan claimed that fishers were happy to support the non-fishing 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 & Mace, 1999; R. H. V. Bell & Donda, 2000).

Faced with the example and lessons learned from the Fisheries Department 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 (R. H. V. Bell & 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 more closely on the Zimbabwean CAMPFIRE and Zambian ADMADE community-based natural resource management approaches. The management strategy for Lake Malawi NP was described as follows:

> *"The primary economic opportunity is non-consumptive tourism, while consumptive use of mbuna fish and forest products should be reduced to sustainable and aesthetically compatible levels and ultimately eliminated. This can be achieved through the development, 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 all of his relatives as members in a blatant attempt to gain all benefits from the program.[107] 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.[108] Due to the rising animosity, Traditional Authority Nankhumba called for new Village Trust elections and gave chief Chembe the position of ex-officio patron. In

[107] John Wilson, pers.comm.,.2002
[108] A. Russell –Mangochi District – Interview with a chief - 2002-06-17.

addition to the problems at Chembe, other chiefs refused to protect the national parks' forest as they feared that all access to the non-timber products would be denied to them. The TA also intervened in these cases, explaining the nature and value of the Village Trust program to the chiefs, and threatened to have them removed from their positions if they did not accept his rulings.[109]

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.[110] This arrangement has denied other communities' fishers access to the fishing grounds that have now come under the exclusive jurisdiction of Chembe Village Trust. 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.[111]

Aside from those activities that serve their interests, however, 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,

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[109] Ibid.
[110] see Kayak Africa homepage (www.kayakafrica.net).
[111] 2002-06-09 – Msaka – Interviews; 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.

2002b).[112] Nevertheless, the DNPW is reported to have established three Village Trusts to date, and three further trusts (2 inside the park, and one outside the park) 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 the resources. Combating poaching will therefore require more, rather than less, funding of enforcement efforts despite the collaboration of the Village Trusts.[113]

Ongoing conflicts in the Bua River Fishery

While the DNPW has experimented with a co-management regime in the Lake Malawi National Park, the Bua River fishery associated with the Nkhotakota Wildlife Reserve remains a site of conflict (see discussion above, for description of how this conflict came into being). This fishery has been regarded with particular importance by the FD, DNPW, and donor agencies as this 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, also providing a potentially lucrative tourist sport fishery (Tweddle, 1980, 1985; Bank, 1991; Quan, 1993; Tweddle, 1993, 2000, 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 since the local communities that had

[112] John Wilson, pers.comm., 2002.
[113] see also. Rantala, S. (2004). The promise of ecotourism in Lake Malawi National Park. Non-wood News: Country Compass. T. Etherington. Rome, Italy, FAO: 3.

previously fished the Bua River sustainably through an apportioning system 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 who use illegal fish poisons that allow them to catch fish quickly. While local chiefs deplore the situation, they blame the strong local resistance to national fishing weir restrictions (requiring that a gap be left in the middle of the weir) on the communities' lack of access to the portions of the river that pass through the Nkhotakota Wildlife Reserve, and claim that they could manage fishing activities sustainably if the government gave them access to this area.[114]

Although the option of sharing access to the park's fisheries with communities was discussed within the government, the critical status of the fish stocks in the mid-1990's due to the fishing weirs, poisonings, and the siltation of spawning grounds[115] probably led the government to err on the side of caution. Consequently, the government continued their regular fishing weir destruction campaigns[116], supported financially and logistically by the owner of a nearby tourist lodge[117], Illovo Sugar Cane Company[118] and the Dwangwa Branch of the Wildlife and Environmental Society[119] (Tweddle, 2000).Although these actions have been accompanied by "sensitization" activities, the

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[114] 1995-05-16 - Mpasa Research and Monitoring Programme, 13th to 14th May, 1995 from Fisheries Research Advisor (D. Tweddle) to Directors of FD and DNPW; A. Russell – Nkhotakota District – Interview with a chief - 2002-07-15.

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

[116] 1996-02-16 – FD-DNPW Weir dismantling trip memo, 2002-01-02-FD-WESM memo.

[117] 2002-05-08 – Dwangwa – WESM (Terry Black).

[118] 2002-01-02 – FD-Illovo memo; A. Russell – Nkhotakota District – Interview with FD staff - 2002-07-15.

[119] 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.

irreconcilable differences between the community and government positions and the polarizing nature of the fishing weir busting actions have resulted in severe animosity and retaliatory actions by local community members against the government's representatives.[120] The Fisheries Department Research Advisor at the time, Tweddle, interpreted an extreme poisoning episode in 1993 as having been in retaliation for a combined Malawi Fisheries Department and Department of National Parks and Wildlife fishing weir destruction effort that same year.[121] 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 (including crocodiles) along many kilometers of river (Tweddle, 2001).[122]

During the late 1990s and early 2000s, the Japanese (JICA) and Danish (DANIDA) aid agencies, and the World Wide Fund for Nature (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, the most tangible result of which has been the creation of three "Natural Resource Management" (NRM) Committees in the communities near the Bua River mouth which established a number of conservation regulations and fines in 1999[123] :

- Fishing without a permit – K1000
- Poaching (of any wildlife except elephants) – K5000
- Poaching elephants – K10,000
- Gillnets with mesh smaller than 2 inches – K2000
- Infractions of 1 Dec. – 31 Jan. gillnet closed season – K5000

[120] A. Russell – Nkhotakota District – Fishing Observation - 2002-07-15.
[121] 1994-07-13 - Mpasa Research and Monitoring Programme, 5th to 8th May, 1994.
[122] 1994-07-13 - Mpasa Research and Monitoring Programme, 5th to 8th May, 1994.
[123] A. Russell – Nkhotakota District – Interview with FD staff - 2002-07-15.

- Sawing timber without permit – K5000
- Use of poison – K20,000
- Use of 2-4 inch mesh gillnets or constructing weirs at Bua river mouth – K10,000

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.[124] While fishing weirs primarily caught *mpasa* and *sanjika* in the past, the declines in these species mean that fishers now catch mostly *chambo*, and some fishers are migrating elsewhere in search of better fishing grounds.[125]

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 1990's, an appreciation for the need for greater research on the social, economic and political factors that undermined fisheries management in Lake Malombe was

[124] A. Russell – Nkhotakota District – Interview with WESM staff - 2004-05-08, A. Russell – Nkhotakota District – Interview with fisher - 2005-03-17, A. Russell – Nkhotakota District – Fishing Observation - 2002-07-15.
[125] A. Russell – Nkhotakota District – Interviews with fishers - 2005-03-17, 2005-03-17.

entirely lacking 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 (U. F. Scholz et al., 1998; Hummel, 2000).[126] However, the NARMAP program in Lake Malawi faced many of the same challenges as did 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 semi-commercial fishing industries, who the small scale fishers see as competitors for the fish stocks (Ferguson et al., 1993; Ferguson & Derman, 2000; Haraldsdóttir, 2002).[127] 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 (A. Z. Banda, Kwaela, Thinda, Mauwa, & Joshua, 1999;

[126] NARMAP - National Aquatic Resource Management Programme, the GTZ-sponsored program modeled on the MAGFAD program in Lake Malombe.

[127] 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 FD.

Haraldsdóttir, 2002). Many of these concerns and reasons for fisher distrust were summarized by a FD study of fisher attitudes:

> *"The [artisanal] fishers are not inspired to comply with fisheries management regulations when they see that the trawl fishers can fish without observing closed season and using small mesh sizes in the cod ends, when they see that the gears they consider destructive are licensed, when they suspect that regulation enforcers receive bribes, collude with "Big" fishers and the illegal gear owners are let free, when they see that [the] fisheries research vessel fishes in shallow waters and during closed season." (Banda, Kwaela et al. 1999)*

Additionally, an examination of FD extension worker surveys highlighted the poor reliability of extension personnel reports that claimed to have established functioning BVCs throughout their jurisdiction, an observation reflected in the FD's own KAP Survey study.[128] The reason for this was supplied by a FD staff member who speculated that the distribution of fuel allowances according to the number of BVCs that an extension worker had established, may, lacking proper supervision, have created a perverse incentive to falsify records of BVCs established.[129] This behavior, in turn, must be partly blamed on the poor supervision and support received by the field staff, who regularly receive their salaries late, and who having learned their professions in a culture of autocracy, and were poorly trained in how to facilitate the establishment of participatory fisheries management (IDA, 1995; Hummel, 2000).[130] These conclusions were reflected by a NARMAP study which indicated similar shortcomings that limited the accuracy of FD fisheries catch and effort data collection (O.L.F. Weyl, Manase,

[128] A. Russell – Mangochi District – Fishing Observations - 2002-06-10, 2002-06-11 – Observations, A. Russell –Mangochi District – FD Archive - 2002-06-15.
[129] A. Russell –Mangochi District – Interview with FD staff - 2002-06-04.
[130] A. Russell – Mangochi District – Fishing Observations - 2002-06-10, 2002-06-11.

Namoto, & Banda, July 1999).[131] Consequently, 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 (Figure 2-8 below).



2 MALAWI NEWS DECEMBEI —15, 2000 LOCAL NE..3

Police tear gasses Mangochi fishermen

STORIES BY EDWARD CHINWAZA

TENSION is simmering in the lake-shore district of Mangochi between local fishermen and the Department of Fisheries to an extent that more police have been hired to deal with the fishermen who will continue defying orders not to go fishing.

Malawi News established that week that heavily armed riot police launched a crackdown on local fishermen who are accused of over-fishing and unleashed tear gas canisters in the process. What followed was a stand-off in which some fishermen sustained minor injuries.

But the fishermen have vowed never to hear down.

The government ordered all small fishermen to put off shore all their nets saying this was a closed season whereby they should be no fishing of chambo, a rare species of mlamb found only on Lake Malawi.

The order triggered a row which has been going for the past three months as small scale fishermen are not amused since the government is letting MALDECO Fisheries, a Press Corporation subsidiary company, fish in the lake.

The smaller fishermen are challenging the government's stand and have accused it as frequenting foreigners.

"Those interviewed expressed worry and feared that this might have come from the big companies who are fighting tooth and nail to drive the local fishermen out of business.

"We know what is happening. MALDECO Fisheries fears that we all scramble for the same customers," said Abbi Saidi of Mchesi Village, Chief Mpilisi's headquarters.

Saidi suspected a conspiracy between the government and MALDECO Fisheries aimed at driving off small scale fishermen.

Yotufu Mwalaiwa of Namkyani village in the same area was furious on what he termed as a " dpoff by the government."

He wondered why the government is so strict on poor people who fish only to make a living and leaves out MALDECO which sweeps the fish in the lake.

Fishermen in Mangochi are having difficulties to operate

The sudden development , according to the fishermen, it that the Department of Fisheries has engaged police to help the government to chase the fishermen.

Head of Research in the Department of Fisheries, Dr. Martin Banda confirmed the row and said that it has been there throughout.

"What happens is that small scale fishermen think that big scale fishermen monopolize the fishing of *chambo* while big scale fishermen also think that it's small scale fishermen who are getting big business," he said.

Fisheries Officer inside department of Fisheries, Francisco Mauvo said that the department with the assistance of the police are doing a commendable job.

"We patrol the lake very often and when we catch anybody fishing we give the appropriate punishment," he said.

Mauvo said that they are two ways of punishing the culprits.

"One is that there is a Community Committee which is chaired by local leaders while the other is through the court of law whereby the culprit is asked to pay a maximum fine of K20,000," he said.

'Nobody is allowed to fish'

DEPARTMENT of Fisheries has banned seven fishermen who will continue defying orders not to go fishing.

"This is what we call closed season. Nobody is allowed to fish using beach/ bega nets, *Kambasi* bega nets and *mikache* nets," said Sam Mapira who is the country's Director of Fisheries.

Mapira said that the idea behind closing the lake is to protect the breeding stocks of chambo. He elaborated that this is a temporary measure which started on October 1 and will end on January 1.

On MALDECO , Mapira said that it is unfortunate that people misunderstand who is happening. He said that during this period *chambo* fish move from deep waters to shallow waters for breeding.

So those traditional fishermen catch the fish as they are in the shallow waters. We are trying to prevent this so it would depleted in the waters."

According to Mapira MALDECO Fisheries which is run by professionals but the means to go beyond 50 feet where they fish without interrupting the breeding of chambo.

Head of Research, Dr. Moses Banda said that the basic problem is that of misunderstanding.

"I have written a book to clearly, some of the points you are raising," he said adding: "There is a big difference between MALDECO Fisheries and local fishermen. The boat they are using for fishing is worthy K30 million. Who can afford buying a boat at that amount?" he asked.

On its part, police has said that they only use tear gas when they meet some resistance.

"I have to verify what you are asking from Mangochi police but if at all police used tear gas then it means there was a confrontation," said police spokesman, Oliver Soko.

Press Corporation Limited's Divisional General manager (Industrial Divisions), Pius Mailipo said that it is shocking that fishermen and some people are still not aware that MALDECO Fisheries do not fish in shallow waters where *chambo* is mostly found.

"We fish in deep waters where *chambo* is not found. To us we don't see any difference whether the limit is closed or not since we still fish," said Mailipo.

Figure 2-8: December 15, 2000 Malawi News Article describing use of force against Mangochi Fishers.

In this event, fishers resisted the FD attempts to enforce the Nov.-Dec. closed season against in-shore fishing gears (i.e., beach seines and gillnets), the fishers refused citing MALDECO and the Fisheries Department's own continued fishing activities during the

[131] Serious incongruities between the field data collection forms and the realities faced by field enumerators included: fishing gears don't always land at a recognized beach, or tend to arrive in large numbers at a time, making their enumeration very difficult. Additionally, due to the multi-species fishery, most catches are sold as a mixture of fish species, making any enumeration by species impossible. Overall, many staff feel under trained and poorly supervised, and admit to falsifying records.

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 off-load 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 (2001).[132] Therefore, while the then Director of Fisheries, Sam Mapila, explained that the conflict was 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 received little financial and staff support to implement PFMP in their regions. Ironically, however, the case studies presented in chapter 4 parallel the case of Lake Chiuta in illustrating how a lack of financial incentives for BVC creation may have helped several central and northern lakeshore communities achieve what the southern communities could not.

Malawi's Current Array 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 backgrounds. 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

[132] A. Russell – Mangochi District – Fishing Observations - 2002-06-10, 2002-06-11.

different regimes. These regimes are presented in Figure 2-8 below, overlaid on a scale that represents a continuum (adapted from Pomeroy (1995)) from completely government-directed regimes (i.e., "fences and fines") to complete community-based natural resources management (CBNRM) regimes. "Co-management" is a commonly-used label by resource managers to denote a resource management regime that lies at the center of the continuum as describing, and has been defined as:

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

The format of each fishery regime's box within Figure 2-9, below, indicates its current status: dashed grey indicates a regime that has been abandoned; solid grey indicates a current regime that shows signs of weakness; solid black indicates a current regime that shows promise.

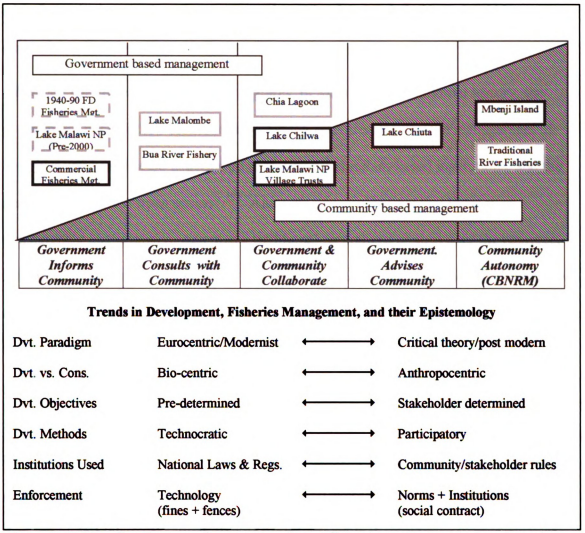


Figure 2-9. The Continuum of present and past fisheries management regimes in Malawi, and their epistemological and technical origins.

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 revision 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".[133] Although one could argue that these river management institutions represented a traditional centralized control over the resource, I 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 they maintain 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 (several case studies of which will be discussed in Chapter 4) are threatening to make these institutions irrelevant. Nevertheless, despite the spread of modernity and democracy in Malawi, the institution of the traditional authority has remained resilient and adaptable in some contexts (to be further explored in the chapter 4). Based on an adaptation of this traditional leadership role, the Mbenji Island fishery has remained a sustainable fishery, 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 range from informal sanctions to formal fines.

[133] 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. This is 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 has been used to describe a condition when a existing resource management institution collapses leading all users to pursue individualistic goals of maximizing personal gain at the cost of the common good (i.e. "Tragedy of the Commons") (Hardin, 1968).

"Fines and Fences": Government-based fisheries regimes. At the other extreme of the spectrum, the government's attempts to scientifically manage Lakes Malawi and Malombe prior to the early 1990's proved a failed regime, which can be blamed on a combination of factors. The management paradigm was based on a Western, modernist, bio-centric paradigm that was focused on maintaining the target of Maximum Sustainable Yield for *chambo* in a multi-species fishery, and in the case of Lake Malombe we found that the users did not even see maintenance of *chambo* stocks as a priority. This regime was characterized by a profound under-appreciation for the social and economic contexts, and attempted to impose its vision by force and intimidation. Similarly, Lake Malawi National Park was established against the wishes of the local communities, although with the support of international conservation organizations and researchers who prioritize bio-centric research and development goals over social ones. 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 enforcement of its regulations would have required a much greater amount of staff and resources. The government's management of the commercial fisheries sector in Lake Malawi, however, has proven reasonably successful due to the limited number of fishing vessels involved although accusations of government complicity in illegal fishing activities causes difficulties for the government's 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 pre-determined 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 established objectives or the means of achieving them is necessary.

Community-led Co-management. The case of Lake Chiuta reflects some of the case studies to be discussed in the following chapter, in that it represents a scenario where local fishing stakeholders have designed new institutions to address local ecological and livelihood threats with some advice from the government. This institution came about in spite of the poor leadership provided by local political and traditional leaders, and the national government's role has primarily been to act as an advisory resource and external legitimizing agent for the Lake Chiuta Fisheries Association. Given the grass-roots support for this regime, and its repeated rejection of corrupt leader's guidance, this regime will represents a prime model for other fishing communities in Malawi.

True Co-management: Government and Communities explore the way forward. I have categorized the Chia Lagoon Fisheries Association, Lake Chilwa Fisheries Association, as true co-management regimes for the reason that the government and communities are both quite involved in helping to explore and define new fisheries management regimes. While these institutions have been informed by western "co-management" models 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 that had caused previous management attempts to fail. This program is still in its infancy, however, and real results remain to be seen. The Lake Malawi National Park Village Trust program has been included in this category as although the objectives and means for attaining them were defined 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. This scheme has also been informed by a Western co-management paradigm based on models that have had some success in other African countries.

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

Since the year 2000, a large amount of attention and funding has been focused on better understanding and addressing the challenges that fisheries co-management has faced in Malawi. Of particular note, the USAID-funded COMPASS and COMPASS II projects have played key roles in facilitating these learning processes associated with community-based natural resources management.[134] In order to facilitate this process among policy makers, resource managers, and scientists, COMPASS has sponsored a number of workshops and conferences and provided a venue 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

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

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 Fisheries Department with a manner to delegate some fisheries management roles to local fisheries committees, the emphasis in this act remained on the centralized government's roles in resource protection. With the subsequent passage of the:

- Fisheries Management and Aquaculture Policy, 1999,
- National Fisheries and Aquaculture Policy, 2002, and
- *Chambo* Restoration Strategic Plan, 2003,

the government's emphasis has shifted to poverty alleviation and empowering local Fisheries Associations' control over local fishing grounds. Particular conservation hope has been placed in the establishment of local fishing sanctuaries and communities capacities to limit access to outside fishers, as provided for in Schedule 6 to the 1997 Fisheries Conservation and Management Act.[135] Closely associated with this progress toward devolution of fisheries management roles to communities is the National government's decentralization policy that is devolving most government functions and line ministry direction to District Assemblies (Trick & Manning, 2002).

Despite these significant advances in fisheries co-management policies, "legal toolboxes", capacity building of senior government staff, and a proliferation of grey literature describing the reasons for BVC failures and successes, little of this capacity

[135] Schedule 6 was added as an amendment to the Fisheries Act in 2003, and is entitled: "Ministry of Lands Valuation and Physical Planning Leasehold Permit/Agreement for Exclusive Fishing Rights."

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 me 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).[136] 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. Similarly, most BVCs have been shown to be sorely lacking in literacy, finance, and management training, which can be attributed to the poorly paid, motivated, trained, and supervised field staff responsible for this task (A. Z. Banda et al., 1999; Kamperewera & Wilson, 2003; Russell, 2003). Finally, the roles of the Traditional Authorities in fisheries co-management remains ambiguous and poorly addressed by the 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

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

customary roles as adjudicators and mediators make their support of local BVCs crucial (M. M. Hara, 2001; Trick & Manning, 2002).

As has been seen in the cases thus far, 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 firmly entrenched in the Fisheries Department, a phenomenon reflected in other government departments (Allison, Mvula et al. 2002; Englund 2002). As described by Chinsinga (2002), such hierarchies tend to toward *instrumentally* participatory programs (i.e. in which local communities participate in projects that are predefined by the government) rather than *transformational* ones (in which the communities' priorities define the development projects), thereby diminishing any local empowerment objectives. Similarly, donor agencies' support of fisheries co-management has tended to reinforce this pattern by focusing most of their capacity-building efforts on strengthening (and enriching) 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) has found that while this may result in short-term successes for the NGOs and their target communities, the long-term effects for the local governments and communities may be overwhelmingly negative. These conclusions have been borne out by the FD field staff's experiences, as communities have become accustomed to being paid to participate in donor agency and NGO programs and are unwilling to participate when external funding

for the program inevitably ends. 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 staffer's abilities to conduct any capacity building at all due to their inability to offer financial incentives (Russell, 2003). These issues contribute significantly to low morale and unethical behavior observed on the part of government field staff.

However, these long-term capacity-building needs are not issues that most donor agencies, which are 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 2-10, below).

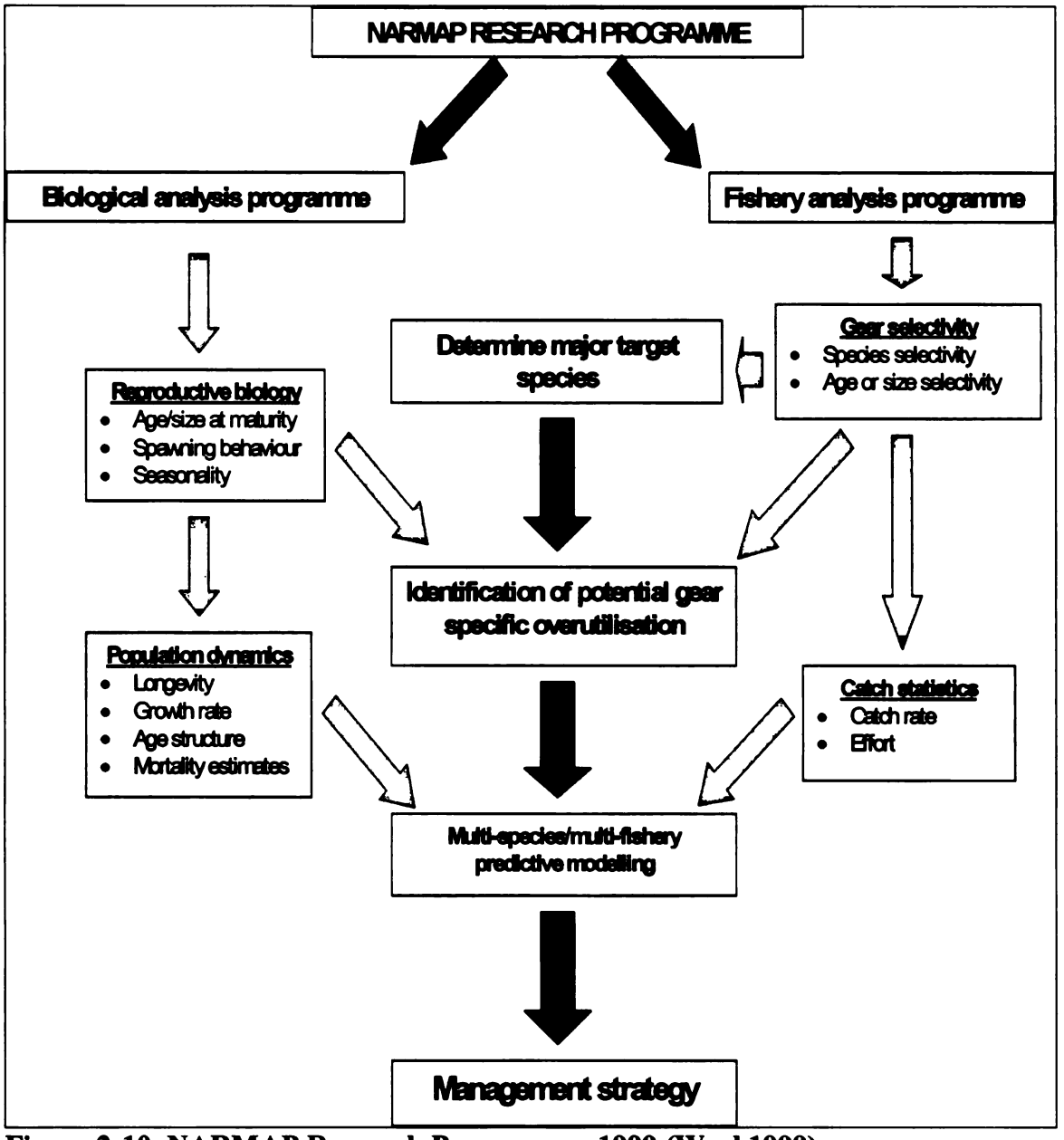


Figure 2-10. NARMAP Research Programme, 1999 (Weyl 1999).

In a pattern that reflects a past bio-centric research bias, current esearch on the real on-going "messy" social, cultural, political, and economic issues that are confounding the FD's attempts to establish co-management regimes throughout Malawi were entirely missing in the donor agency research agendas (Ferguson and Derman 1993; Weyl 1999; Allison and Mvula 2002). Unsurprisingly, this orientation of priorities was

reflected in the Fisheries Department's allocation and prioritization of research efforts in which the entire contribution toward better fisheries management from the social and economic sciences was limited to an economic study that will have little to no impact on fisheries management itself (see highlighted in Table 2-8 below).

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.	

Table 2-8. Ranking of Fisheries Department research proposals for 2000-2001 (Banda, Chisambo et al. 2000).

The afore-going chapter has attempted to provide the reader with a contextual history of the ecological, and more relevantly, the "messy" institutional, social, and economic factors that will help us better understand the conditions under-which the Malawian Fisheries Department and its fishing communities are attempting to establish co-management regimes. Despite these challenges, the case studies of successful co-management regimes presented in chapter 4 will hopefully present the reader with some lessons that will enhance the chances of success for sustainable fisheries co-management regimes elsewhere.

Chapter 3

Research Methods

Selection of Research Sites

The case studies presented in this dissertation were selected during a pre-dissertation research trip, when which I traveled and interviewed fishers and fisheries managers along the full length of the Malawian Lake Malawi shoreline between May-August 2002.[137] Until that time, most fisheries research and management efforts on Lake Malawi had focused on the Southern lakeshore which is characterized by higher biological productivity and fishing effort, and a closer proximity to Malawi's major cities. As a result of these prolonged (though unsuccessful and conflict-ridden) governmental and donor agency interventions in the south, this area's fishing communities showed little initiative to address declines in their local fish stocks. Additionally, the large variety of research projects that have taken place in this region since the early 1990s has meant that many community members showed symptoms of "research fatigue", and a disinclination to discuss local fishery issues with me when I attempted to interview them. As has been discussed in the previous chapter, this phenomenon is certainly due partly to an expectation by local people of being paid for

[137] Pre-dissertation funding was provided by a Foreign Language and Area Studies (FLAS) Summer Fellowship from the Center for the Advanced Study of International Development (CASID) at MSU, and a Walker-Hill Pre-dissertation Travel Grant awarded by the International Studies and Programs Office at MSU. Dissertation funding was provided by a Fulbright – IIE Dissertation Research Fellowship and a Research Incentive Fellowship from the Graduate School at MSU.

any activity that they might do related to fisheries management (including participation in research), a by-product of poorly-designed fishery development programs in the 1990s.

The purpose of my dissertation research was to analyze the facilitative and limiting factors in fisheries co-management, but my pre-dissertation research showed that Southern Lake Malawi fishers were largely apathetic to over-fishing and skeptical of government and donor agency programs. In contrast, in parts of the Northern and Central lakeshore which had received relatively little research or management attention from fishery researchers, managers and development programs, I found that a number of communities were adopting (or had adopted) novel institutional innovations to address the ecological, social, and economic threats from over-fishing. Not surprisingly, fishers in these areas also showed a greater willingness to meet with me and discuss issues relating to fisheries.

In order to help inform fisheries managers and scientists of the potential for community-based fisheries on Lake Malawi, I selected a number of case studies that represent a variety of institutional solutions to over fishing. Key variables in this selection included:

- the initiating and supportive roles played by key stakeholders (Traditional Authorities, village chiefs, private land owners, NGOs, Malawi Fisheries Department, fishing industry leaders); and
- the forms of regulations established (temporal access restriction, spatial access restriction, specific gear restrictions, behavioral fishing/-associated regulations).

While each case study's initial institutional innovation was prompted by different proximate, i.e., social, economic, or ecological threats, all communities eventually recognized the need to address the ultimate cause of these threats, over-fishing. Four case study sites were selected, and are shown in Figure 3-1, below:

- **Yiwemi BVC** in the far North came about primarily due to the local community's concerns over fishery related conflicts. In response, the local chief established fishing regulations and appointed a committee to enforce them. These experiences have also, subsequently, led to the establishment of a co-operative to diversify local livelihoods away from an over-dependence on fishing.
- The **North Rukuru River** traditional fishery represents a form of access limitation to the migratory fish stocks in the rivers that has been in place for almost a century. This management system falls under the control of the Traditional Authority.
- The **Dwangwa Fish Sanctuary** and **Kambindingu Fisheries Association** have come into being following local crises over fish stock declines and threats to fishers' access to fishing grounds. In these cases, non-traditional fishing community leaders (i.e. not the chiefs) with the support of a local NGO and the government have established fishery-regulation institutions to address the crisis. Although there is considerable overlap between these two case studies, this was not the case initially, and has evolved to be so over time.

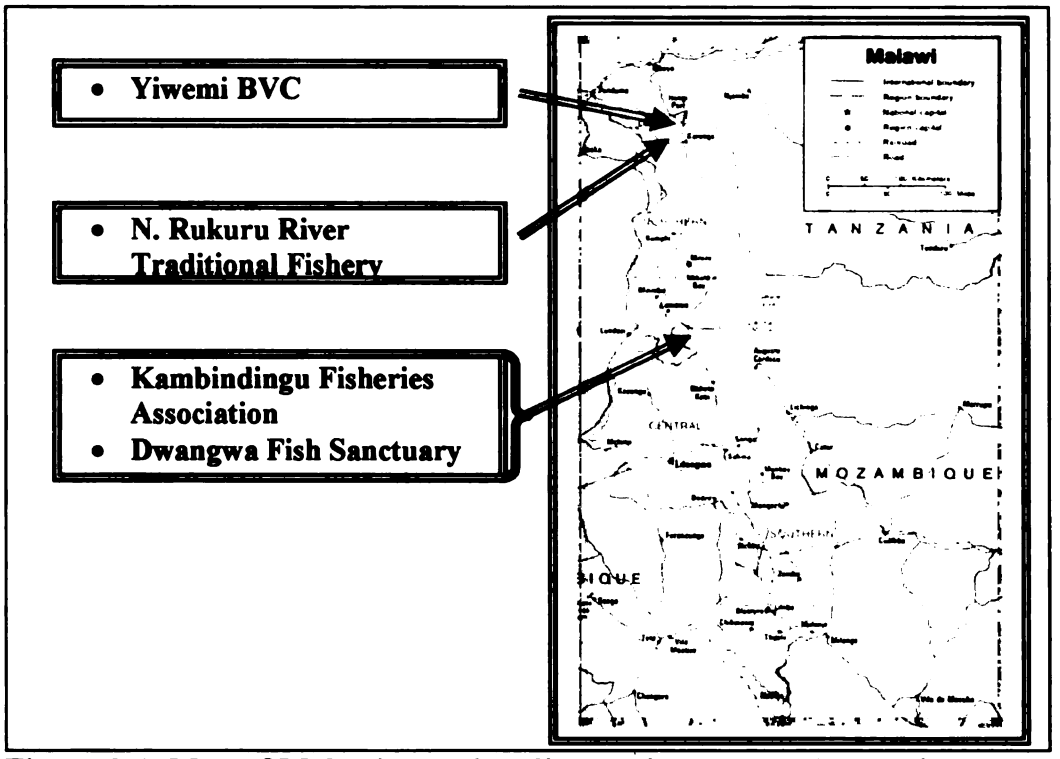


Figure 3-1. Map of Malawi, showing dissertation case study locations.

In all but the North Rukuru River fishery, I conducted preliminary interviews during my pre-dissertation research, and was able therefore to follow stakeholders' perception of institutional innovations over a period of three years time. The North Rukuru River fishery was only selected upon the commencement of my dissertation research (between August 2003 - April 2005), which constitutes the majority of time spent in Malawi and the majority of data gathered. During most of this time period, I maintained two permanent and one temporary household in or near the respective fishing communities in which I was doing my research.

Ethnographic Research Methods (observation, participant observation, semi-structured interviews, life histories)

My primary research method was ethnography as this is the only social science methodology that would allow me to understand how the fishery stakeholders perceived, created, and adapted to their emergent or dynamically evolving fishing institutions. This research methodology, which will be discussed more fully below, was pioneered by the anthropologist Bronislaw Malinowski.[138] His research may also be considered the first true study of fishing institutions as his research subject happened to relate to the lives and culture of fishing communities on the Trobriand Islands in New Guinea during World War I. The ethnographer and ethnography have been described, respectively, as:

> *"...examines meanings that have been socially constructed and consequently accepts that values and views differ from place to place and group to group. There is not one reality out there to be measured; objects and events are understood by different people differently, and those perceptions are the reality – or realities. [Therefore we] seek thick and rich descriptions of the cultural and topical arenas they are studying and try to develop an empathetic understanding of the world of others" (Rubin and Rubin 1995).*
>
> *"...an ongoing attempt to place specific encounters, events and understandings into a fuller, more meaningful context" (Tedlock 2000).*

Since Malinowski's research, fishing communities have enjoyed great popularity as research subjects by a variety of anthropologists and related scientists who have been interested in various aspects of fishing community lives (Ex. (Löfgren 1972) (Wadel 1972; Smith 1977; Acheson 1987; Anderson 1987; Carrier 1987; Taylor 1987) (McCay 1984)). However, as Acheson (1981) describes in his study of fisheries anthropology, the

[138] Published as: The Trobriand Islands (1915) and Argonauts of the Western Pacific (1922).

single most unifying theme throughout these studies has been the institutional innovation that arises from a livelihood frought with risk and uncertainty:

> *"Fishing poses some very unusual constraints and problems. Marine adaptations are one of the most extreme achieved by man...earning a living in this uncertain and risky environment. While fishermen cannot control the weather and location of fish, they can reduce some of the uncertainty of fishing by entering into agreements with each other. Some of these institutions and norms reduce risk by insuring fishermen some part of the catch or at least a chance to catch fish; others operate to reduce costs of fishing; and still others to increase revenues from the sale of fish" (Acheson 1981).*

In contrast with other social science methodologies such as surveys and experiments, the ethnographic researcher does not remove the data collection from its natural setting (as with experimental research) and allows greater incorporation of themes, processes and interpretations as defined by local stakeholders (in contrast with survey research) (Singleton Jr., Straits et al. 1993). Instead, the need to understand local meanings, definitions and categories require that the research be conducted in situ, and the primary techniques used are qualitative interviews and participant observation. Therefore, while some might misunderstand the difference between ethnography and other social science methods by its (largely) qualitative nature and rejection of objectivist standards, the selection of ethnographic methods is actually driven by the nature of the specific research aims being pursued. In particular, Weiss (1994) identified a number of research aims that are ideally suited for an ethnographic research approach:

- Developing detailed descriptions,
- Integrating multiple perspectives,
- Describing process,
- Developing holistic description,
- Learning how events are interpreted,
- Bridging intersubjectivities,

- Identifying variables and framing hypotheses for quantitative research.

In addition to, and partly due to their different research aims, the standards of validity in ethnography differ from those used by quantitative social scientists. Whereas survey and experimental researchers justify their conclusions through statistical rigor, and claim to produce objective, generalizeable knowledge, ethnography does not. Rather the product of ethnography is "a common understanding of local culture" (Bohannan and van der Elst 1998), that entails several assumptions regarding the nature and purpose of ethnographic knowledge (Rubin and Rubin 1995):

- *"Successful qualitative interviewing requires an understanding of culture. Culture affects what is said and how the interview is heard and understood.*
- *Interviewers are not neutral actors, but participants in an interviewing relationship. Their emotions and cultural understandings have an impact on the interview.*
- *The purpose of qualitative interviewing is to hear and understand what the interviewers think and to give them public voice."*

Based on these assumptions, ethnographic research methods approach the research phenomenon very differently from other social sciences. A key part of ethnographic research is the requirement that the researcher spend an extended amount of time in close interaction with people in their everyday lives (Schatzman and Strauss 1973). This process generally requires the ethnographer to learn the local language, and to use his/her (at times strategic) ignorance of the local cultural context as a learning tool by which locally taken-for-granted truths can be explored (Spradley 1979; Tedlock 2000). This process is necessary as the ethnographer has to achieve rapport with the members of their community who will feel most comfortable in their own every-day life settings (Patton 2002). Additionally, people invariably represent themselves differently in

different contexts, and the ethnographer must interact with them in a variety of settings (home, occupational, social, ceremonial) over time if he/she wants to gain access to their confidences (Agar 1996). The types of data collected in ethnographic research, includes explicit knowledge, that is expressed verbally, as well as tacit knowledge, which must be inferred from the explicit data and personal observations of peoples' actions (Spradley 1979).

As mentioned above, ethnographic research is evaluated by different standards than other social science research approaches. While it is informed by specific theoretical perspectives, rather than imposing pre-defined categories and definitions upon the research data, ethnographers tend to use open-ended, qualitative interviews and participation in the peoples' every-day lives and "let ideas emerge from the interviews, from the lives and examples of the interviewees" (Rubin and Rubin 1995). Recognizing that these understandings are relative, and intimately intertwined with the identity and theoretical perspective of the researcher, the relevant standards of validity for ethnographic research are: "credibility" and "completeness" (Rubin and Rubin 1995), "fairness" (Guba 1981; Lincoln and Guba 2000), and "utility" (Patton 2002). Consequently, the credibility of ethnographic conclusions stems from the ethnographer's documentation of primary sources and demonstration of good ethnographic practices, including: prolonged engagement at a site, persistent observation, peer debriefing, triangulation, collection of referential adequacy materials, member checks, establishing structural corroboration or coherence, establishing an "audit trail", and practicing reflexivity, descriptions of which are provided in Figure 3-2 from Guba (1981). While ethnographic research does not claim to be generalizeable, these research conclusions

may be considered transferable if the "thick description" and "purposeful sampling" demonstrate the extent to which the source and destination contexts share similar characteristics (Figure 3-2, below).

Credibility

- "***Prolonged engagement at a site***, to overcome, so far as possible, distortions produced by the presence of researchers and to provide researchers the opportunity to test their own biases and perceptions, as well as those of their respondents.
- ***Persistent observation***, in order to identify pervasive qualities as well as atypical characteristics.
- ***Peer debriefing***, to provide inquirers the opportunity to test their growing insights and to expose themselves to searching questions.
- ***Triangulation***, whereby a variety of data sources, different investigators, different perspectives (theories), and different methods are pitted against one another in order to cross-check data and interpretations.
- ***Collection of referential adequacy materials***, whereby documents, films, videotapes, audio recordings, and other "raw" or "slice-of-life" data items are collected against which findings and interpretations can later be tested.
- ***Member checks***, whereby data and interpretations are continuously tested as they are derived with members of the various audiences and groups from which data are solicited.
- ***Establish structural corroboration or coherence***, that is, testing every datum and interpretation against all others to be certain that there are no internal conflicts or contradictions.
- ***Establish an "audit trail"*** that will make it possible for an external auditor to examine the processes whereby data were collected and analyzed, and interpretations were made.
- ***Practice reflexivity***, that is, to intentionally reveal to his [or her] audience the underlying epistemological assumptions which cause him [or her] to formulate a set of questions in a particular way, and finally to present his [or her] findings in a particular way.

Transferability

- ***Do theoretical/purposeful sampling***, that is, sampling that is not intended to be representative or typical ... but that is intended to maximize the range of information uncovered.
- ***Collect "thick" descriptive data*** that will permit comparison of this context to other possible contexts to which transfer might be contemplated".

Figure 3-2. Key elements that contribute to credibility and transferability of ethnographic research (Guba 1981).

Discussion of individual research methods

Qualitative interviews and participant observation. Participant observation (PO) and qualitative interviews are the mainstay of ethnographic research. Rather than being a specific technique, PO describes the crucial research approach and "state of mind" (Crane and Angrosino 1992) of the ethnographer as he/she lives and interacts with people in the community. Its importance as an integral part of conducting effective research is illustrated by Bohannan and van der Elst (1998):

> *"'Participant observation' means that the ethnographer participates in the life of the people in order to discover what the right questions are. Two factors limit participant observation: what those people will put up with and what the personality of the fieldworker will allow. Only if ethnographers learn to speak with people in their own language can they understand the rational reasons people have for doing what they do."*

Building upon these personal experiences the ethnographer may conduct a variety of different types of interviews, and in the most general sense these may be described as 'cultural' interviews' and 'topical interviews'. Cultural interviews, also referred to as exploratory interviews, are primarily aimed at "learning how people see, understand, and interpret their world" (Rubin and Rubin 1995), and take more open-ended, unstructured forms with less guidance provided by the interviewer. I used this form of interview extensively during my first months of acclimatization in each research case study site in order to gain a broad understanding of local livelihoods, institutions, ecological trends, etc (Schensul, Schensul et al. 1999). During these interviews, while I did ask specific questions to initiate the conversations, the specific topics discussed were frequently introduced by the interviewee, while I attempted to maintain the conversation by using an array of different probes (Bernard 1995).

In contrast, topical interviews tend to be more structured, as the researcher has defined specific topics of interest and is looking to learn about events and facts (Rubin and Rubin 1995). I used this form of interview most frequently in order to cross-check individual peoples' claims or assertions, to uncover the reasons for inconsistencies between data sources, and to monitor peoples' perceptions over time (Maxwell 1996). In contrast with the unstructured cultural interviews, therefore, I frequently used interview guides that listed the questions I intended to discuss (Bernard 1995; Chung 2000).

An additional form of interview that falls outside the cultural-topical interview dichotomy, and which warrants mention, is the 'life history' interview. In order to learn about the history of any community, its past settlement patterns, livelihood practices, and traditional institutions, I conducted interviews with the local village chiefs and the Traditional Authority (known as a TA). The reason why most historical information came from the chiefs is that they are the traditional 'owners' of the village settlement, and any community's history is inextricably intertwined with that chief's family's history. While these interviews were frequently the most lengthy interviews conducted (extending in one case, to two several hour periods on consecutive days), they also provided me with an incredibly valuable understanding of how institutions and livelihoods have changed over time. In addition to their length, these interviews also frequently posed the greatest logistical difficulties. In order to obtain an interview, I was regularly forced to travel back and forth several times to the chiefs' homes as they would often be called away at the last minute for funerals, illnesses or to settle disputes. Regardless, many interviews that I held with chiefs were indispensable for my research as they provided me with much-needed historical and cultural insights into present day events.

During the course of my field work, I conducted most interviews while interacting with people in the midst of their (which became part of my) daily activities. Many of these interviews were initiated during unscheduled encounters: as we passed each other on a walking path or road, while resting in the shade of a fish drying rack, as fishers attempted to teach me how to mend fishing nets, or while standing in a group of people watching the sale of fish on the beach. Alternately, some interviews were planned in advance, and were conducted after we shared a meal in their (or my) home, or while I participated in fishing and enforcement activities on shore or in boats out in the lake.

Gaining access to people was rarely difficult as Malawians are generally very welcoming and social. However, gaining peoples' confidence required a significant investment of time and effort over the course of several interactions. Interview subjects were not selected at random; they were purposefully chosen in order to obtain the opinions and perceptions of a wide variety of community leaders, fishing gear owners, fishing crew members, fish traders, and non-fishing community members (Miles and Huberman 1994; Patton 2002). In addition to interviewing fishing community members, I also maintained close relationships with and interviewed the district and local Fisheries Department field staff, local environmental and development NGO staff, and local business owners.

During my pre-dissertation research I made some attempts to record interviews using a hand-held tape recorder. However, during the dissertation research all interview and observation data was collected in the form of hand-written field notes and jottings by my research assistant and me. The primary reason for this was that respondents frequently became anxious about participating in my research, and even when they did

not refuse to participate, they were generally very aware of the recording device and were not relaxed. This anxiety must partly be understood in light of an atmosphere of suspicion and fear instilled by three decades of autocratic government during which popular fear from spies enabled the government to suppress all dissent. This same level of anxiety was rarely shown in response to our taking of field notes. Every effort was then made to transcribe field notes into extended field notes on my laptop computer as soon as possible (depending on access to electricity), integrating my research assistants' observations into single "thick descriptions, or narratives of events, behaviors, conversations, activities, interpretations and explanations" (Schensul, Schensul et al. 1999).

A complete list of interviews and observation sessions conducted for each case study is provided in Appendices C-F, in which stakeholder identities are broken down by occupation and gender. Total numbers of data collections and participants are summarized in Table 3-1, below. A certain amount of clarification regarding the numbers is warranted. A significant number of communities in the Kambindingu Fisheries Association are temporary settlements by definition, and there is a great deal of movement by fisherfolk between these communities. As a majority of interviewees showed intimate knowledge of more than one community's livelihood and institutional contexts, I have listed the data collections relating to the Dwangwa Fish Sanctuary and Kambindingu Fisheries Association in one category. While the amount of mobility in Yiwemi is somewhat less than the KFA, my understanding of the ecological, social and institutional changes in the area benefited greatly from interviews and observations conducted in other nearby communities, and these have been presented separately next to

the data collections conducted with Yiwemi's direct stakeholders. While interviews are reported in terms of the numbers of interviewees, the larger-scale data collections (observations and group interviews) are reported in terms of both the numbers of sessions and participants in these sessions.

Case Study	# of Observations (sessions/individuals)	# of Interviewees	# of Group Interviews (sessions/individuals)
N.Rukuru River Fishery	2/9	19	1/20
Yiwemi BVC (and nearby communities)	4/202 (8/507)	35 (52)	5/89 (5/117)
Dwangwa Fish Sanctuary; Kambindingu Fisheries Association	13/232	115	4/93

Table 3-1. Numbers of observations and interviews (individual and group) conducted per case study.

Participatory Rural Appraisal (PRA)/Group Interviews. During the 1960-70's an array of rapid appraisal techniques were developed by extension workers and researchers to quickly assess rural communities' uses of natural resources, collectively labeled "Rapid Rural Appraisal" (RRA). This involved meeting with groups of resource stakeholders in order to quickly elicit large amounts of information regarding the community, its institutions, and its resources through the use of visual diagramming, sorting, and mapping techniques (Chambers 1981). Though well developed for institutional analyses of terrestrial resources management, relatively few RRA's have been described in the scientific literature for fisheries resource management. One exception is the Rapid Appraisal of Fisheries Management Systems (RAFMS) described by Pido et al. (1997) which was developed to analyze informal and formal fisheries management institutions in Philippine and Indonesian fisheries.

Many of these practices came under increasing criticism from applied anthropologists, and activist participatory researchers inspired by Paulo Freire (1968),

during the 1980-90s for being entirely driven by, and beneficial to national governments. Consequently, RRA practitioners increasingly came to appreciate the values of local forms of knowledge, and the potential for local stakeholders to address local resource dilemmas (Chambers 1994). These methods which combine elicitation of data with community mobilization have become known as Participatory Rural Appraisal (PRA). As defined by one of its most well-known advocates, Robert Chambers, PRA is "a family of approaches and methods to enable rural people to share, enhance, and analyze their knowledge of life and conditions, to plan and to act" (Chambers 1994). This evolution has been paralleled by the growth in the numbers of social scientists who use the research process as an intervention to help communities, organizations, managers, and teachers address expectation gaps and organizational dilemmas (Chung 2000; Kemmis and McTaggart 2000).

Although most RRA and PRA activities today share both data collection and community-emancipatory roles, some of my research activities were more clearly intended to achieve one or the other of these roles. For example, in the course of my research, there were a number of times when I felt that I had a poor understanding of the fishery resource availability or community layout, and I would request that a number of fishers meet with me to clarify these (i.e., RRA). Additionally, I used a number of stakeholder meetings that were intended as PRA sessions, but which were poorly attended, to elicit information regarding the community and fishery primarily for my benefit. The most common methods that I used were (Figures 3-3 and 3-4, below):

- community mapping,
- resource mapping,

- resource ranking,
- resource seasonality charts,
- historical trend analysis.



Figures 3-3 and 3-4. Community mapping and seasonality charts.

Most stakeholder meetings that I requested, however, had the additional goal of bringing community members together to discuss sources of common dissatisfaction over the management of the fish stocks, and to the extent that I could, when asked, I offered them some examples of ways in which neighboring communities were addressing them (i.e., PRA). By observing the interactions between stakeholders, these PRA sessions provided me with key insights into the various forms of informal leadership that existed in the community. In some cases, these leaders also took the initiative to steer the stakeholders who were present to a consensus on the crucial issues that needed to be addressed, and at times brought new institutions into being during that very discussion.

Reasons for community members' poor attendance at meetings included: prior experiences of having their time wasted by NGOs/development programs, their knowledge that I was not offering payments or refreshments to participants, my poor

timing of meetings, community anger at their chief, and the ever-present funerals that most community members are expected to attend. The most important element seemed to be whether the village chief and the BVC leaders understood and agreed with what I was trying to accomplish with the meeting. This generally required that I meet with them several times, which in itself may have been the best indicators to chiefs' and communities' of how serious my interest was in their communities. During the well-attended meetings, the discussions were more driven and determined by the participants' interests, while I (and sometimes, Fisheries Department staff who I had invited) acted as resources for the communities' ideas.

In order to ground-truth my assessments of wealth and livelihood security from the household surveys (discussed below), I also asked village chiefs (or where chiefs were poorly informed about the fishery, I assembled a number of fishing community leaders) to rank the surveyed households in terms of their "well-being". This activity provided me with several types of valuable information: the parameters by which community leaders assess well-being, a village chief's knowledge of his/her community members, a ground-truthing of my survey's interpretations of well-being.

During PRA/RRA sessions, the forms of data collected included written transcripts of discussions, listings of ranked items, and digital pictures of charts and maps drawn by participants. These data were then elaborated upon in the same way used for interview and observation transcripts onto my laptop, and digital images were similarly transferred to my laptop. A complete list of group interviews (PRA/RRA) conducted for each case study is provided in Appendices C-F, in which stakeholder identities are broken

down by occupation and gender. Total numbers of data collections and participants are summarized in Table 3-1, above.

Archival and secondary documentation. Malawi's written records, which started in the mid-1800's have provided me with an invaluable source of information regarding the historical developments in the fishing economy, as well as the history of the region as a whole. The first (albeit embellished) written account of life and livelihoods along Lake Malawi were provided to us by David Livingstone following his 1861 circumnavigation of the Southern two-thirds of the lake. Following this, the next major sources of information came from missionary accounts and the British colonial regime which produced a series of annual reports summarizing social, economic, and political processes that were considered important in the protectorate.

During the last two decades of colonialism, in regards to fisheries, the amount of available data was vastly augmented by the Dept. of Game, Fish and Tsetse Fly Control annual reports and a number of key research reports that studied various aspects of Lake Malawi's fisheries. These reports provide us with the first extensive documentation of the colonial fisheries sector in Lake Malawi, and provide very basic estimates of the quantities and qualities of the colonial fishing economy. While I am indebted to the work of several preceding researchers who analyzed much of the colonial documentation archive, each dissertation seeks to answer slightly different questions, and I therefore have sought out the original publications wherever possible.

Since the 1980's, the unique nature of Lake Malawi's fish assemblages, and the growing concern regarding stock depletions spurred growth in both the scope and number of research papers on Lake Malawi's fisheries. Additionally, the eventual expansion of

the post-independence Malawi Fisheries Department to the Central and Northern districts meant that we have somewhat reliable fishing statistics for the whole lakeshore starting in the 1980's. In addition to governmental and research publications, a variety of unpublished reports, memoranda and communications have provided me with a documentary history of a number of fisheries-related organizations' activities during the last two decades.

As described by Yin (2003), documentary evidence, as with all research, cannot be regarded as unbiased as it was, "produced for a specific purpose and a specific audience (other than the case study investigation), and these conditions must be fully appreciated in interpreting the usefulness and accuracy of the records." In many cases, therefore, the "facts" sited in documentary evidence cannot be regarded as objective, rather as one party's view of the matter, and reflective of the authors (and their institutions') goals and objectives. Regardless, these sources provided me with additional sources regarding past events and trends, and therefore enabled me to better understand the sources and motivations of behaviors, attitudes and statements made by people today.

While some of this documentary evidence was collected as photocopies of original documents, in most cases there was limited access to photocopiers. A useful alternative was to take pictures of the documents with a digital camera which in most cases provided reasonable quality reproductions of documents. This also reduced document-holders' concerns regarding the potential damage or loss of documents if removed from their possession.

Household Survey. Based on the information gathered through interview data, there were strong indications of heterogeneous support for fisheries conservation institutions

between different communities. Consequently, I conducted a household survey aimed at constructing simple quantitative socio-economic profiles of each community. Furthermore, these communities were noted to be significantly different in terms of their livelihoods. As may be seen in the case studies, certain perceived differences were borne out in the survey, providing me with insights as to the potential sources of some communities' resistance to fishing regulations.

The identification of memberships within communities was frequently contentious and highly politicized (see discussion below), however, and my use of the word more accurately is described as a "dock-user group" referring to the primary fishing dock used by each household. As the sizes of these dock-user groups differed greatly, we sampled 1/3 of the households in each, a summary of which are shown in Table 3-2. Due to the unreliability of many chieftains' household registries (explained below) and the excessive amount of time needed to map and sample households randomly, a systematic sampling was conducted of household encountered along a series of transects (usually village paths or the shoreline itself) (Singleton Jr., Straits et al. 1993). No surveys were conducted in relation to the N. Rukuru River fishery due to the large number of communities involved, and the declining relevance of the river fishing weir institutions overall.

Case Study Stakeholder groups	Dock-user Group	# Households
Yiwemi BVC and Co-op	***Yiwemi***	***33***
Kambindingu Fisheries Association and Dwangwa Fish Sanctuary		
a) Lake-shore Community dock-users		***123***
	Ngala	107
	Likuchi	16
b) Lagoon-shore Community dock-users		***57***
	Banga	27
	Dema	30
c) Barrier Island Community dock-users		***52***
	Chauma	29
	Bana	14
	Nyavuu	9
d) Dwangwa Fish Sanctuary Community dock-users		***73***
	Matiki	26
	Nkhono	47

Table 3-2. Numbers and distributions of household surveys.

These surveys were conducted as face-to-face structured interviews by my research assistants and me, and were conducted with either the male or female head of household (or both). In many cases, return visits were required in order to meet with either the male or female head of household. The surveys were translated into the major local languages: Chichewa and ChiTonga (and a minority of Chitumbuka speakers) in Nkhotakota District, and Chitumbuka and Kyangonde in Karonga District, and respondents were interviewed in their preferred language by research assistants who were fluent in these languages. The interviews took between 30-60 minutes, and all responses were recorded on the survey forms by the research assistants. These responses were subsequently reviewed by me and entered into excel spreadsheets, when access to electricity allowed.

Participation in national conferences and workshops. In addition to spending extended amounts of time interacting with people at the local community level, I participated in three national conferences on fisheries management and natural resources co-management in Malawi. The discussions held among many of the senior governmental and NGO decision makers in these forums provided me with much data needed to allow me to relate the local issues from my case studies to the larger processes and discussions occurring across Malawi.

Additionally, I conducted a workshop for all Fisheries Department field staff from the districts of the Northern Half of Lake Malawi's lakeshore: Karonga, Rumphi, Nkhata Bay, Likoma Island, and Nkhotakota Districts. [139] In this case, my role as organizer meant that I had more influence on the proceedings, and all field staff were willing to have me use the information shared in this workshop for my research. I was able to gather a wealth of information on the fisheries department field staffs' experiences and perceptions of community-based fisheries management, and thereby, relate my case study observations to the prevailing situation throughout these districts (Russell 2003).

The forms of data collected in conferences and workshops include transcripts of discussions made by me, collection of documents shared, and transcripts of participatory group discussion sessions held by participants. These were also subsequently transcribed onto my laptop computer.

Achieving Data Validity: credibility, completeness, fairness, and utility. As can be seen, in presenting my case studies, my data come from an array of research methods:

[139] Malawi Fisheries Department Extension Staff - Training Workshop on Community Based Fisheries Management, December 11-12, 2003, Mzuzu, Malawi. Funding for this workshop was provided through the United States Embassy small grants program. Proceeding from this workshop were shared with all participants and Fisheries Department leadership (Russell 2003).

- Archival and secondary document review,
- Ethnographic research methods,
- Participatory Rural Appraisal (PAR/PRA) methods,
- Socio-economic household survey,
- Participation in government conferences and workshops.

None of my characterizations and conclusions can ever represent "objective" truths, because, as described by Guba (1981), "Objectivity assumes a single reality...It assumes that an agent can deal with an objective (or another person) in a non-reactive and non-interactive way." Instead, however, by following a majority of the best practices listed in Figure 3-2, above, I have confidence that my results achieve the validity criteria mentioned as relevant to qualitative research, above: credibility, completeness, fairness, and utility.

One practice that has become particularly important among qualitative researchers attempting to achieve the first three criteria is "data triangulation" (Denzin 1978; Lincoln and Guba 2000; Patton 2002; Yin 2003) (Jacob 2001; Kelle 2001; Marsland, Wilson et al. 2001) (Maxwell 1996; Chung 2000), alternatively termed as "critical methodological pluralism" (Murray, Kay et al. 2003) (Patterson and Williams 1998). Rather than basing my conclusions on any single account, therefore, I verified these with other sources until I reached a point where I was no longer learning any new material, and inconsistencies are explained, a stage sometimes referred to as "the saturation point" (Rubin and Rubin 1995; Patton 2002). While I was able to understand the nature of some contradictions relatively quickly, some of the intra- and inter-community conflicts that held the keys to

my research conclusions required me to conduct iterative interviews with the same subjects over a long period of time (part of achieving "structural corroboration") (Chung 2000). In his book on case study research, Yin (2003) has described this iterative triangulation as "the development of converging lines of inquiry", which should be presented in the form of a documented "chain of evidence".

In addition to verifying my research conclusions with community members and local NGO and governmental extension workers (a process known as "member-checking") (Maxwell 1996), I also periodically discussed my interpretations with professional scientists (referred to as "cross-checking") (Chung 2000): Dr. Sloans Chimatiro, (now former) Director of the Fisheries Department in Lilongwe, and my external dissertation committee member, Dr. John Wilson, who is a fisheries management consultant based in Zomba, Malawi. Occasional consultations were also held with: the late Dr. Wycliffe Chilowa, former Director of the Centre for Social Research; Dr. Peter Mvula of the Centre for Social Research; Dr. Wapu Mulwafu of the History Department at Chancellor College; Messrs. Friday Njaya, Orton Kachinjika, Mackson Nyirenda of the Fisheries Department; Mrs. Elvira Ganter, Ms. Stephanie Mueller, and Dr. Olaf Weyl of the GTZ-NARMAP project; and Mr. Mac Mtandizu of the Wildlife and Environmental Society of Malawi - Dwangwa Branch. Finally, and perhaps most relevantly, I attempted to maintain regular contact (given the limitations of the communication infrastructure) with my major advisor, Dr. Tracy Dobson, and for specific advice, I contacted the rest of my committee.

The last validity criterion, utility, is frequently the most difficult goal for scientists to accept, given the conventions that attempt to maintain a distance between the

researcher and the research subjects. Indeed, for a long time, anthropologists were (and in some texts, still are) warned not to become too comfortable in their adopted communities by losing their impartial observational status, a phenomenon described as "going native" (Singleton Jr., Straits et al. 1993). For many qualitative researchers, however, the reverse has become true, as they have increasingly come to value the utility of the research process to their subject communities, which is a key principle of the PRA research method. During the two years that I spent studying and interacting with these communities, I considered it unethical not to offer my opinions when they were asked for, in particular relating to how the communities could improve their management of the fishery. At a minor level of intervention, as a consequence of my interactions with them, I know that some community members took a more active role in their local fisheries management institutions. At a more far-reaching level, my PRA meeting resulted in Yiwemi village leaders starting a livelihood diversification co-operative, and seeing their determination and interest in the scheme, I brought governmental and NGO field staff to the community in the hopes of helping the co-operative gain some financial and logistical support. Similarly, I have attempted to support the government field staff in their activities by inviting them to community meetings organized by me, and by conducting a training workshop for their benefit.

Data Analysis

Following my return to East Lansing, all text documents, jpg images and excel spreadsheets required a lengthy data cleaning process, and with the exception of the survey results, all data were entered into one of the standard qualitative data analysis

software packages, ATLAS.ti®. While the software program, does not actually analyze the data, it helped me to organize it according to assigned codes, enabling me to easily retrieve all data sources relating to a specific topic or combination of topics. While some codes were identified by peoples' reference to particular places, people, and organizations, others could only be inferred from specific interactions, conversations, or stories, and were labeled by me (Rubin and Rubin 1995). Additionally, some codes were universal to all case studies, while others were specific to one or two, depending on the characteristics of the institutions that existed at each case study. A complete table of codes, with corresponding definitions is provided in Appendix B.

A common characteristic of ethnographic analysis is an iterative analytic process by which key themes, contradictions, and areas needing further clarification emerge during the course of the research, thereby informing and shaping subsequent data collections (Miles and Huberman 1994; Chung 2000). Based on this iterative analysis conducted in the field, and an inductive analysis of the data set after leaving the field, I identified a number of emergent themes that seemed to explain the principal similarities and differences between and within the case studies (Natasi 1999; Patton 2002). These themes are described in Table 3-3, below. A description of each case study is presented in Chapter 4.

Theme	Description
Regime in context of environmental/livelihood threats	An existing institution is faced with any number of social, economic or ecological threats.
Grassroots awareness of livelihood threat	A majority of stakeholders recognize the nature and cause of the threat, and support the need for institutional change.
Leader/community capacity	a) The leadership has (or is able to make use of others') experience, education, and intelligence to create appropriate institutional innovations able to address the perceived threats. b) If the existing leadership is unable or willing to address the threats leading to ecological/livelihood crisis, the existing leadership may lose institutional legitimacy creating a limited institutional vacuum. c) A rival leadership from within the community (champions of change) may then gain popular support for more dramatic institutional reform.
Leaders willing to experiment with new institution	a) The existing leaders or champions decide to establish institutional innovations. b) External agencies may need to mediate or support champions with the logistics of establishing new institutions
New regime established by leadership	a) The new institution is established by existing or new leaderships. b) Where innovation is introduced by champions of change, old leaderships may attempt to undermine these changes.

Table 3-3. Emergent Themes in Malawian fisheries co-management case studies.

Context-specific research challenges and caveats

The problems of delineating 'Communities'. Before colonialism, communities centered around strong leaders (chiefs) who could provide their members with protection from slave raids, opportunities to participate in raids of others' resources, and the strong support from ancestral spirits that were necessary for fertility, bounty, and health. Following the colonial suppression of slavery and Ngoni raids for cattle and resources around the turn of the 20th Century, and given the availability of large tracts of undeveloped land, people left their fortified villages. Since then family groupings

increasingly spread out in less centralized communities along the lakeshore, and chiefs or prospective chiefs competed with each other to attract young settlers to their communities. This process of community dis-aggregation was further motivated by peoples' attempts to avoid an array of colonial regulations and taxes. Following the introduction of "indirect rule" in 1933, however, and in a trend that continues to unfold today, chiefs increasingly began acting on their own behalf, accruing wealth and prestige from their positions as the local representatives and officers of the government.

Although chiefs lost much influence to local party politicians during the three decades of the Banda regime's dictatorship, they remained important in enforcing laws and norms and since the introduction of democracy in 1993, village chiefs have reasserted themselves as primary conduits for local development assistance. Due to a distrust of central government corruption and nepotism, donor-funded development projects aligned with the current participatory development paradigm hope for greater efficiency and transparency by sending development assistance directly to the rural population and the most local form of government is the village chieftain.

Consequently, as new development programs have been funded by the government or donors, each chieftaincy has been assisted in creation of an appropriately named development committee (water/borehole, micro-loans, health, agriculture, forestry, wildlife, fisheries), whose members are frequently appointed by the chiefs and development workers. The benefits for many committee members (and their chiefs, who act as patrons or demand some portion of the benefits from the members) may include: sitting allowances, refreshments, t-shirts, invitations to attend workshops, prestige within the community, and the power to determine who in the community will gain access to the

development activity that is planned. Due to common patterns of nepotism by chiefs, the desire to host development committees and gain access to development funds has to be seen a highly influential force behind the current trends of village subdivision.

These factors have serious implications for a researcher's ability to accurately enumerate "community" populations as any attempt to do so may be seen by local leaders as a potential opportunity or threat to their access to donor or governmental development resources. In the course of conducting my research, I have found government statistics of population numbers highly suspect, and found that in most communities my attempts to enumerate households was complicated by several strategic behaviors on the part of village chiefs:

- *Simple inflation of household numbers:* In order to reach the minimum number of households necessary to be counted as a chiefdom (33 households), chiefs inflate the numbers of household in their community either by listing short-term migrant traders as residents or by listing children living with their parents as separate households.
- *Strategic inflation of household numbers:* In order to gain a disproportionate portion of development assistance for their families and councilors (called *ndunas*), the chiefs will frequently inflate the numbers of households in their communities that are headed by their extended family and councilors.
- *Strategic omission of "non-resident" residents (immigrants):* As some households, who may have lived locally for a number of years, originally came from other regions or districts, chiefs may not list these households as belonging

to their communities for fear that immigrants may gain benefits that should 'rightfully' go to 'residents'.

- *Omissions due to ignorance:* In addition to intentional omission of "immigrants", the mobility of fisherfolk means that some chiefs have stopped keeping track of the migrants who come and go. This may also be due to the decreasing influence of chiefs over fisherfolk who may simply register their presence with the local BVC and not pay the traditional visit (and homage) to the local chief.

Household Sampling. These various factors, and the hopeful expectations raised by my foreign (and wealthy) identity mean that with a few exceptions, I was unable to depend on the village chiefs' lists of households for the purposes of conducting household surveys (that is if they had one, which not all chiefs did). Consequently, in most communities, households were selected through a systematic sampling along a series of walked transects. Where the community was stretched in a long line of homes along the shoreline, our transect followed a simple straight line along the shore. However, where the community extended further inland from the shore, or where the communities were subdivided into housing clusters (frequently due to the positions of rice paddies and rivers or livelihood needs), the community was sampled in a stratified systematic sample.

Community Sampling. Regardless of the accuracy of household numbers in a community, many community boundaries have little relevance to the stakeholders' use of and access to fishery resources. In most cases, more than one community is dependent on a single shared fishing dock and fishing grounds. A few communities have recognized the futility of attempting to organize around independent chieftaincies, and have therefore, created a single BVC that has representatives of more than one

"community". However, for the reasons of wanting to assure personal access to any development benefits, most of the lakeshore is populated by BVCs that are delineated by chieftaincy boundaries, and the unenforceability of their mandate over neighboring BVCs means that most of these organizations exist only on paper. Given the interests and livelihoods that are shared by users of a single fishing dock and resource, and due to the ambiguous legitimacy of multitude of chieftaincies these days, I have sampled communities based on the major fishing dock that is closest to, and most used by the stakeholders (referred to above as "dock-user groups"). In all but one case, I have been able to assign whole chieftaincies to particular docks, however, in the case of the chieftaincy of Likuchi (in the Kambindingu Fisheries Association case study), I have divided this community according to whether they live near and access the lagoon or the lake fishery. The lagoon fisherfolk in this case have been assigned to the Dema dock-user group, while the lakeshore fisherfolk belong to the Likuchi dock.

Impacts of Researcher identity and the Research Process

Any description of my research methods and analysis could not be considered complete without a discussion of the impact that my identity and research practices had on my research results. By exploring and recognizing these sources of bias, I am better able to claim and demonstrate my research goals of fairness discussed above (Patton 2002). This discussion includes: how my identity and that of my research assistants, and our research activities affected our access to peoples' confidence, and how the research process itself affected peoples' attitudes towards, and success of the fisheries management regimes that I was studying.

Impact of my identity. Although I had a girlfriend back in the US, I appeared to most Malawians as a 25-28-year old, single, white, wealthy, male student who suddenly arrived in their community, and whose purpose remained uncertain for many people for most of the 2 year period spent in the area. Due to cultural norms, as a single male, I had more limited access to female than male community members.[140] However, I may consider myself lucky that I was studying fishing communities, where the female fish traders were relatively more relaxed in talking to me than were the women who permanently lived in my communities. [141] More problematic was the common hope or expectation that I, as a (wealthy) foreigner, could facilitate peoples' access to jobs, funding for loans, and indeed, during most first meetings that I observed with any BVC, I was asked whether I could provide them with loans, better boats, life-jackets, better fishing nets, and fishing lanterns. My identity would therefore frequently lead fishers and BVCs to portray themselves in a particularly needy light during my first meetings with them in the hope that this representation might induce me to provide or direct benefits to their organization and community. Additionally, whenever I met with BVCs or chiefs, I would very frequently be asked for 'sopo'[142], a small gift of money, and though I did bring material forms of 'sopo' (packets of sugar, powdered milk, tea, invitations to meals

[140] For the reverse situation, of a white female anthropologist's perspectives on conducting research in a Malawian fishing village, see Haraldsdottir (2002).

[141] Female fish traders face a significant amount of stigma because their mobility away from their communities (and familial oversight) and their economic and social independence is assumed to be associated with poor (promiscuous) morals. Haraldsdóttir, G. (2002). Cooperation and Conflicting Interests: An Ethnography of Fishing and Fish Trading on the Shores of Lake Malawi. Dept. of Anthropology. Iowa City, Iowa, University of Iowa: 240.

[142] 'Sopo' is a transliteration of the English word, 'soap', and in the past, a wealthy visitor to a home or a chief would frequently present their host with a gift in the form of some sugar, salt or soap, items that had been imported and therefore required cash for purchase. Nowadays, asking for 'sopo' is simply a request for a small sum of money, and has been raised as a significant impediment to fisheries extension workers as they don't have funding to provide such gifts while NGOs usually do.

at my home) to a few chiefs whom I visited regularly, I generally deflected most of these requests.

While some community members with whom I had repeated contact gradually came to understand the reasons for my being there, despite my (and my research assistant's) efforts, I know that many people in the community never fully understood this. Often, first assumptions were that I worked for the Malawian government, and in some locations a legacy of harsh governmental conservation enforcement measures meant that my purposes were initially regarded with suspicion and fear. Once the communities knew that I was not a governmental representative, people became more open to my inquiries, however, it must have continued to seem strange that I could afford to spend such an amount of time living and talking to people with no apparent business interest of my own.

The simple fact that I spent such an extended amount of time in their communities, talking to people about fishing, trade, and fishing institutions had a significant impact on how people interacted with me. On several occasions, my foreign status and association with specific BVC leaders caused people to form opinions regarding my purpose before ever having seen me in person, and I frequently had to emphasize my impartiality in local politics. In most, but not all cases, I was able to dispel fishers' concerns that I might create difficulties for any illegal fishing or business activities discussed or observed by informing on them to the BVCs or Fisheries Department. Given the importance that I apparently placed on studying fishing institutions, BVCs regularly attempted to represent themselves as being more hard-working than others, and provided me with information about other communities'

poaching activities and corruption in other communities' BVCs. Additionally, the growing rivalries over leadership and the benefits accruing to BVC members required me to regularly visit all of them, assuring them that I was impartial in local politics, and that I valued the input of all stakeholders' in my research.

Nevertheless, in the course of research, discussions went both ways, and when asked my opinion of how the fishery was being managed, or ways in which they could be improved, I shared my opinions with them. While I generally tried not to impose my opinions on how they should pursue fisheries management, I did regularly ask leaders questions regarding inconsistencies in their statements, or between their statements and the conclusions made from a host of other data collected. At a most benign level, my simple presence and moral support as a foreigner loaned these local institutions a certain amount of visibility and legitimacy that they might not otherwise have had. At its most impacting, the PRA/PAR group discussions that I called together had the explicit aim of promoting a discussion about the issues that were challenging stakeholders' livelihoods. In these sessions, I again generally did not tell participants what I thought they should do differently, rather I asked questions regarding how they could see addressing the threats that they had identified as a group. It was at the end of one such meeting, that one group asked me whether establishing a fisherfolk co-op might be useful in helping them gain greater returns from fishing capital raised. I subsequently brought the local fisheries extension worker into the equation, who then introduced the co-op to a local NGO which has since supported them with a variety of livelihood diversification and village banking programs. Consequently, in many invisible ways, and some very visible ways, my research activities must be recognized as having promoted the leadership and

collaborative capacity building in several communities, and undoubtedly raised the issues and institutions related to fisheries management to a higher level of visibility in peoples' accounts than they might otherwise have achieved. This active researcher role is an integral part of the participatory action research methodology (see above for discussion of action research, bias and validity).

Impact of my research assistants. Throughout the course of my dissertation research, I benefited greatly from the cultural and linguistic assistance of a number of short-term research assistants, Mr. Martin Chidambo, Mr. Tryson Chiwona and Mr. Kondwani Phiri; and language tutor/translators, Mr. Alick Bwanali and Mrs. Experencia Chisoni. However, in discussing the impact of my research assistants' on the research process, I judge it to have been minor (due simply to their short involvements with the research project) in comparison to that of my permanent research assistant, Mr. Yotam Msuku. I had the greatest pleasure to work and live together with Yotam for the duration of my dissertation research, and in describing his role in the research process, I will discuss both the linguistic and cultural roles he played.

Having grown up in a mountainous lakeshore region known as Usisya in Nkhata Bay District, Yotam has grown up speaking a number of languages (chiChewa, chiTonga, chiTumbuka and English), all of which were very useful in helping me conduct my research. As we conducted our interviews, Yotam and I both took field notes that we later that day recreated into complete transcripts of the key issues discussed. I had studied the national vernacular, chiChewa, to an advanced level, and generally felt quite comfortable in conducting interviews on topics with which I was familiar, nevertheless, I always benefited greatly in my understanding of the details of the dialogue when I was

accompanied by Yotam. However, given the migrancy of fisherfolk, many interviews were conducted in chiTonga and chiTumbuka, and although I grew to understand the gist of what was said, my understanding would have been incomplete had I not been accompanied by Yotam. Only in the last months did I feel comfortable in conducting the more basic topical interviews in chiTumbuka, in which case I was able to do so by largely determining the types of vocabulary that would be used. Whenever possible, however, in order to avoid misunderstandings, I conducted many interviews through Yotam, in particular the cultural interviews that were less well bounded in terms of topics to be discussed.

Because of his ability to speak fluently in all but one of the local languages that we encountered, Yotam was invaluable at helping us gain access to, and rapport with most parts of the community. In addition to his linguistic skills, Yotam combined many of the key characteristics that make for successful social interactions in Malawi. He is a very likeable and gregarious young man (in his early 30's), married with several children, well-educated (while not all high-school diplomas can be ranked the same, his is well-deserved), highly religious (and therefore does not drink alcohol), and was accompanied by a wealthy foreigner. Given my obvious foreign identity (which sometimes caused alarm, suspicion, or envy), Yotam was generally able to quickly allay any concerns among fisherfolk by providing quick explanations of our identities and the reasons for our presence.

In addition to these academic impacts, Yotam's presence helped me deal with a variety of awkward situations: drunks, corrupt police, and rowdy children; safety concerns: spiders, centipedes, scorpions; and the innumerable times that my car broke

down in remote locations. Finally, at a personal level, Yotam's companionship and sense of humor made every part of my research and living experience more rewarding.

Case Studies of Emergent Community-Based Fisheries Regimes

Northern Karonga District

The northern lakeshore of Karonga was historically ruled by a branch of the Ngonde kingdom that settled this sparsely occupied area after a long period of migration from the North.[143] Their arrival in the area was described by TA Kilupula, descendent of Mwasikawanga:

> *"They were good warriors and they conquered all local chiefs and became the owners of the land. Mwaulamba settled in the uplands of Rufilya, which is a very old river with lots of fish. Mwasikawanga settled in the middle lands. Mwasikawanga is my great-grand father [ancestor]. Msomba settled along the lake because he liked to fish very much."*[144]

One of the main factors that influenced the location of settlements was access to fish and drinking water from rivers:

> *"At that time fish were plenty, in every small river there was fish. That's why people settled along the rivers. Also for access to water as wells were scarce."*[145]

Within the sparsely populated Ngonde kingdom, numerous enclaves of other ethnic groups were allowed to settle, including Tumbukas (from what is now Rumphi

[143] A. Russell – Karonga District – Interview with a chief - 2004-04-12.
[144] A. Russell – Karonga District – Interview with a chief - 2004-03-10.
[145] Ibid.

District), Kisi/Swahilis (from what is now Tanzania), and Lambya (from what is now Chitipa District). One group that will be discussed at greater length is that of the Hengas, who fled the slave raiding by the Ngoni (descendants of the Zulus) of their ancestral Henga valley in Rumphi District[146] (Young 1970; Kalinga 1974). The Hengas were granted an independent chieftaincy at Yiwemi in 1898[147] (Young 1970; Kalinga 1974), and this community was recognized by the Scottish missionaries of the 1900's as particularly fertile ground for their mission and schools (Kalinga 1985).

Since Independence

The remote North of post-independence Malawi has received relatively little development funding partly due to its distance from the main administrative (Lilongwe) and commercial (Blantyre) capitals. More importantly however, the large numbers of Northerners that dominated the colonially-derived civil service posed a political threat to Malawi's first president, who aimed to subsume all regional languages and identities under that of his Central Region Chewa identity (Thorold 1995), resulting in a neglect of investment in the North of roads, infrastructure, and development funding (McCracken 1977; Posner 1995; McCracken 2002). Under-development may, however, also have had some positive effects. With little governmental interference in local fisheries management, and little governmental presence in general, some community leaders have taken more initiative to address social and ecological problems than that seen in other parts of the Lake Malawi shoreline.

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[146] A. Russell – Karonga District – Interviews with chiefs - 2004-03-09, 2004-03-10, 2004-04-08, 2004-05-31.
[147] A. Russell – Karonga District – Interviews with chiefs 2004-03-09, 2004-05-31.

Case Study 1: Traditional River Fisheries Management in the North Rukuru River

Upper *Vyelo*[148]

The North Rukuru River has its headwaters on the Nyika Platteau (elevation ~2300m) and emerges into Lake Malawi a few kilometers north of the Karonga district capital (also called Karonga) at an altitude of ~500m above sea level. The river and its tributaries have long been known for their bounty of potamodromous fish species (fish that migrate from lakes to spawn in streams and rivers), in particular, the *mpasa*, sanjika/*mperere*, *mbaghale*, *ntchila* that spawn in the upper reaches of the river. This area came firmly under the jurisdiction of the Ngonde "Kyungu" (a title, roughly equivalent to king) Dynasty in the mid-17th Century, when Kiyalawa Kyungu (the 4th Kyungu) chose a hilltop next to the North Rukuru River as his home.[149] Although the date of the first construction of fishing weirs on the N. Rukuru River is not remembered by the current leadership, this institution and technology certainly stretches back to the turn of the 20th Century[150], and according to Msosa (1999) may be several centuries old.

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[148] *Vyelo* is the name of the fishing weir used in the Ngonde-speaking part of Karonga. The *vyelo* is made up a series of boat-like capture devices, individually called a *chelo* (pl. *vyelo*). As with the *biiu*, the river flow is funneled through the individual *chelo*, and the fish enters an enclosure from which they cannot exit except to jump out. In the process of jumping out, fish land in a large boat-like reed basin, and the fishermen can remove them from the basin without having to remove the *chelo* itself.

[149] A. Russell – Karonga District – Interview with chief - 2004-04-12; Although, Monica Wilson (1977) placed the arrival of the Kyungu as early as the mid 15th Century, Kalinga (1974) supports the time line provided by the current head of the Kyungu family, Mpeta Mwakasungura.

[150] A. Russell – Karonga District – Interviews with chiefs - 2004-03-10, 2004-04-08.

The gauntlet of fishing activities that a migrating fish had to surpass to reach the upstream spawning grounds in the North Rukuru River was vividly described by Lowe in 1946 (Lowe 1952):

> *"A mpasa desirous of ascending the North Rukuru River to spawn was faced with (a) numerous crocodiles lying off the delta of the river; (b) a number of seines; (c) fishermen with scoop net in each hand chasing mpasa in the shallow water of the delta, and once in the river proper; (d) fishermen with large scoop nets fishing from platforms built every 50 yards or so along the banks for several miles of the river; (e) eight complete barriers of traps spread out over about 13 mi. of river, and (f) fish netting parties, in which all the men of a village were seen to form a line across the river each with a scoop net in his hand."*

A number of fishing weirs, known as "*vyelos*", used to be built along the course of the N. Rukuru River. In the upper reaches of the river, and on the Mwesja tributary, GVH Kalambo, VH Lasha Mwandwanga, and VH Mweneguwe villages are known to have constructed *vyelos* in the past. While the Mwenenguwe fishers have stopped constructing *vyelos* altogether, Lasha Mwandwanga fishers maintained having constructed on until 2002, and Kalambo fishers still construct one during those years when they can gather a sufficient number of fishers who will contribute to its construction.[151] The declining incentive for these upper river fishers to build the *vyelo* can be attributed to a number of causes that have combined to make the amount of labor needed for this practice prohibitive in relation to the number of fish that are caught. The problems most consistently cited by local leaders are deforestation, stream-bed cultivation and erosion of the river banks. These factors have led to increased siltation and meandering of the river and its tributaries, which have led to fish stock declines, and

[151] A. Russell – Karonga District – Interviews with chiefs - 2004-04-12, 2004-04-19, 2004-04-19, 2004-04-19, A. Russell – Karonga District – Interviews with fishers - 2004-04-22.

which also makes them ill-suited for the construction of *vyelo*s that work best in a clearly defined channel.[152] Several of the major tributaries (Mwesja, Mkungwi, Mupwa), which used to support *vyelo* fisheries of their own, have even stopped flowing entirely during large parts of the year, and are now seasonal rivers prone to flash floods.[153] In addition to these factors, harmful fishing practices in the lake and near the river mouth are blamed for decreasing the numbers of fish that are able to make their way back to the spawning grounds. In particular, they blame the increased use of small-meshed gillnets in the lake, and the gauntlet presented by the *vyelo*s and drifting gillnets in the river.[154]

Lower *Vyelo*

The last 10 kilometers of the N. Rukuru River falls under the jurisdiction of TA Karonga (a subordinate chief to TA Kyungu). Whereas the upper river *vyelo*s were controlled by individual village chiefs, a potential difficulty arose in the case of the lower

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[152] A. Russell – Karonga District – Interview with a chief - 2004-04-19, A. Russell – Karonga District – Interview with a fisher - 2005-02-01.

[153] A. Russell – Karonga District – Interview with a chief - 2004-04-19 "*Nowadays rivers dry out by August, especially the Mwesia which was perennial. At the source Mwesia has been heavily deforested and there is much cultivation near the river bed. Gardens and houses are being swept away by floods because of this... The one cultivating along the river bank gets more yield than the one on the hillside. Even though part of his yield could be swept away he still has some remaining. People cultivate in river banks especially due to unpredictable rainfall.*" A. Russell – Karonga District – Interview with a chief - 2004-04-19 "*This river used to have a lot of fish; now they are no longer plenty. Now, the river is very shallow and almost runs dry from August to November. In those days it was very deep. Since the mid 1970s the water level has been declining. The community acknowledges this. They even know the reasons why it is getting shallow. Among other things they say cutting down of trees along the river banks, cultivation and erosion in the rivers. So the water has no way to percolate into the soil, it just washes away.*"; A. Russell – Karonga District – Interview with fishers - 2004-04-22 – "*In the past the river passed through thick forest, its banks were lined with trees and reeds, and it didn't overflow its banks. Now there are no bushes (along the banks) and people are cultivating there. Now water floods the land.*", A. Russell – Karonga District – Interview with a chief - 2004-04-19.

[154] A. Russell – Karonga District – Interview with a chief - 2004-04-19 "*There was more fish in the past. They used to use vyelo and njero. Now they are all made of nylon...Most people have moved from the Mwesia to the Rukuru because there are no fish in the Mwesia...Now there are more people. Down at the lake and at the Rukuru River mouth gillnet fishing is so intensive that very few fish manage to swim up to here.*", A. Russell – Karonga District – Interview with a chief - 2004-04-19; A. Russell – Karonga District – Fishing Observation - 2004-03-10.

river reaches where there were a large number of communities with hereditary rights (as defined by chieftain lineages) to participate in the construction of *vyelo*s. Although the exact origin of this technology and institution are not remembered by today's traditional leaders, the motivation for the emergence of this institution (according to the current chiefs) was to provide for equity in access to the fishery for all stakeholders.[155] As the ruler of these areas, TA Karonga has the sole power to permit the construction of the two *vyelo*s near the river mouth, and each year, three village chiefs from among the two royal lineages are allowed to participate in the construction of one of the two *vyelo*s, and TA Karonga's village may take part every year[156]:

- **Karonga (Mkambara) Lineage:** Nzeruzakale, Mwawembe, Kafikisira, Mwangolera (Mkambara), Mwafiraso, Mwanjawala, Mwaneya, Kambitoto, Mwanyesha.
- **Mwakasungura Lineage:** Mwangonde, Mwanyongo, Malema, Mwakawanga, Mwangolera (Mwakiyure), Mwangwero, Mwakatundu.

The initiative for the construction of the *vyelo* is taken by the individual chiefs whose turn has come in a rotation scheme known only by the chiefs themselves.[157] The timing of the *vyelo* construction is defined by local rainfall patterns which determine the flow of the river. In order to avoid having the *vyelo* washed away by flood waters; this is

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[155] A. Russell – Karonga District – Interview with a chief - 2004-04-12 "*Each VH gets the same number of vyelo. If his community is more populous he has to wait until another VH doesn't want use his traps, then all his vyelo can be given to the VH with more people. The vyelo system is designed to share the fish equally among all VHs. Those who set their vyelo at the first or upper setting will user the second or lower setting next time and vice versa.*"

[156] A. Russell – Karonga District – Interviews with chiefs - 2004-03-10, 2004-04-08, A. Russell – Karonga District – Interview with fishers - 2004-04-07.

[157] A. Russell – Karonga District – Interviews with chiefs - 2004-04-12, 2004-04-08, A. Russell – Karonga District – Interview with fishers - 2004-04-07

generally done toward the end of the rainy season, i.e., April or May.[158] At this time, a deputation of chiefs and/or their advisors (*nduna*) from these communities approaches the TA Karonga for permission to commence construction of the *vyelo*, and they set a time and date when the TA (or his *nduna*) will meet them at the river.[159] To signify the start of *vyelo* construction, TA Karonga enters the river and during his opening ceremony, he pounds in the 4-5 poles that will anchor the *vyelo* to the river bottom.[160]

The construction of each *vyelo*, which takes about a week, is a collaborative effort of the interested community members from the two communities, although the best bank (in terms of having better fish habitat) is given to the chief with greater seniority. The timing of the construction of the *vyelo* nearest to the river mouth is delayed for three weeks after that of the upper *vyelo* in order to ensure that a number of fish will have had time to migrate upstream to be caught in the upper *vyelo*. Depending on the number of fishers interested in participating, different sites along the course of the river will be selected to minimize the amount of construction required. This means that the number of individual *chelo*s may range between 20 and 40 depending on the number of interested fishers.[161] During the time when the *vyelo* is in operation (generally extending no later than July-August, depending on water flow), no other fishing is allowed in the river or at the river mouth. Posts are places along the lakeshore beach, a ¼ mile from the river

[158] Ibid.
[159] A. Russell – Karonga District – Interviews with chiefs - 2004-04-12, 2004-05-31.
[160] A. Russell – Karonga District – Interviews with chiefs - 2004-04-12, 2004-05-31.
[161] A. Russell – Karonga District – Interview with a chief 2004-04-12; A. Russell – Karonga District – Fishing observation - 2004-06-02.

mouth to demarcate the area in which no lake fishers are allowed to fish (Figure 4-1, below), and the penalty for infractions is the fine of a cow (a value of US$100-150).[162]

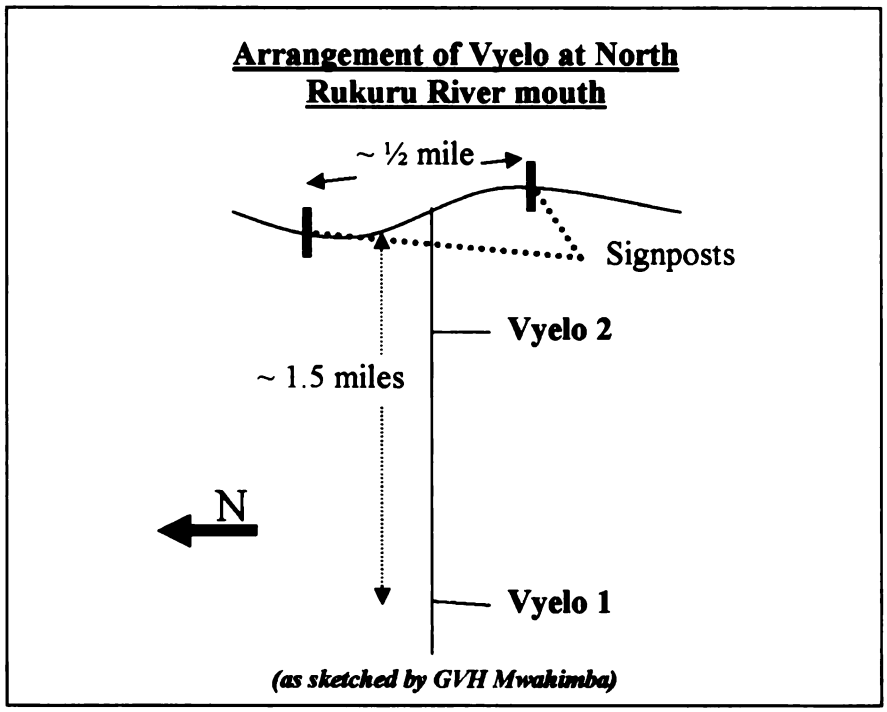


Figure 4-1. Diagram of the lower *vyelos* on the N. Rukuru River.

The only change imposed on this institution by the colonial (and continued by the post-colonial) government was to claim the middle *chelo* slot of every *vyelo* for the District commissioner, and rather than placing a *chelo* in this slot, they left this space open to the flow of water.[163] Although this slot is the least lucrative position on the

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[162]; A. Russell – Karonga District – Interview with a chief - 2004-05-31 *"The owner of the vyelo go [down to the river mouth] and if they find someone fishing there it is an offence and they bring that person to me."* **Q: Has this happened before or in your time as chief?** *"Yes, but during my time nobody has paid a cow. At times, they don't even bring to me. If they see that someone has been caught fishing, their relatives may just go with a cow and give it to the owner of the vyelo, saying, "We don't need this to go any farther (i.e. to the chief). Please take this." They eat it right there or if you are lucky you can buy the cow from them very cheap."* **Q: Does this informally arranged payment happen very frequently to your knowledge?** *"It is quite rare. They go fish down there (at the rivermouth), but they run away when they know they are coming. At times they leave their fishing nets and they run very fast. The nets are only worth 10 or 20 kwacha, but a cow is very expensive, especially now. It can cost K12-15,000.";* A. Russell – Karonga District – Interview with a chief - 2004-04-12.

[163] A. Russell – Karonga District – Interview with fishers –;2004-04-22 **Q: Did you have any rules regulating vyelo fishing practices?** *"There are no existing rules but those fishing down near the Lake used to leave a gap in the middle of the vyelo to let some fish pass upstream."* **Q: Who made this rule?**

vyelo, this regulation is recognized by the government and chiefs as a useful mechanism for promoting protecting the interests of the upstream *vyelo*s as this regulation allows some fish to pass through each *vyelo*, as well as fostering the future fish stocks by allowing some fish to pass through all *vyelo*s to their spawning grounds.[164]

A Spiritual Institution

Beyond granting permission for *vyelo* construction, TA Karonga's traditional role has also been a spiritual one. Due to the magical powers imbued by his office, the TA was considered to have the power to determine the success of fishing by his appeals to his ancestors who could intercede in the happenings in the material world. While belief in the magical powers of the TA and other chiefs has diminished over time, the ceremony that indicates the start of *vyelo* construction still involves the TA entering the river bearing a bamboo rod, and saying a prayer in benediction of the *vyelo*.[165] In return for this paternalistic blessing, the first significant catch of fish (especially *mpasa* or

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"The colonial DC made it long time ago."; A. Russell – Karonga District – Interviews with chiefs - 2004-04-12, 2004-05-31

[164] A. Russell – Karonga District – Interview with a chief - 2004-04-12 *"The space at the middle of the river is left free to allow the fish to go through to the upper region of the river."*; A. Russell – Karonga District – Interview with FD staff - 2004-03-05; A. Russell – Karonga District – Interview with a chief - 2004-04-12; A. Russell – Karonga District – Interview with fishers 2004-04-22.

[165] A. Russell – Karonga District – Interview with a chief - 2004-04-12 *"In our culture, we don't just go there to make vyelo in the Rukuru. We first go to Chief Karonga to ask if he will allow us to trap fish in the Rukuru River. Then he says "Yes, I'm coming." April is the month that the villagers do this (asking to go fishing). "Then on the first day of fishing he (Chief Karonga) goes to the river with a bamboo rod in his hand, goes into the middle of the Rukuru saying "I allow you to fish in the river that you should catch fish. God bless you."; Then he goes out. After this the people go home to cut trees and reeds for making vyelo. When they are made, the first catch goes to the Chief before the owners of the vyelo have eaten anything, no matter how big it is. From the second catch onward (the fish) are theirs. By sending fish to Chief Karonga, according to our traditional custom is his blessing that allows them to catch a lot of fish."*; A. Russell – Karonga District – Interview with a chief - 2004-05-21 *"Before we do anything, we have to pray. After prayers, we start doing the job. "I can ask someone (usually a nduna,or advisor) to pray or I can do it myself if I know how to pray. You know, not just anyone can say this prayer. There are not many chiefs here who can do that job. For the North Rukuru river, only Chief Karonga can do the job. Then the job of the chief or his ndunas is the planting of poles in the river, but the setting of vyelos is their (fishers) job. We don't want our trousers and shirts to be wet. That's why we wear a skirt of banana leaves."*

kadyakoro) have traditionally also been brought to the chiefs and TA in recognition of their worldly and spiritual powers.[166] The spiritual powers of the chiefs and consequences for any fishers who failed to recognize this are elaborated by GVH Nzeruzakale[167]:

> *"If they don't give fish to a VH or TA, then the fish will never enter their vyelo. The fish may be in the river but they won't be caught. Later they (the fishers) will realize that VH Nzeruzakale came here asking for fish but we didn't give him any, so let's go and apologize to him. Then I would go to the river and stand in the middle where the fish are, and say "I Nzeruzakale came to this place and I had visitors. I came to you for help (i.e. a donation of fish) but you didn't help me. And now as you've come to apologize I am allowing that you should catch fish." Then I would take some water into my mouth and spit the water in front of the vyelo, saying "I'm VH Nzeruzakale, the owner of this river, so let them catch fish." Then I leave and come home. That very same moment, the fish start entering the vyelo to be caught. After an hour they (the fishers) bring to me a large amount of fish."*

The pomp with which the fish are brought to the TA is recounted by TA Karonga, who would then redistribute the fish among his advisors and relatives[168]:

> *"They can't come to me bearing only one or two fish. 10-15 fish is the least that they can bring, and it takes three or four men to carry them to me. They also don't carry the fish to me in a sack or covered in any other way. This shows to everyone that they are bringing fish to the chief! After they come, I pray for them again and the following day they will catch more fish than what they brought to me in tribute."*

This tradition of giving fish in tribute to Ngonde chiefs was reflected in expectations of hunters to reserve the right tusk of any elephant killed for the chief and in each village's obligation to farm plots of land on behalf of the chief (Wilson 1939; Kalinga 1974). As described by the historian Owen Kalinga:

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[166] A. Russell – Karonga District – Interviews with chiefs - 2004-04-08, 2004-04-12.
[167] A. Russell – Karonga District – Interview with a chief - 2004-04-12.
[168] A. Russell – Karonga District – Interview with a chief - 2004-05-31.

"The latter (referring specifically to the TA Kyungu but also true for TA Karonga) was believed to be the representative of the royal ancestral spirits and, as such, communicator with the gods. It was, therefore, vital not to annoy him so as to affect the environment by causing drought or disturbing the reproduction of animals." ((Kalinga 1974), p.99)

Social and Ecological Threats

During the last few decades the laborious process of constructing fishing weirs is gradually being abandoned as the catches have declined to a point where the work involved is not deemed worthwhile. During some years this lack of interest has at times made it necessary (and possible), for interested fishers from up to four, instead of the usual two, communities to collaborate in the construction of the lower river *vyelos*.[169] Even then, one 2005 lower river *vyelo* was made up of only 19 *chelos*, with several empty slots to spare in the middle of the barrier.[170] The amount of interest in the construction of *vyelos* can only be expected to decline further as in that year, the catches were very poor. The alternative fishing practice preferred by the younger generation in this decade of decreased livelihood security is to buy ready-made fishing nets which allow them to rapidly and independently catch fish that they can sell in order to support their families who face declining agricultural yields.[171] Specifically, the most common form of fishing

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[169] A. Russell – Karonga District – Interviews with chiefs - 2004-04-12, 2004-05-31 – N. Rukuru – TA Karonga; A. Russell – Karonga District – Fishing observation - 2004-06-02.

[170] Ibid..

[171] A. Russell – Karonga District – Interview with a chief - 2004-04-12 *"The Rukuru is spoiling the gardens of the people. Their own gardens. We are telling them don't do it [erode the river banks]. They are still doing it, so the water is coming in spoiling their gardens, spoiling their crops."*; A. Russell – Karonga District – Interview with a chief - 2004-04-19 *"There is a lot of hunger, because the rain has failed. The fish they catch are now simply being sold in order to buy food (nsima)."*; A. Russell – Karonga District – Interview with fishers - 2004-04-22 *"The land has not changed, the soil (amount) is still the same, but there is no food. In the past we had bumper yields but now they need fertilizer. The soil has lost its fertility."*; A. Russell – Karonga District – Interview with a chief - 2004-04-07 *"Harvesting is done in May. But harvests are shrinking due to problems with water. When you were coming here you could see standing water in the fields. Maize stocks rot and fall down before they mature. Cassava tubers also rot hence minimizing the harvest...We have some livestock such as draught cattle but only 2 -4. In the past*

in the river by younger community members is the use of large-meshed (3-4 inch) drifting gillnets which are walked down the river by an individual fisher.[172] Additionally, the *vyelo* is seen by the younger generation as an old-fashioned technology and institution, and the older generation are gradually dying and taking the expertise of *vyelo* construction with them.[173]

While cultural factors and increased fishing pressure in the lake must take part of the blame for these fish stock declines, a significant factor in many watersheds is erosion caused by deforestation and poor farming practices. All along the river, the banks have been so severely eroded by the cutting of reeds and trees that large swathes of land have been repeatedly flooded. This trend started in the 1970s and, since one very severe flood in 1979, regular floods have forced many communities to relocate several times.[174] Based on the extension messages from a short-lived (1999-2000) DANIDA watershed management program, in 2004 Group Village Headman (GVH) Nzeruzakale, whose jurisdiction includes most of the land and communities that lie furthest downstream, took

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there were more than there are now but they died of some disease. They would simply lay down and never rise again, that was the end."

[172] A. Russell – Karonga District – Interviews with chiefs - 2004-03-10; 2004-04-19a, 2004-04-19b, 2004-04-19c, A. Russell – Karonga District – Interview with fishers - 2004-04-07, A. Russell – Karonga District – Fishing observation - 2004-03-10.

[173] A. Russell – Karonga District – Interview with a chief - 2004-04-19 *"Previously they used to build vyelo but now they don't anymore. Now they're using nets and sometimes they are using hooks...The people who knew how to make vyelo have passed away. The young generations are not expertised in using the vyelo and they feel it is an old [fashioned] style."*; A. Russell – Karonga District – Interview with fishers - 2004-04-22 *"Last year we didn't make a vyelo because the old men who used to work together are all dead. These young men refuse. We last built one in 2002."*

[174] A. Russell – Karonga District – Interview with a chief - 2004-04-07 – VH [A]'s house is reached through a network of small paths, many of which are submerged. His present house is not his original home. On our way to meet with the VH, I commented to our guide about 2 nice houses (made of burnt bricks with large mango trees in front of them) which now look entirely neglected. Apparently, these are the two previous homes inhabited by the VH as he has been forced to move twice due to flood waters.; A. Russell – Karonga District – Interview with a chief - 2004-04-19 *"The river course has changed every 5-10 years. In 1998, it really did worse things. Most of the gardens along the river went. There were a lot of bananas along the river but most of them were washed away the same year."*; A. Russell – Karonga District – Interviews with chiefs - 2004-03-10a, 2004-03-10b, 2004-04-07, 2004-04-12, 2004-04-19; A. Russell – Karonga District – Interviews with fishers - 2004-04-07, 2004-04-22.

the initiative to address the problems of riverbank erosion and flooding.[175] As he describes in the following quote, he made a ruling forbidding the cutting of reeds and trees along the river banks and the cultivation on the river banks in all 8 communities that fall under his jurisdiction,

> *"Nowadays the river meanders greatly because of people farming right down to the river banks. The colonial government had delineated 20 yards of non-cultivated river bank, but now all the reeds have been cut. I have 8 chiefs under me who I have told to plant trees along the river bank but some have not planted. I have selected a group of monitors to look along the river to see whether they have planted the trees, stopped farming and tethering of livestock close to the river. I sat down together with the chiefs, and agreed to charge K500 for a first offence. If the offence is repeated, the chiefs will increase the fine. If he [someone] continues to disobey the ruling, his farmland will be reallocated to someone who will obey the rules!. That garden must be snatched from him! GVHs Mweniumba, Mwandwanga, Kalambo and I work together to take care of our river. VH Kambitoto is the most obedient chief, not having breached the river bank to create more farmland in his area North of the bridge over the N. Rukuru on the Yiwemi side."*

Although immediate adherence to this ruling has not been overwhelming, one measure of this new rule's effect is the fact that at least one village headman further upstream has heard about GVH Nzeruzakale's regulations and is interested in introducing a similar regulation in his region.[176] Although these river fisheries' harvesting institution cannot be designated as a conservation institution, it does have the effect of limiting the amount of fishing effort expended on the *vyelo*s, which historically were found on most major rivers. It therefore offers a rare example of a traditional institution regulating the harvesting of fisheries systems for the purpose of sharing the benefits amongst the many stakeholders who cannot sustainably all build *vyelo*s each year. Although by law, the

[175] A. Russell – Karonga District – Interviews with chiefs - 2004-04-19, 2004-03-10 – N. Rukuru – GVH Mwahimba.
[176] A. Russell – Karonga District – Interview with a chief - 2004-04-19.

*vyelo*s are supposed to have a gap in the middle to allow some fish to pass through, the general conditions of poverty in Malawi and the lack of government oversight allows this rule to be broken without penalties.

Other examples of poorly-documented weir fishing institutions

Lufilya *Vyelo* [177]

In a similar fashion to N. Rukuru River *vyelo* fishery, the Lufilya river *vyelo* fishery was regulated in a manner designed to create equity among villages. From the upper river reaches, a series of *vyelo* were constructed by individual chiefs: GVH Mwawulambo, GVH Manjazi, GVH Mangawera, GVH Mwakasangira, GVH Namitete, and GVH Msomba. However, at the river mouth, the *vyelo* was shared between the TA Kilupula (every year) and two upriver GVHs (whose turn came in a rotation). Over time, however, GVH Mwawulambo was excluded from this rotation as his personal *vyelo* (which was furthest upriver) was catching a larger number of fish than the intermediate *vyelo*s. His *vyelo* was probably also targeting the fish that had already spawned and who were returning downstream. As was the case in the N. Rukuru, no other fishing was

[177] A. Russell – Karonga District – Interview with a chief - 2004-05-31 *"There was a monopoly in the Rufilya Fiver as people around that section had to fish using a Vyelo with mono's and not everyone was allowed to fish there. From the top to the bottom there was: GVH Mwawulambo, GVH Manjazi, GVH Mangawera, GVH Mwakasangira, GVH Namitete, and GVH Msomba at the mouth. But when you come to the mouth of the river, they had to share. This year 2 GVH s share and next year 2 other GVHs share, while the Chief was every year. This was the same with the Songwe and Rukuru Rivers. This went on [until] they discovered that fish were plentiful at GVH Mwawulambo's area at the top, and they stopped Mwawulambo from fishing at the mouth as he had plenty of fish, more than the others...this [the fishing system] finished 20 years ago, when the rivers became shallower because of sand and branches due to shifting cultivation.. So people have just left it and [instead] people have started [using] nets. Anybody can fish anywhere.";* A. Russell – Karonga District – Interview with a chief - 2004-03-10, A. Russell – Karonga District – Interview with a fisher - 2005-02-01.

permitted in the Lufilya while the *vyelo*s were in use. However, this institution came to an end during the 1970's as the river had become too shallow due to a combination of erosion (due to poor agricultural practices) and the diversion of significant amounts of water for a large government-sponsored rice-scheme. Since then, most fishing of the river fishery is done with fixed gillnets around the river mouth and with large-meshed drifting gillnets in the river.

Dwangwa River Area *Biius*[178]

Before the Dwangwa River changed its course in the early 1950's, it supported a *biiu* fishery (see footnote at start of chapter explaining differences between *biiu* and *vyelo*). In this case, each chief along the river (and the Lipachi and Phwazi tributaries) built his own *biiu*, and TA Kanyenda (their paramount chief) had his *biiu* at the mouth of the river. These *biiu*s were built twice a year, once at the start of the rainy season (in November) to target the fish swimming upstream, and again at the end of the rainy season (in April) to target the fish as they returned to the lake. The traps in the *biiu* (called *mono*) were placed at different heights, ranging from the river bed to the surface. All other fishing in the river, except for the use of spears in the pools was forbidden. Although no gap was left in the *biiu*, many fish would have been able to pass through

[178] A. Russell –Nkhotakota District – Interview with a chief - 2004-05-03 *"They stopped [building biiu in Zaro when] the fish stopped migrating up the river. They were making them twice a year, at the start of the rainfall when the fish swim upwards, and at the end of the rainfall when the fish returned to the lake."* **Q: Was the river apportioned in any way into territories?** *"Because there was no gap left [in the middle of the biiu] the people on both sides of the river shared the weir as a biiu constructed further upstream would have lost out. But when the rains are heavy the Dwangwa River would flood and the fish could manage to get through as the water swept away the biius. The biiu was shared in the Zaro, but in the Dwangwa River each chief had his own section of the river. Chief Kanyenda (Simeon) had the lowest biiu at Dwangwa, then there was Kamkombwa and the other chiefs at their villages. Because the Dwangwa River was very forceful, enough fish were able to overcome the lower biius to be caught in the upper ones."*; A. Russell – Nkhotakota District – Interviews with chiefs - 2004-07-03, 2005-03-20.

when the water level in the Dwangwa River rose high enough to wash over the *biiu*. The primary fish species targeted by the *biiu* were the *ntchila*, *mpasa*, and *sanjika*. After the Dwangwa River was diverted into the muddy Kambindingu Lagoon, however, the numbers of fish entering the river dwindled quickly and people stopped building *biius*.

In the smaller Kamparara River which feeds into the Kambindingu Lagoon, GVH Wakunyanja and VH Mwamdimba shared in the construction of a *biiu* so as to share the benefits of the *biiu*. However, this *biiu* institution was discontinued with the increased flooding of the Kambindingu Lagoon.

Case Study 2: The Self-starters of the Far North: Yiwemi BVC

The Yiwemi Fishery

Yiwemi dock is the most accessible fishing port along the main North-South road that connects the district capital (Karonga BOMA) to the Tanzanian border, and therefore receives traders from major markets at Karonga BOMA, Pus, Iponga, the border, and many smaller village markets.[179] Some fish are even sold as far away as Chitipa, a neighboring land-locked district.[180] As may be seen from the household survey data below (Table 4-1), a majority of Yiwemi residents are local in origin, and household livelihood strategies tend to encompass a variety of activities.

[179] A. Russell – Karonga District – Interview with a chief - 2004-03-09, A. Russell – Karonga District – Interview with fish traders - 2002-07-22, 2005-02-05, 2005-02-11.
[180] A. Russell – Karonga District – Interview with a chief - 2004-03-09; though less than 100 km away, the poor road conditions may make travel to Chitipa a full day endeavor.

Yiwemi Community Households Surveyed					
N =	54				
Livelihood Strategies	**Farming**	**Fishing**	**Trading**	**Artisan Skills**	
% of Household	96	69	76	48	
Residency Patterns	**Local**	**Area**	**District**	**National**	**Median Visitor Duration (yrs)**
% Origin of Residence	67	4	20	9	4.5

Table 4-1. Yiwemi household livelihood strategies and residency profiles.

The earliest adoption of nylon netting at Yiwemi was of 4-6 inch mesh gillnets that mainly targeted potamodromous fish species in the lake and near river mouths: "*mpasa*" (*Opsaridium microlepis*) and "*mperere*" (*Opsaridium microcephalus*).[181] Earnings from gillnetting subsequently enabled a number of fishermen to purchase the more expensive but more lucrative beach seines that enabled the harvesting of the "*usipa*" (*Engraulicypris sardella*) shoals up to half a kilometer from the shore. Though small in size, and less highly valued by consumers, these fish were most easily dried and transported to inland communities. However, by the 1990's, the destructiveness of at least 10 beach seines in operation near this beach were taking a visible toll on the near-shore ecology. As beach seines drag along the lakebed, they destroy fish breeding habitat and capture both adult and juvenile fish. The disappearance of juvenile fish was one of the first issues that led the Yiwemi fishing community to establish rules limiting the use of beach seines.[182] These ecological problems were described by the original Yiwemi BVC:

> *"Fishing was difficult. As the lake is common property, fishermen felt that they had the right to fish in any harmful manner than they pleased.*
>
> *Some fish species were not supposed to be caught such as kababa, mpasa juveniles. etc., yet they were being caught with impunity. People were not observing the closed season from November 1 to December 31, especially*

[181] A. Russell – Karonga District – Interview with a chief - 2004-03-09, A. Russell – Karonga District – Interviews with fishers - 2005-02-05, 2005-02-11.
[182] A. Russell – Karonga District – Interview with Old BVC - 2004-06-11.

beach seine owners. There were more than 10 beach seines here in the past, because the usipa were abundant and there were good fishing grounds."[183]

The over-fishing of local fish stocks, combined with fisher population growth and the decline of the autocratic national government, led to increased conflicts between fishers. Various symptoms of social friction were also described as key reasons for the chief's decision to establish a BVC. As described by the original Yiwemi Beach Village Committee:

"People were coming from other communities to steal [fish and gear] from us.

Women were getting into fights with each other as they competed to buy fish. Therefore, we co-opted some [of them] into the committee to take care of, and control of others.

The beach was very dirty and covered with bush providing habitat for insects and mosquitoes which were causing suffering from malaria.

There were no toilets, so people were defecating in the bush, which led to increased outbreaks of cholera."[184]

Establishing a Fishery Committee

Due to popular concern over these issues, in 1993 VH Yiwemi established a "fishery committee" (*committee pa nyanja*)[185], chaired by Mr. Lackwell Mwangalaba which set rules regulating fisher behavior:

"The FD advised us to ensure the sustainability of their fish stocks and to observe the closed season (Dec.-Jan.). The (fishermen) forbade the use of beach seines, quarrels, and theft of canoes and nets."[186]

"Some women were appointed to the BVC in order to mediate in conflicts between traders."[187]

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[183] Ibid.
[184] Ibid.
[185] A. Russell – Karonga District – Interview with New BVC- 2002-07-19.
[186] A. Russell – Karonga District – Interview with fishers - 2004-04-22, 2005-02-11.

The timing of the creation of this committee coincided with the start of the governmental fisheries co-management scheme in Lake Malombe, but while the local FD extension workers gave advice and governmental sanction to VH Yiwemi's committee, it should be noted that the initiative was led by the fishers themselves (under the leadership of VH Yiwemi). The first BVC, which operated from 1993-1996, was seen as very successful in ending the theft of fishing gears by collaborating with other intra- and inter-community institutions for monitoring and enforcement of gear ownership. For all new gears brought to the community, the BVC required proof of ownership and made inquiries with neighboring villages to determine whether any gears were missing. As presented by the original BVC, this system effectively ended theft of nets:

> *"Theft is now in decline. We work together with our counterparts of Mwakanyamale and Songwe BVCs and thieves are caught. When we find nets or canoes we bring them to the chairman who announces it to other BVCs. Right now we have a very big net ranging from 2 - 7" mesh size. The owner has not yet been found."*[188]
>
> *"Theft of nets has ended within the community, and when they were caught they were taken to the VH and then to the police."*[189]

Additionally, poaching during the closed season (especially by beach seine owners) was effectively addressed by enlisting the assistance of a community-based policing committee, and by incorporating some poachers onto the committee:

> *"When we catch a poacher, the BVC confiscates the nets and donates the fish to the hospital. We feel that the poaching problem is being taken care of in this way. Some of the poachers are now on the BVC too."*[190]

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[187] A. Russell – Karonga District – Interview with Old BVC - 2004-06-11.
[188] A. Russell – Karonga District – Interview with New BVC - 2004-06-11.
[189] A. Russell – Karonga District – Interview with New BVC -2002-07-19.
[190] Ibid.

"We work together with Community Policing; when we have caught the offender/poacher we confiscate his gear and hang it until January when he has to pay a fine of K500. In the beginning there were many fines given, however, people have learned and don't use these gears at that time anymore."[191]

BVC loss of motivation

After 2 years, the first committee had largely addressed the most pressing fishery management issues, and lost its zeal. A second BVC was established in 1996, chaired by Mr. Dowel Chinula. This committee tackled some of the health/social issues that had been causing concern in the community:

"We cleared the place by slashing the grass and got medicine from the hospital which we sprayed around this entire place. We also constructed a pit-latrine. This was done by the second committee which replaced the first after it failed to execute its duties." [192]

By 2001, this second committee had also become inactive, however, this is attributed by the fishers as being due to their reluctance to work without pay. This "reluctance to work without pay" can be witnessed throughout Malawi, but the reasons for its existence in the far North of Malawi are somewhat different from those in the South. In Southern Lake Malawi, the fish stocks are seen by fishers as having been depleted due to ineffective governmental regulation, and they now see little incentive to adopt the unpleasant role of enforcer of unpopular fishing regulations. They feel little responsibility for the conservation of the fishery, and given that they see this as really being the government's role, they expect payment for their participation[193] (Ganter,

[191] A. Russell – Karonga District – Interviews with fishers - 2004-04-22, 2005-02-11.
[192] A. Russell – Karonga District – Interview with Old BVC -2004-06-11.
[193] A. Russell – Mangochi District – Interview with fishers - 2002-06.

Chisambo et al. 2001). In contrast with the southern lakeshore, this isolated portion of the northern lakeshore has never had very active governmental enforcement of regulations. Consequently, fishers' reluctance to work without pay is primarily attributed by FD administrators and field staff to the rise of NGO/development agency-funded programs that pay community-members for their participation in community-development activities.

> *"Some BVCs were given maize in exchange for work by the District Assembly, funded for 4 months by the World Food Program. When that program ended, many people refused to work, especially at water hyacinth removal which is tough work."*[194]
>
> *"BVCs and Water Hyacinth Clubs are unmotivated as FD staff do not provide incentives (payments or refreshment) to committee members. NGOs have raised community members' expectations by giving gifts, paying for sitting fees, and buying refreshments."*[195]

In the case of Yiwemi BVC, the former committee members' brief participation in a donor-agency funded work-for-food program is blamed for their subsequent reluctance to work in fisheries co-management. As expressed by the BVC members:

> *"Since the WFP ended, the number of volunteers went from about 50 to 20-30 but these are people who see the water hyacinth as a threat to the industry and fishing in the river mouths and wetlands."*[196]
>
> *"Work without pay is difficult, that is why the former BVC was inactive, but now we have recognized the benefits of working in the BVC."*[197]

Fishery declines spur BVC Revival

By the 1990's, the character of the fishery at Yiwemi had changed substantially, both in terms of the fishing gears used as well as the fish species caught. With the decline

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[194] A. Russell – Karonga District – Interview with FD staff -2002-07-17.
[195] A. Russell – Karonga District – Fisheries Extension Staff Training Workshop - 2003-12-12.
[196] A. Russell – Karonga District – Interview with New BVC - 2002-07-19.
[197] A. Russell – Karonga District – Interview with Old BVC - 2004-06-11.

in *mpasa* and *mperere* catches, gillnetters went increasingly further out into the lake in search of new fish stocks.[198] Currently, the main targeted species, *masohungu (Diplotaxodon spp.)*, is a deep dwelling fish that had previously not been caught by the fishermen of the near-shore waters.[199] Additionally, the prohibition on beach seines led fishermen to invest in a new fishing technology (*chilimira*) to target the pelagic *usipa* stocks. This purse seine, operated by two canoes is a technological innovation that originated in the Usisya region of Nkhata Bay District and has become increasingly popular since the 1990's. The expansion of this new fishing gear, combined with the inactivity of the second BVC and the increased impact of visiting fishermen, led to a third BVC elected in 2001. This committee, chaired by Mr. Charles Kambewa, has been active in enforcing existing rules and has gone on to create and enforce a number of new regulations and processes to protect the local social harmony and ecological sustainability:

> **Registration of Visiting Fishermen** - Visiting fishermen who temporarily reside on this beach are expected to pay a fee of K300, and have to register their gillnets with the Fisheries Department. The BVC collects these registration fees for the FD, which visits regularly to collect the registration fees from the VH and write out receipts for the fishermen.[200]
>
> **Regulation of Fish Prices** - The prices of fish bought at the beach is also regulated by the BVC. This has two functions. A maximum fish price

[198] A. Russell – Karonga District – Interview with a chief - 2004-03-09; A. Russell – Karonga District – Interview with fishers - 2005-02-05, 2005-02-11.
[199] A. Russell – Karonga District – Interview with a chief - 2004-03-09; A. Russell – Karonga District – Interview with a fisher - 2005-02-05.
[200] A. Russell – Karonga District – Interview with a chief - 2004-03-09, A. Russell – Karonga District – Interview with FD Staff - 2004-03-05.

protects the majority of traders from any individual trader's (generally non-resident traders) attempts to monopolize the market by outbidding the others. A minimum fish price protects the local fishers from individual fishermen's (generally non-resident fishermen) attempts to drive the prices too low by selling their fish at too low a price. Either of these activities is punished with fines of K250.[201]

Bans on River/Wetland fishing – During the closed season or windy days, fishermen had frequently fished in the rivers where catches are plentiful during these times. This rule is intended to protect juveniles and breeding fish like *chambo* and *mperere*. After a brief period where several people were fined K5000 each, this practice stopped.[202]

Bans on Small-meshed Gears Near Shore – Small-meshed traps and gillnets (below 2½ inches) have been banned for use near shore to protect juvenile fish, especially for *chambo*. [203]

Pivotal Role of the Chief

Most fishers claim that the BVC is effective at enforcing the conservation rules that it has set, and they have noted the reappearance of juvenile fish in the in-shore waters

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[201] A. Russell – Karonga District – Interview with New BVC - 2004-06-22, A. Russell – Karonga District – Interview with Old BVC - 2004-06-11, A. Russell – Karonga District – Interviews with fish traders - 2005-02-05, 2005-02-11.

[202] A. Russell – Karonga District – Interview with a chief - 2004-03-09, A. Russell – Karonga District – Interview with New BVC - 2004-06-11, A. Russell – Karonga District – Interview with Old BVC - 2004-06-11, A. Russell – Karonga District – Interview with fisher - 2005-02-11.

[203] A. Russell – Karonga District – Interview with Old BVC -2002-07-19, 2004-06-11;. A. Russell – Karonga District – Interview with a chief - 2004-03-09, A. Russell – Karonga District – Interviews with fishers - 2005-02-11, 2005-02-11, 2005-02-11.

that had been absent during previous years. In contrast with numerous other fishing communities where fishery regulations and BVCs exist on paper only and are largely unknown to community members, all traders are aware of the rules set by the BVC on fish prices, and have made use of the BVC to punish traders who break these rules.[204] When people discuss the reasons for the BVC's effectiveness, they all point to the key role played by VH (village headman) Yiwemi in ensuring compliance with the BVC's rules:

> *"All the chiefs involved agreed with the concerns raised by fishermen at the dock and fully support the BVC and its rules. They help to enforce the rules and punishments."*[205]
>
> *"The fishermen comply with the FD fishing rules and ban the sale of undersized fish on the beach. The VH is an integral part of the BVC rule enforcement."*[206]
>
> *"VH is the leader of the committee. He has the last word. People obey him because he is respected as a good ruler."*[207]

As can be seen from the above comments, the quality of VH Yiwemi's rulings is considered the key to the success of the BVC. Nevertheless, despite the apparently high level of community support for his governance, this typically humble and under-spoken chief explains the delicate balance required in governing the fishery. While he sees himself as being the source of the BVC's power, he explains the need for having a BVC as chiefs have been known to abuse the influence of their office:

> *"The government gave us, the chiefs, power, and people are very obedient. The Yiwemi BVC enforces the laws concerning fish and fisheries.*

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[204] A. Russell – Karonga District – Interview with New BVC -2004-06-11; A. Russell – Karonga District – Interview with fisher - 2005-02-11.
[205] A. Russell – Karonga District – Interview with fisher - 2005-02-11.
[206] A. Russell – Karonga District – Interview with fisher - 2005-02-05.
[207] A. Russell – Karonga District – Interview with fisher - 2005-02-11.

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."[208]

A final illustration of how this delicate balance is maintained was provided by our encounter with the community's main method of forcing the chief to address his community's – civil disobedience. In this case, we had arranged to have a meeting with the BVCs and credit groups, however we arrive to find a lone VH Yiwemi sitting on a chair in the clearing under the mango tree where we had expected to find a crowd of community members. He is a bit embarrassed and explains why no one has shown up. Apparently, the community members are refusing to take part in any form of community development activities (these traditionally organized by the chief, and include BVCs, credit groups, etc.) as long as he doesn't chase someone suspected of witchcraft out of the community (see Figure 4-2, below).[209]

Given that Chief Yiwemi's BVCs don't depend on weaponry or technological advantage to enforce regulations, and in light of the community's evident ability to demand accountability of its chief, the success of his BVCs should be recognized as representing a deeper community consensus regarding the legitimacy of the chief, and the appropriateness of the BVC regulations.

[208] A. Russell – Karonga District – Interview with a chief - 2004-03-09.
[209] A. Russell – Karonga District – Interview with a chief - 2004-06-02.

Civil disobedience over witchcraft accusations forces accountability on chiefs.

The following is summary of VH Yiwemi's report to his Group Village Headman regarding his community's unwillingness to participate in community development work due to a charge of witchcraft in the community. The labels [A] and [B] refer to two community members.

VH: "[A] was sick for a long time, and despite going to many doctors he never got better. He then went to a medium where he was told that [B], his neighbor, was bewitching him.

Then on another occasion, [B]'s cow grazed on [A]'s rice. [A] got hold of the cow and led it to my nduna [advisor] with the hope that they would meet with the owner there to discuss the issue of the cow. But when [B] heard that his cow was tied up at the nduna's house, he simply went, untied it [the cow], and took it to his home.

The nduna called them both to discuss the issue, but they ended up fighting. The people said that [B] was wrong to take away the cow instead of coming to discuss the issue first with his friend [A].

Later [B] heard rumors that [A] had called upon a number of people to go and beat him up at his house. He [B] then came to me to report about the plot that [A] was coming to torch his house that night .I invited them both to discuss the issue with me, and this is when [A] accused [B] of bewitching him. [B] denied this and said that they should go to a medium [someone experience in detecting witchcraft] *and that if he really was the witch, then [B] would be willing to pay [A] a cow in compensation. I [VH Yiwemi] wrote a letter instructing them to go to the medium and they went to three different mediums who all confirmed that [B] is really a witch.*

When they came back [B] admitted that he is the person bewitching Patrick. Then the people said that he should pay [A] the cow and throw away his magical tools before May 12, 2004, but he has not yet paid. Now all the people from my village have came to me demanding that I chase him [B] away because he has not met the requirements. When I said that it is unconstitutional for me to do so, they say we (chiefs) are in league with Chihauli. [In traditional culture, chiefs are regarded as possessing a certain amount of magical power, and he is being accused of protecting a fellow witch] *They[the community] say that if he [B] stays in the village, they will not do any development work.*

These are the concerns that I, your son, am bringing to you, my father.

GVH: ***What do the other chiefs say?***
VH: The chiefs say that chasing somebody away is against the law. It is only acceptable to fine him and make him dispose of his magical tools.

GVH: ***What do the elders say***
They say he [B] should pay the cow and throw away his magical tools, and if he fails then he should leave the village.

GVH: ***Ok, all of you should come here on Friday at 12 noon. Go and call everybody. Everyone should attend; and we will resolve this issue."***

[Though they didn't want to share the details of how the conflict was resolved, the community members all showed up for the rescheduled meeting a few weeks later.]

Figure 4.2- Civil disobedience over witchcraft accusations enforces accountability of chiefs.

Need for Livelihood Diversification

Despite these successes, the status of the over-fished stocks continues to be a topic of concern for the community leadership and fishers alike:

> *"In the past, fish used to be caught in large numbers during the day. Now to catch fish, fishermen have to fish at night with lamps. It is not like in the past."*[210]
>
> *"We have caught a lot of fish over the years. However, in the past we were catching a lot more than now." In particular, the amount of usipa and masohungu caught by chilimira fishermen has decreased. "People used to come all the way from Mzuzu [the regional capital, ~300 km away] to buy fish from here, but nowadays we are not seeing them anymore."*[211]

This dilemma for fishermen who recognize the ecological problems, but who don't see a way out of a prisoner's dilemma[212] situation is well characterized by Mr.Chirambo:

> *"Mr.Chirambo plans to start a chilimira crew of his own in July and has been saving for a chilimira net since last August...He says that there were more fish in the past, but that the species diversity hasn't really changed, and sees the decrease in fish as being due to the increase in fishing gears. He feels that something should be done to stop the over-fishing and would be willing to stop fishing altogether and move into business if the BVC established a longer closed season. However, he doesn't think that people will accept a closed season and there is no value in his sacrificing his livelihood if others don't. "People are difficult to convince.""*[213]

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[210] A. Russell – Karonga District – Interview with a chief - 2004-03-09; also A. Russell – Karonga District – Interviews with fisher - 2004-04-22, A. Russell – Karonga District – Interview with fish trader - 2005-02-11.

[211] Ibid.

[212] Very briefly, in a prisoners' dilemma situation any one fisher may recognize that his fishing activities contribute to the over-exploitation of the resource but is unwilling to decrease his fishing as he thinks that others' will gain the difference, and he will lose out overall. A more extensive description is offered by Baland and Platteau (1996).

[213] A. Russell – Karonga District – Interview with fisher 2005-02-05.

Start of the Yiwemi Co-op

The view that livelihood diversification is necessary to relieve pressure on the fishery is widely shared throughout the community and leadership.[214] One of the results of this growing concern has been the start of a livelihood diversification co-operative, known as the Yiwemi Co-op. The initiative for the establishment of this co-op came from fishermen who had been members of the first BVC, fish traders who had run a women's credit group, and VH Yiwemi.

A number of these leaders had been trained in how to run a co-op in 1993; however this scheme failed due to inter-community rivalries with the chief of a neighboring community. Nevertheless, the members had maintained a latent interest in establishing a co-op, and my simple encouragement to them in April 2004 prompted them to re-attempt this project.[215] By June, 2004, the Yiwemi Co-op had drawn up a constitution and had charged significant initial membership fees (K 1,000), however they had not yet entirely decided how best to invest their efforts, and I gave them some suggestions:

> *"Considering the fact that we have been already trained in corporative society we decided to come up with this one. Every member is supposed to pay an annual fee of K200. We have 11 members. The money is with the Treasurer. This will be used for stationery and office supplies. Each person has paid a fund of K1,000 as capital for the corp. We are looking forward to calling upon the committee to come up with its budget plans...We would like to convince donors to help us with starter capital.*

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[214] A. Russell – Karonga District – Interviews with fishers - 2004-04-02, 2005-02-05, 2005-02-11 A. Russell – Karonga District – Interviews with Co-op – 2004-06-11; 2005-02-11; A. Russell – Karonga District – Interview with fish trader - 2005-02-11.

[215] A. Russell – Karonga District – Interview with fishers - 2004-04-22; At the end of this meeting, I inquire about the idea that one fisher had raised about establishing a co-op, and I am told that several people had received some training in this through an earlier Italian NGO's rice farming scheme. We discuss the potential for this expertise to help them better market their fish, and diversify their livelihoods, and I got the impression that the main person who suggested this idea, supported by the VH have something in mind.

We are just learning from others, if there are some involved in the same activities they should feel free to come and teach us."

Asked for my suggestions: *"You may want to diversify your livelihoods from fishery to other livelihood activities; It is wise to keep all your money in a bank account rather than in someones' house; Don't use the capital as a loan to members otherwise the society can stop functioning due to a single default. Instead, lend the profit made from sales. You could also multiply your money by keeping them on a fixed deposit account for more than two months."*

They respond. *"Thank you very much for your suggestions. We really need them. We would also appreciate it if you could try to contact and convince other well-wishers to train us on how to run our co-op."*[216]

Seeing their motivation, I introduced the new FD extension worker to the BVC and Co-op and urged him to support their efforts at conservation and livelihood diversification.[217] The FD extension worker in turn was able to attract the support of the Evangelical Lutheran Development Program (ELDP) which has helped the Yiwemi Co-op grow a diversity of vegetables and raise livestock.[218] During its first growing season, the co-op had mixed agricultural successes and except for the FD and ELDP support, they received little help from other local government agencies.[219] Nevertheless, the

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[216] A. Russell – Karonga District – Interview with Co-op - 2004-06-11.

[217] A. Russell – Karonga District – Interview with a chief - 2004-06-02.

[218] A. Russell – Karonga District – Interview with FD staff - 2004-11-31 **Could you tell me how Yiwemi Club formed?** *"They formed on their own initiative, but I organized them. You reminded them [of the idea to create a co-op] when you came [when I held a meeting with fishers]. I met with the Evangelical Lutheran Development Program officer, Mr. Kawsiwa in May. He thought that fishermen couldn't do anything but fishing. [But] they had plowed the land and Mr. Kawsiwa was convinced. He came in July, saw the place and peoples' determination. We had 12 women and 8 men as members."*

[219] Ibid., A. Russell – Karonga District – Interview with FD staff - 2005-01-29 *"At Yiwemi we planted some trees near the beach to control erosion: 186 Mtangatanga and 90 Acacia. The seedlings came from ELDP. They were recently given maize seeds, cassava shoots, groundnuts, sorghum. These have all been planted by now, and this time everyone was given (seeds) individually, to be planted on their own plots of land to see their performance. The main aim was that they should share seeds once harvested with other community members. The first crops: beans failed due to some disease and the Agricultural officers would not help, the maize didn't grow well as it was planted late, the vegetables made some profit and they sold more than K4000 worth, and the tomatoes failed as they were transplanted late. ELDP is concerned that they may lose momentum, so they want to stimulate them further [by giving them seeds individually]. Agricultural Extension is not interested in getting involved. I visited him 3 times and also his supervisor but they have no interest in collaboration...they are only interested if there are allowances [per diem payments]. It is the same with the ward councilors, they are not interested. The goats are doing well*

collaborative commitment shown by the co-op's members and their willingness to prioritize the livelihood needs of the member households headed by single women has convinced ELDP and FD extension workers of Yiwemi Co-op's potential to make a community-banking scheme work.

> ***How does ELDS plan to support this club in the future?***
> *"We will work with them up to when our program ends. It seems like with what we have issued them, we have assisted them. We will continue to help as long as they are committed. Next year we will give them chickens. They have also asked us for help with adult literacy and we have told this to the head office."*
>
> ***Could you explain your SACO program?***
> *"We will start a village bank. The club donates money to the bank, which is loaned out and repaid with interest for depositors ~25-30%. We have started one already at Mlare and will start with meetings here [at Yiwemi] next week. ELDP provides an office, desks, a safe, watchmen, and a cashier. We assist the clubs for 2 years, then the group must take over. ELDP used to give loans as well, however this resulted in a lot of defaults. Now it will be their [the community's] money, and the people themselves will decide on interest rates and repayment."*[220]

Additionally, as in the case with Yiwemi BVC, although VH Yiwemi is a member of the Co-op and is not the chairperson, the co-op membership is significantly motivated through his hardworking example.

> ***Why did you decide to support this group?***
>
> *"This is because of the cooperation of the farmers including the VH. At Yiwemi we meet with them 2 times a week but sometimes we have difficulty to meet as we are funding 22 clubs in the Yiwemi area."*
>
> ***Who do you feel are the people who really encourage this group?***
>
> *"VH Yiwemi, Chairman Mushani, the Vice-Chairlady, almost everyone. Anyone who wasn't eager was expelled. Recently we expelled 3 members.*

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though there are no new births. Guinea fowl have produced around 40 eggs that have been given to 5 members for hatching. One hen hatched eight eggs, but the other hens were not seated [laying]. It takes a long time for them to sit. Due to high vegetation the fowl are kept in an enclosure to protect them from predators, but for this reason they have stopped laying eggs. Now members work individually and meet every Friday afternoon at Yiwemi's house."

[220] Ibid.

Now there are 12 women and 5 men, including the VH who doesn't have a position. He is just a member."

How do you feel about having VHs as chairmen in ELDS clubs?

"In ELDS, the VH is not allowed to be the chairman, but if you have any problems we go to him. In some clubs the VH is not even a member."

Could you give me your appraisal of why VH Yiwemi is helpful in this club?

"His commitment, 'chidwi'. He is always in the lead, and he likes to motivate people. We discourage the VH [in general] from being chairman of clubs as he can become a dictator. He is just a member. He [referring specifically to VH Yiwemi] was the one telling people of the goodness of having a club [co-op] and he was hard working, showing an example to his people."[221]

Other examples of self-starter communities in the North

Songwe[222]

During the early 1990s, fishing communities near the mouth of the Songwe River, (forming the border between Tanzanian and Malawi), were involved in conflicts with Tanzanian fishers over placement of fishing nets, and theft of fishing nets and fish. In 1993, GVH Mwenitete established three BVCs to enforce the peaceful co-existence between fishers from both sides of the border. Having addressed these issues, they now mainly enforce bans on the use of mosquito-netting in *chilimira* nets, and under-meshed gillnets (1-1¼ inch).

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[221] A. Russell – Karonga District – Interview with ELDP - 2005-01-29.
[222] A. Russell – Karonga District – Interview with BVC - 2002-07-18, A. Russell – Karonga District – Interview with FD staff - 2002-07-17.

Mwenibabu[223]

In 1997, due to conflicts on the beach, the FD helped the community create a BVC. They set fines for theft of fish and nets, banned the barter of fish-for-alcohol on the beach, mediated in conflicts over net positioning, set fish prices, and required fees from visiting Tanzanian fishers. The committee became inactive around 2000, and VH Mwenibabu appointed three separate new two-person committees in 2001, one each to regulate: Fishers, Foreign Pottery Traders, and Local Traders. Unfortunately, the infrequency and inconsistency of FD staff visits has hampered the community's attempts to improve fishing livelihoods:

> *"This area is doing very well in fishing but we need help. Sometime before 1999 - 2001 the FD tried to visit us but since 2002 they haven't come. How can we improve our fishing if they don't come? At first they said that we should build a fish kiln which we did but they did not come back to instruct us how to use it. Now it has been destroyed due to neglect.*
>
> *Though they [fishers] know that small fish grow into big ones, they still exploit the juveniles. What we need is education, as the government did in the past, teaching us how to take care of our resources. What we need is to create and raise awareness among community members and school children about fish so that they can wisely manage the resource. If it is possible, could you assist us in creating a place where we can keep fish for community education purposes? We have a good place to create a dam [fish pond]. We need technical support from you and other well wishers. The fish are heavily depleted because of ignorance."*[224]

These committees were very active in their activities until 2004, when VH Mwenibabu suddenly passed away. Unfortunately, his successor had not yet been

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[223] A. Russell – Karonga District – Interviews with fishers - 2004-04-20, 2004-06-03; A. Russell – Karonga District – Interview with a chief - 2004-03-13; A. Russell – Karonga District – Interview with BVC - 2002-07-20.

[224] A. Russell – Karonga District – Interview with a chief - 2004-03-13; also A. Russell – Karonga District – Interview with FD staff - 2004-11-31 *"They do follow gear meshes but I put the blame on our [the government's] side for not doing any training as there is no resources. Those people are really ready and willing to learn from us but we don't reach them like we are supposed to. It is us who are failing."*

appointed as of March 2005, and the absence of the chief's support has left the BVC without a leader. For now the future of this BVC is uncertain.

Northern Nkhotakota District

This stretch of the Lake Malawi lakeshore developed with minimal governmental interference for many decades due to its relative inaccessibility. Until the late 1960's, the torrential floods of the rivers to the North (Dwambazi) and South (Bua River) prevented the establishment of a permanent transportation infrastructure, and after bridges were built across these rivers in addition to many smaller rivers, each year sees at least one of these bridges being swept away. Although the area traditionally falls under a Chewa chieftaincy (i.e., Traditional Authority Kanyenda), large immigrations by Tonga settlers following the end of the Ngoni raids in the late 1890s have led to the ascendancy of the Tonga language and ethnicity. Until the mid-1900's the landscape was largely forested, with small-scale cassava and maize farming (as staples), and a Chinese-sponsored rice-farming scheme in the lakeshore marshlands. This rice-growing scheme ended in the 1960s when the Mauritian-owned sugarcane company, Lonrho, leased the land from the newly-independent Malawian government and relocated all people living on it.

As in Northern Malawi, prior to the introduction of nylon nets in the 1950's the main fishing activities took place in rivers and near-shore waters. River species, such as *mpasa*, *sanjika*, *ntchila*, *mkupi*, *kadyaokolo, matamba, chikongwe, mbununu, kuyu, mpondwe, nkongola*, were harvested using fishing traps, spears, and poisons, and along the larger Dwangwa and Kamparara Rivers, local communities under the leadership of their chiefs (including: GVH Wakunyanja, VH Msisita, and TA Kanyenda) collaborated in the building of fishing weirs during the early and late rainy seasons (when the fish

migrate up to, and down from, their spawning grounds, respectively).[225] In the lake fishery, *chambo*, *ntchila* and *usipa* were targeted with small fishing traps and spears, and small gillnets and beach seines laboriously hand-woven of flax fibres.[226] An early example of the use of such a beach seine by the second chief of Ngala is recalled by the current chief, GVH Wakunyanja:

> *"In 1836 when my father [forefather] arrived, he found a beach seine known as "mkumba nkhondo" owned by his uncle, Gangala. In the past these nets were made to target chambo not casawala (juvenile chambo), they had large mesh size."*[227]

During the course of the 20th Century, the local fishing economy and the characteristics of the fishery have changed dramatically with progressive erosion of the lakeshore. The first significant local changes occurred in the 1920-30's, when the Bana Swamps, which had been used for rice farming, became increasingly flooded, and eventually connected with Lake Malawi through the Zaro River. These swamps have gradually were referred to as "*Kambindingu*" (meaning "to capsize a canoe") because people increasingly had to make use of canoes to cross this flooded marsh and drowned in the lagoon when their canoes capsized. The ecological transition from rice-paddy to fish-breeding habitat is described by GVH Wakunyanja:

> *"The fish started to enter into the Kambindingu. My father started to trap fish with a mono (trap). The fish found habitat in the lagoon and started to breed in it. Now the lagoon became a fish habitat instead of a rice*

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[225] A. Russell – Nkhotakota District – Interview with an ex-MP - 2003-11-21, A. Russell – Nkhotakota District – Interviews with chiefs - 2004-05-03, 2004-07-03, 2005-03-20.

[226] A. Russell – Nkhotakota District – Interview with an ex-MP - 2003-11-21, A. Russell – Nkhotakota District – Interviews with chiefs - 2003-12-04, 2004-05-03, 2005-03-17, 2005-03-20; A. Russell – Nkhotakota District – Interview with fisher - 2004-02-27.

[227] A. Russell – Nkhotakota District – Interview with a chief - 2004-05-03, "*mkumba nkhondo*" – literally "I want a spear/direction". This may have referred to: simply the forefathers' hunting activities, the desire by the fisher to invoke magical spells related to hunting to induce fishing success, or may have reflected a desire by the owner for people pulling the net to make sure that the net was being pulled straight.

paddy. Fish started to multiply and they moved freely between the lake and the lagoon."[228]

This gradual erosion of the lakeshore continued throughout the 20th century, requiring the relocation of several communities along the shore. However, both the gillnet fishery in the lagoon (for *chambo*) and the beach seine fishery off the shore of the adjacent lakeshore grew in productivity and economic importance. Soon after this, as reported by local elders, the colonial government set a closed season during the fish breeding season (which coincides with the rainy season):

"On their own they had no significant rules for the fishery. However, under colonial rule the Fisheries Department established a close season. Fishers were allowed to fish and camp at the Lake in temporary shelters from May to September; by October they were supposed to move back to Dema where they had their permanent houses."[229]

"During this rainy season in the past, nobody lived at Bana or Chauma. People were living in their villages, Dema, Banga, etc. They would visit the lakeshore at Bana to see whether the usipa stocks had grown and if so, they would camp there. People from as far as Nkhata Bay would come and camp here in the dry season. People were using small canoes to cross the Kambindingu, going to Bana and the fish would jump from the lagoon into the canoes. Some big, some small. There were that many fish!"[230]

The next dramatic change to the local ecology and fishery occurred when an obstruction of the Dwangwa River led to a shift in its course in the early 1950's, moving its main inlet into Lake Malawi from between the present-day communities of Matiki and Nkhono, to the Kambindingu lagoon, which in turn opens out into the lake via 2

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[228] Ibid.
[229] A. Russell – Nkhotakota District – Interview with a chief - 2003-12-04.
[230] A. Russell – Nkhotakota District – Interview with a chief - 2004-05-03.

estuaries.[231] This event, its supernatural cause, and its consequences to the fish stocks are recounted by GVH Wakunyanja:

> *"With the death of Simeon Kanyenda (a previous TA) there was a heavy rain which caused the Dwangwa River to overflow and change its course toward the Kambindingu. This was in 1951 as I was returning from Zambia. In the past, like in 1940-50, the river used to have fish like: mpasa, sanjika, matamba, chikongwe, mbununu, ntchila, kuyu, mpondwe, nkongola. They were all caught inland in the river. During these months, from April to May, they were swimming down to the lake. But now all these fish have stopped going into the river."*[232]

With the increasing deforestation of the Dwangwa River watershed, a trend that is seen throughout the country, siltation of the Kambindingu Lagoon has increasingly become a concern to local fishermen. They claim that the muddy waters of the lagoon serve as a deterrent to the potamodromous fish that had previously migrated upstream to spawn, and the siltation is observed to be burying the *chambo* nesting grounds in the lagoon.[233]

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[231] A. Russell – Nkhotakota District – Interviews with chiefs - 2004-05-03, 2005-03-20.

[232] A. Russell – Nkhotakota District – Interview with a chief - 2004-05-03.

[233] A. Russell – Nkhotakota District – Interview with a BVC - 2004-02-26-*"We do have problems, mostly because of the change in the course of the Dwangwa river which has buried our fishing grounds and reduced the size of the lagoon. There is also the problem of pollution (molasses) that is poured into the river every year by Illovo, which kills both young and old fish."*; A. Russell – Nkhotakota District – Interview with a fisher - 2004-02-27*"Fish is not caught as it was before. Now there is no fish. When they first closed [the lagoon], the most common fish was katungulu (chambo juv.) but are not very much now because of the sand and mud which has buried the lagoon. During 1966 - 1979, the lagoon was very deep but now it is shallow."*; A. Russell – Nkhotakota District – Interview with a fisher - 2005-03-01, **What is the effect of the Dwangwa River on fishing?** *"Bad, because we fail to catch fish. They run away from that fumbi (literally "dust" in the water), because it has a very bad smell."*; A. Russell – Nkhotakota District – Interview with a chief - 2005-03-20 *"The Dwangwa river is an old river. It had mpasa, sanjika, nchila, mkupi, kadyaokolo. However, nowadays you rarely find these fish since the river diverted into the lagoon. The fish used to come straight into the river, but the[now they don't because the] lagoon is muddy."* A. Russell – Nkhotakota District – Interview with a BVC - 2003-11-01.

Case Study 3: Crisis transformation - Dwangwa Fish Sanctuary

Fishers as Squatters

The Dwangwa Fish Sanctuary is a 12 km stretch of lakeshore centered on the old Dwangwa River river mouth, adjacent to the sugar cane estate initially leased by the Lonrho Company. As previously mentioned, the Lonrho sugar cane company and government had relocated all resident communities from the area in the 1960's, and therefore owned the undisputed rights to the land on which it was located. However, the highly productive fish breeding grounds around the old river mouth estuary still attracted many fishermen to temporarily settle and fish from the beaches fronting the sugarcane estate's property. These fishermen's presence was considered a major source and conduit for theft of sugarcane and other materials, and presented safety concerns for both fishermen and company employees.[234] The company's concerns are summarized by one former Lonrho employee:

> *"[The] Relationship wasn't all that good due to fear of theft and encroachment. Also they [fishermen] were bringing in kachasu beer [home-brewed spirit] and our workers were going down to drink and they used to get [into] some fights and injuries."*[235]

During the 1980's, the Malawian government placed high importance on the success of export-oriented industries in the country, and therefore, actively supported the Lunro Company in chasing the fishers away from the beaches. Although these evictions tended to be non-violent, as fishermen would frequently have fled the scene before

[234] A. Russell – Nkhotakota District – Interview with a BVC - 2002-07-12; A. Russell – Nkhotakota District – Interviews with Ilovo staff - 2004-02-23, 2004-02-23, 2004-05-07, 2005-03-04.
[235] A. Russell – Nkhotakota District – Interview with Ilovo staff - 2005-03-04.

security personnel arrived, descriptions by those on both sides leave little doubt as to the seriousness of the situation in the late 1980's. As described by a former Lonrho employee:

> *"In 1987 we had a security department which was in control of the beach. In fact, they didn't allow any fishermen to stay there. All along we have been chasing them from the beaches, especially the fishermen... Lonrho was regularly burning huts. Used to go there every day, and burn them every time... All [enforcement activities were] done by company security, and sometimes we involved the TA and District Commissioner."*[236]

, and by fishers:

> *"The present residents settled here for fishing. At first there were tense relations with Illovo [referring to Lonrho] as the company didn't want them to settle there fearing sugar cane theft. This animosity was quite high at times, with the company burning all the huts in Nkhono village in 1997(actually meaning 1987) around February after telling the residents to pack their things and leave."*[237]

New government, new company

This confrontational relationship only started to change as the Malawian government itself became more democratic and concerned with human rights in the early 1990's, and with the 1997 transfer of the sugar estate to the South African-owned Illovo company. Coinciding with these transitions, a number of senior staff within Lonrho and the associated satellite companies established a local branch of the Malawi Wildlife and Environment Society (WESM). This NGO entered into a memorandum of understanding with the management of Lonrho in 1995[238], and under the chairmanship of Mr. Mac

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[236] Ibid., see also A. Russell – Nkhotakota District – Interviews with Ilovo staff - 2004-02-23.
[237] A. Russell – Nkhotakota District – Interviews with BVCs - 2002-07-12, 2003-11-19.
[238] Documents - 1995 "WESM-Dwasco Affiliation"

Mtandizu (who was a Senior Field Manager for Lonrho) WESM rapidly became an intermediary between local fishing communities and Illovo (the new leasers of the sugar cane estate).[239]

The key to overcoming the impasse between the fishermen and Illovo was in WESM's identification of a mutually-acceptable solution for the stakeholders involved in the on-going conflict which addressed their main concerns:

- For the company of Illovo, this meant addressing the theft of sugarcane;
- For WESM and the senior company staff who form the majority of its membership, this meant making a contribution to the conservation of over-harvested fish stocks in Lake Malawi;
- For fishermen this meant securing access to fishing grounds and beaches where fish could be sold and dried in preparation for transport to inland markets.

WESM therefore suggested the creation of a sanctuary that would ban all fishing and habitation along a 12 km stretch of the Illovo lakeshore centered on the estuary formed by the old river mouth of the Dwangwa River. In addition to encouraging fish reproduction by protecting breeding areas (especially for *chambo*) from habitat degradation (from human waste, clearing of brush and destructive beach seines) and over-fishing, this sanctuary would limit the amount of lakeshore that Illovo would have to control for sugarcane theft while allowing fishermen to operate from specific beaches

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[239] A. Russell – Nkhotakota District – Interview with Ilovo staff - 2002-07-11 *"The sanctuary was generally a WESM idea, especially the Dwangwa branch, and they encouraged the communities (at Dwangwa Sanctuary) to do this (participate). In this process, the FD acted as expert advisors only. The Dwangwa fish sanctuary was sold to FD and communities by WESM - Dwangwa, and legally supported by the FD BVC framework."*; A. Russell – Nkhotakota District – Interviews with BVCs - 2002-07-11, 2002-07-12, 2003-11-01.

without fear of harassment. In late 1999 and early 2000, WESM, FD, and TA Kanyenda held meetings in the squatter communities in order to discuss fishermen's perceptions of the status and threats to local fish stocks and their acceptance for the establishment of the suggested sanctuary.[240] In addition to having assured access to certain beaches, in the words of the FD, the fishermen perceived a need to change the ways in which the fish stocks were being harvested:

> *"The future posed to be a threat, it was learned from these discussions that the past fishery was very good, i.e. good catches with assorted species, low cost and fishermen were few, while the present fishery is very mechanized, little catches of small fish. Too many fishermen and many undermeshed gears [are being used] to catch the little fish. It was from these [beginnings] that the participants were considering ways of reversing the situation. There were many, like banning of undermeshed gears, increasing the closed season, [but] the closed season was felt to be a [preferable] alternative to the situation."*[241]

This plan required squatters to vacate a 12 km stretch of lakeshore, including the two settlements nearest to the estuary (Mandewu and Chikasowa), in return for receiving permission to maintain temporary shelters in the three communities at either end of the sanctuary: Nkhono to the South, and Matiki and Nyavuu to the North.

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[240] A. Russell – Nkhotakota District – Interview with BVC - 2002-07-11 *"TA Kanyenda held a meeting of all residents to achieve consensus on the creation of the sanctuary that would require the communities of Chikasowa and Mandewu to relocate. Chikasowa residents moved here (to Matiki), and the Mandewu residents moved South to Nkhono."*; -; A. Russell – Nkhotakota District – Interview with BVC - 2003-11-01— **How was the sanctuary created?** *"The initial idea was that of Mac Mtandizu (as WESM chair) and Mr. Manda (a FD fisheries assistant). They asked fishers where casawala (juvenile chambo) were found in greatest numbers, and then made an agreement with the people to make that 10km stretch a sanctuary (agreed May 2001). They also set fines at K500."*; A. Russell – Nkhotakota District – Interview with WESM staff - 2002-07-11; Documents - 2000-05-23 "Launching of Dwangwa Sanctuary";

[241] Documents - 2000-05-23 "Launching of Dwangwa Sanctuary"; A. Russell – Nkhotakota District – Interviews with BVCs - 2002-07-11, 2002-07-12.

Creation of the DFS.

Under the patronage of TA Kanyenda, the Dwangwa Fish Sanctuary (DFS) was officially created on May 19th, 2000.[242] Although there were a few people who had to be forcibly moved out by the police, the majority of the people and all chiefs supported the relocations and establishment of the sanctuary.[243] In the course of WESM and FD's interactions with the fishing communities, a number of leaders (fishing gear owners rather than VHs) emerged as their main contacts in each community. Most noteworthy of these is Mr. M. Wotsogola, a *chilimira* net owner representing the fishers staying at Nkhono community. These community leaders then formed committees in their respective communities, and with financial and logistical assistance from Illovo and WESM, the FD trained the BVCs in Nkhono, Matiki and Nyavuu communities in their roles as enforcers of the DFS.[244]

Interestingly, the establishment of the DFS has subsequently been represented by WESM and FD as revolving primarily around the need for better fisheries conservation, and not related to a negotiation between fisher's access to beaches or Illovo's priority of controlling sugarcane theft. This is demonstrated in the absence of any mention of these issues in the objectives of the sanctuary, as recorded by the FD:

> *"1) To protect the fish from extinction (all species);*
>
> *2) To strengthen the participatory natural resources management programme among the fishers, traditional leaders, Fisheries Department, Dwangwa Sugar*

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[242] Documents - 2000-05-23 "Launching of Dwangwa Sanctuary"; A. Russell – Nkhotakota District – Interview with WEM staff - 2002-07-11.
[243] A. Russell – Nkhotakota District – Interviews with BVCs - 2002-07-11, 2002-07-12; A. Russell – Nkhotakota District – Interviews with WESM staff - 2002-07-11, 2004-02-23.
[244] Documents - 2000-05-19- "BVC Training"; Documents - 2000-08-23 "Letter from WESM to Illovo GM"; Documents - 2000-08-23-"Letter from WESM to IllovoHR"; Documents - 2000-08-26 -"BVC Training Program"; A.Russell – Nkhotakota District – Interview with BVC - 2002-07-11.

Corporation, Ethanol Company, and Wildlife Society of Malawi – Dwangwa Branch;

3) To empower the fishers to control the fishery resource and to manage it on their own so that their future generations enjoy the benefits as well;

4) To improve catches in the long run."[245]

Through what Illovo considered to be an informal accommodation on its part, the fishers were granted access to parts of the Illovo lakeshore (i.e., at Nkhono and Matiki), and for the first years, all stakeholders were considered to be content with the arrangement.[246] Interestingly, the agreement was made entirely as relating to fisheries management concerns, leaving Illovo's right to control access to its lands unchallenged.

Divisions between fishers

Nkhono BVC and Matiki BVC (note the exclusion of Nyavuu BVC, which quickly became inactive as it is located further from the DFS[247]) took up their roles as enforcers of the fishing ban within the DFS, and gained significant recognition for their activities by catching over 60 poachers during their first year of operation.[248] In early 2002, these BVCs were assisted by the FD in applying for a grant from the USAID-funded COMPASS project for the purchase of a patrol boat equipped with an outboard engine. As lead organization in the proposal, Nkhono BVC was given ownership (by COMPASS) over the patrol boat and an initial capital investment of K80,000 for the

[245] Documents - 2000-05-23 "Launching of Dwangwa Sanctuary"; see also A.Russell – Nkhotakota District – Interview with WESM staff - 2002-07-11.
[246] A.Russell – Nkhotakota District – Interview with WESM staff - 2002-07-11; A.Russell – Nkhotakota District – Interviews with BVCs - 2002-07-11, 2002-07-12.
[247] A.Russell – Nkhotakota District – Interview with a chief - 2005-03-19.
[248] A.Russell – Nkhotakota District – Interviews with BVCs - 2002-07-11, 2002-07-12; A.Russell – Nkhotakota District – Interview with a chief - 2004-02-23.

enforcement operations.[249] While all BVCs were permitted to use the boat, unfortunately, the ownership of the patrol boat rapidly became an issue of contention between Nkhono and Matiki BVCs. As steward of the boat, Nkhono BVC Chairman, Mr. Wotsogola insisted on having the boat docked at Nkhono, where he could monitor its use and maintenance, but would allow any BVC to use the boat if they supplied their own fuel. Meanwhile, Matiki BVC felt that they should have shared ownership of the boat and resented Mr. Phiri's use of the boat for personal gain (i.e., in fishing or taxi service) [250], a concern shared by the DFS-patron, TA Kanyenda:

> *"The Dwangwa sanctuary is working well because the BVCs that we have there they are working very hard. Though some people are complaining that the boat, that boy [Wotsogola] is misusing it for personal use, not for use of the community."*[251]

Mr. Wotsogola explained that these boat-rentals go to pay for sanctuary patrols and the maintenance costs of the boat.[252]

The Bountiful Sanctuary

Partly due to a feeling of resentment over Nkhono BVC's ownership of the patrol boat, Matiki BVC had become largely inactive (and even counteractive) in enforcing the

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[249] Documents - 2002-07-22 "COMPASS boat launching"; A.Russell – Nkhotakota District – Interview with BVC -2004-06-28.

[250] A.Russell – Nkhotakota District – Interview with BVC -2002-07-11. – *"Mr. Wotsogola, who is the chairman of the Nkhono BVC wants to use the COMPASS boat for his own entrepreneurial activities, matola (taxi service) and doesn't share the boat with Matiki."* ; A.Russell – Nkhotakota District – Interview with BVC - 2002-07-12; A.Russell – Nkhotakota District – Interview with a chief - 2004-02-23.

[251] A.Russell – Nkhotakota District – Interview with a chief - 2004-02-23.

[252] A.Russell – Nkhotakota District – Interview with BVC - 2002-07-12 *"The idea for the boat was the FD's, and the Chair and Treasurer from Nkhono + the Matiki Secretary put together the proposal to Compass. Nkhono BVC feels that as they did most of the work for the proposal, that they should be able to base the boat in Nkhono."* He says that he doesn't think that the Matiki BVC secretary has been very honest with the Matiki BVC about the boat status (meaning its use as a matola), and explains that *"they have been using the boat as a matola in order to raise money for patrolling fuel. The other BVC has the right to come and use it if they bring fuel.";* A.Russell – Nkhotakota District – Interview with BVC - 2004-06-28.

DFS fishing ban by mid-2002, while Mr. Wotsogola and Nkhono BVC had become the *de facto* enforcers of the DFS.[253] According to Mr. Wotsogola:

> Few people fish in the sanctuary. He estimates a maximum of 1-2 people/night, which he does not consider as having a large effect on the fishery. During 2001-2003, they carried out 23 patrols, catching 22 people, and raised K11,220 in fines. Individuals in three of these cases were told to leave the area by the TA as they were repeat offenders.[254]

After just 2 years of closure, the fish populations in the sanctuary were already noticed to be recovering in both number and size, seen most notably in increased catches of *chambo* at both margins of the sanctuary.[255] This success of the DFS at restoring fish stocks had a large impact on TA Kanyenda and fisher-leaders' understandings of how to use BVCs to tackle local problems of over fishing. They soon had another opportunity to attempt this with the collapse of the fish stocks in the nearby Kambindigu Lagoon.

While the DFS gradually becomes a sub-theme within the emergence of the larger Kambindingu Fisheries Association (the next case study), I will simply present the remainder of the unfolding story of the DFS here. Partly as a function of Mr. Wotsogola's influential role in the Kambindingu Fisheries Association, and as a reflection of the BVC's confidence in their new-found powers, Nkhono BVC was able to ban the use of a controversial, new form of fishing gear: the *lemu* or chikwesakwesa (see description in the box below).

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[253] A.Russell – Nkhotakota District – Interview with FD staff --2005-03-05 *"The people living at Matiki are very mobile, and the committee members are very busy, so they never meet. They also refuse to deal with the problem of fishing in the sanctuary as they fear repercussions from the accused."*; Documents - 2000-06-26 "Matiki Poaching Report";

[254] A.Russell – Nkhotakota District – Interview with BVC - 2003-11-01.

[255] A.Russell – Nkhotakota District – Interviews with BVCs - 2002-07-11, 2002-07-12; A.Russell – Nkhotakota District – Interview with a chief - 2004-02-23.

Arrival of the *lemu* fishers

Fishers from Southern Lake Malawi using this new fishing technique settled in Likuchi, a community to the South of Nkhono, in 1999. These fishers, predominantly of the Yao ethnic group, are migrating from their home district of Mangochi due to the depletion of *chambo* stocks in the Southern end of Lake Malawi. They were able to gain acceptance from the local chief over the complaints of gillnet fishers by buying him a *lemu* net of his own, and by presenting him with tributes (donations of fish) on a regular basis.[256] Following their arrival at Likuchi, these fishermen expanded their fishing activities to the North, including targeting the untapped bounty of the DFS. A number of them were caught fishing in the DFS in 2004 by Nkhono BVC, but they have succeeded in convincing the VH and BVC Chair at Matiki to allow them to base their on-going expansion into local waters from Matiki.[257] The scenario by which lemu fishers have gained access to communities is described by a frustrated BVC leader in a nearby community:

> *"Those people, we chased them away, but they came back. In the past there were none of these fishing gears. Those people don't care about others' nets, they simply cut them apart. But they have relatives living*

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[256] A.Russell – Nkhotakota District – Interview with FD staff - 2005-03-05 *"Every day of the week, each lemu fisherman bring 2 dozen chambo to the VH, and there are 30 lemu fishing gears. They also bought him a boat and lemu net when they arrived. Small fishermen cannot get a hearing with the VH. These fishermen have gone to the police with their complaints of damages to their nets, and the police have brought the FD into the matter. But the VH says that the FD has no right to chase the lemu fishermen away, and that these fishermen should be the ones to leave."*; see also A.Russell – Nkhotakota District – Interview with fisher - 2004-02-24.

[257] A.Russell – Nkhotakota District – Interview with BVC - 2005-03-16 *"Nkhono BVC did patrol that this year. We can go there once a week, or 2-3 times in a month with the COMPASS boat. In 2004 we found people from Liwaladzi lemu fishing in the sanctuary. Two times they were charged K10,000, but they have only paid K6,000."*; A.Russell – Nkhotakota District – Interview with fisher - 2005-03-17 *"Three quarters of us (fishers at Matiki) have gillnets, and these are cut by the lemu fishermen. In the past we chased them [away], but now the chief and the BVC mediate with the lemu fishermen."*; A.Russell – Nkhotakota District – Interview with fisher - 2005-03-17; A.Russell – Nkhotakota District – Interview with FD staff - 2004-02-23.

here and they give a lot of fish to the chiefs, and so it is really difficult to chase them away or to confiscate their nets."[258]

A brief description of the *Lemu* (also known as *Chikwesakwesa*):

***Lemu* compared with a gillnet:**
While the *lemu* net is basically a very wide, 700-800m long gillnet, its operation differs in a number of ways. Whereas the classic gillnet is considered a passive capture gear (note the exception of *chiombera*) as fish accidentally swim into it and get entangled in the net, the *lemu* is operated as an active capture gear. Much as with a purse seine, the *lemu* is set in a wide circle, and then gradually drawn in, causing the fish to get captured in the mesh as they try to escape the closing net.

***Lemu* man-power and technology:**
In terms of the man-power and technology used, these techniques differ greatly as well. While a gillnet is generally set once and retrieved by a single person in a canoe several hours later, the *lemu* is repeatedly and continually being set and drawn in by a crew of 4 people in a plank boat. *Lemu* boats are shorter, lighter, and have more bowed keels than *chilimira* plank boats, and do not use engines.

Origin of the names *chikwesakwesa* and *lemu*:
A *lemu* is an oar, which is rowed seated backwards as opposed to the paddles used by all other Malawian fishers; *chikwesakwasa* literally means: big (*chi*) pull (*kwesa*), pull (*kwesa*)) referring to the fishing technique.

***Lemu* as source of conflicts:**
Due to the large (3 ½ -4 inch) mesh size used by *lemu* fishermen (as they target mainly adult *chambo*), the FD generally has approved of them. However, gillnet fishers do not, as lemu fishers regularly set their nets on top of existing gillnets (which cannot be seen at night), and in order to disentangle these nets, lemu fishers tend to cut the gillnets leading to losses for the gillnet owners. Additionally, due to these fishers' non-local ethnicity or residence, and the large incomes earned with this gear cause a significant amount of jealousy and resentment.

Figure 4-3. A brief description of the *Lemu* (also known as *Chikwesakwesa*) [259]

Since the creation of the DFS, the bountiful catches of *chambo*, *mbaba*, and *nkututu* have attracted large numbers of fishers to trade, fish and settle at Matiki and Nkhono (including *lemu* fishermen), and have enabled many to expand their fishing operations by buying larger fishing gears.[260] This economic growth has also spurred

[258] A.Russell – Nkhotakota District – Interview with BVC - 2004-02-24.
[259] Based on Seymour (2005); A.Russell – Nkhotakota District – Interviews with fishers - 2005-03-05, 2005-03-05, A.Russell – Nkhotakota District – Fishing observation - 2005-03-05; A.Russell – Nkhotakota District – Interview with FD staff - 2005-03-05.
[260] A.Russell – Nkhotakota District – Interview with fisher - 2005-03-17- The excellent fishing is illustrated by this gillnet fisherman who started fishing last year when he bought 1,800 meters of 2 ¼ inch and 3 ½ inch gillnet. He bought his net with a K6000 loan from an NGO-sponsored rotating loan program, known as a 'caterpillar' scheme. Unfortunately, he lost 800 meters of gillnet due to high winds. Nevertheless, due to the good fishing, he has already been able to repay his loan with 100% interest.; Similar stories are told by other fishers:-A.Russell – Nkhotakota District – Interviews with fishers - 2005-03-17, 2005-03-17, 2005-03-17, 2005-03-17; 2005-03-16.

other aspects of community-development, such as the construction of wells and a school at Nkhono, and the start of an NGO-funded micro-loans program for female traders at Matiki.[261] The rift between Matiki and Nkhono BVCs has remained, and (possibly) due to Mr. Wotsogola's role in the Kambindingu Fishing Association, Matiki BVC has largely been absent in the development of the Association. Indeed, allowing *lemu* fishers to settle at Matiki, has been counterproductive to the aims of both the DFS and the Association.

New Uncertainties

Since late 2004, however, the status of the DFS has come under threat with the gradual lessening of Nkhono BVC's enforcement activities. This trend coincided with Mr. Wotsogola's (Chairman of Nkhono BVC) relocation of his residence to Ngala (his family's residence) and the natural emigration of fishers from Nkhono community.[262] Consequently, poaching has increased[263], which Mr. Wotsogola attributes to:

> *"As of now we are 4 [committee members] only. We need to take Chrissy (the Fisheries Department extension worker) to strengthen it (i.e., to motivate the BVC). They don't want to work without pay, there are few people just working voluntarily."*[264]

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[261] A.Russell – Nkhotakota District – Interview with a chief - 2005-03-17 *"The problem is [that the] company wants chase us away. But the fishers are really benefiting from the fishing here, and the women have received loans."*; A.Russell – Nkhotakota District – Interview with BVC - 2005-03-16.

[262] A.Russell – Nkhotakota District – Interview with FD staff - 2005-03-05 *"The sanctuary is working very well, but the BVC is not working now. They are not doing the patrols because the people who were leading them are no longer living there. Wotsogola moved back to Ngala, and the people don't follow the rules any longer. The patrol boat with the engine is also at Ngala now and people will not patrol without an engine. A lack of governmental activity is also a problem."*; A.Russell – Nkhotakota District – Interview with BVC - 2005-03-16.

[263] A.Russell – Nkhotakota District – Interview with BVC - 2003-11-07.

[264] A.Russell – Nkhotakota District – Interview with BVC - 2005-03-16.

Additionally, the ambiguous legal status of Matiki's fishers' rights to reside on Illovo's beaches has started to be a source of uncertainty since a sudden erosion event flooded most of Matiki beach in the year 2002. While some fishers relocated their fishing activities to other beaches (such as Nyavuu and Nkhono), the majority remained in a dense row of pitiful shelters on a narrow band of sand (ranging between 10-40m wide) between the lake and sugarcane fields.[265] This event raised Illovo's concerns over their liability for potential accidental injuries and deaths due to the burning of the cane fields, and has prevented Illovo from being able to erect barriers protecting its fields from erosion.[266] While Illovo wanted the Matiki fishers to move from the area, the social and economic benefits that Matiki residents have reaped from their proximity to both the DFS and the infrastructure provided by Illovo have made them unwilling to do so:[267] These sentiments are reflected by the following fishers' testimonies,

> *"We want to continue fishing as we can earn cash every day, while farming [you earn] only once [a year]. Fishing is better here than elsewhere. We don't want to leave. In January we refused [they rejected Illovo's request that they leave), and till now we refuse. They want [us] to go to Nyavuu. Fishing there is the same as here, but [it is prone] to flooding, there are crocodiles, no school, no clinics. Now the children go to school at Matiki, also there is a clinic [both belonging to Illovo]."*[268]
>
> *"We are being chased [away] by Illovo, because they claim that this place belongs to Illovo. This is the place were we feel our needs are well-met, therefore it is not good for us to be chased away as we are familiar [used to] this place."*[269]

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[265] A.Russell – Nkhotakota District – Interview with BVC - 2002-07-11; A.Russell – Nkhotakota District – Interview with fish traders -2003-11-05.
[266] A.Russell – Nkhotakota District – Interviews with BVC - 2003-11-01, 2003-11-19; A.Russell – Nkhotakota District – Interview with fish traders - 2003-11-05-Ngala-Fish Traders; A.Russell – Nkhotakota District – Interview with Illovo staff - 2004-02-23.
[267] A.Russell – Nkhotakota District – Interview with Ilovo staff - 2005-03-04; A.Russell – Nkhotakota District – Interviews with fishers - 2005-03-17, 2005-03-17, 2005-03-17; A.Russell – Nkhotakota District – Interview with fish trader - 2005-03-17; A.Russell – Nkhotakota District – Interview with a chief -2005-03-17.
[268] A.Russell – Nkhotakota District – Interview with a fisher - 2005-03-17.
[269] A.Russell – Nkhotakota District – Interview with a fish trader - 2005-03-17.

This situation remained unresolved until late 2005, as although Illovo received official support from the Ministry of Lands over their rights to the shoreline, Matiki leaders resisted moving, and instead proposed clearing a new settlement area within the DFS.[270] In late 2005 the communities gave in to the calls by Illovo to relocate, with some choosing to move to Nyavuu while others have moved to Nkhono village.[271] It remains to be seen how the Matiki BVC leaders redefine their roles and attitudes toward the DFS now that they have been forced to relocate.

Despite these challenges to the effectiveness of the individual BVCs of the DFS, the growth in stature and function of the Kambindingu Fisheries Association (as will be described in the next section) has the potential to overcome the challenges. In brief, as the DFS is now a sub-component of the larger KFA, Nkhono and Matiki BVCs may feel pressure to be seen as active partners within the Association (and as enforcers of the DFS) so as not to lose out in any future benefits that may be reaped by KFA members. Additionally, the chiefs in Nkhono are highly supportive of the BVC's enforcement of the DFS, increasing the likelihood that the BVC will be revitalized by new members. This is expressed well by VH Chagolombara's vision for the BVC and its mandate:

> *"The BVC is good for everyone. The BVC is for youths who should take care of the fish for everyone. We all depend on fishing here. Without proper management there would be no fish in the near future. Most of the community members are uneducated and largely dependent on fishing. In the past, fishing was subsistence but now it has been commercialized, and people try to catch a lot of fish for money. Every wise Malawian is proud*

[270] Documents – 2004-10-28 "Letter from Commissioner for Lands to Dwasco General Manager"; A.Russell – Nkhotakota District – Interview with a chief - 2005-03-17.
[271] John Wilson, pers.commo. 2006; A.Russell – Nkhotakota District – Interview with WESM staff -2006-11-14.

of the lake and its resources. The lake is the lifeblood of the people of Malawi."[272]

Case Study 4: Kambindigu Lagoon Closed Season

Crisis in the Lagoon

Much as in the over-fishing trends of Lake Malawi as a whole, Unaka Lagoon, as one of the more productive and convenient fishing grounds, became rapidly over-fished during the late 1980's and 1990s, resulting in a collapse of the local fish stocks in 2000.[273] The cause of the fish stock collapse is uniformly placed on the growth in numbers of fishing gears, and their increasing targeting of juvenile fish stocks, which to this fisherman is clearly linked to the need for capital for the purchase of nets:

> *"Gears made from flax were locally made and anybody could easily make them, unlike nylon which you can only find in shops and requires money. In 1966, my grandfather had a beach seine made from flax. He was catching a lot of fish such as nkhututu, mlamba, ntchira and chambo. He used to only keep the big ones and threw the juveniles back into the water. In 1969 nylon nets were introduced. With nylon nets you have to buy them from the shops and you need money and so you have to sell the juveniles. In 1971, the ntchila became extinct - that was when chambo started to be caught in abundance up to 1987."*[274]

The fish stock collapse in 2000 must have been a dramatic event as several community chiefs independently describe the beach seines filled with snails during that year:

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[272] A.Russell – Nkhotakota District – Interview with a chief - 2005-03-17.
[273] A.Russell – Nkhotakota District – Interviews with chiefs - 2004-02-23, 2004-02-26; A.Russell – Nkhotakota District – Interview with fishers - 2004-02-24, 2004-02-27, A.Russell – Nkhotakota District – Interview with a BVC - 2004-02-26.
[274] A.Russell – Nkhotakota District – Interview with a fisher - 2004-02-27.

"At that time they were only catching small fish together with snails, and we were unable to separate the snails and fish."[275]

"Now there are fewer fish both in the lake and the lagoon. In the past, visitors were honored by roasting fish, however this is no longer done due to the scarcity [and expense] of fish. At one point, the nets were full of snails, and this made them realize that the fish are depleted."[276]

Establishing the Closed Season

Following TA Kanyenda's experience with the successful creation of the Dwangwa Fish Sanctuary, in-which over-fishing was for the first time being dealt with by the fishing communities themselves, he requested FD and WESM assistance in designing a similar community-based intervention for the Kambindingu Lagoon.[277]

"It first came into my mind to create a sanctuary to be able to control fishing. [We needed an area where] it should not allow anyone [to do] any fishing. Having such places [sanctuaries] the fish are well-kept and everybody should follow good behavior for fishing.

When we were starting, we first organized the people and the BVCs telling them how it [the fish stocks condition] was then [in the past] and making them think about how fish is caught now. They themselves discovered the problem, that we have misused the fish."[278]

Due to the serious economic impact of the fish stock collapse in 2000 and the capacity-building opportunities that WESM and FD had made available in the creation of the DFS, there was widespread support among fishers to create BVCs as part of the solution to the over-fishing in the lagoon.[279] Initially, the TA and senior chiefs intended

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[275] A.Russell – Nkhotakota District – Interview with a chief - 2004-02-26.
[276] A.Russell – Nkhotakota District – Interview with a chief - 2004-07-03.
[277] A.Russell – Nkhotakota District – Interviews with chiefs - 2003-12-04, 2004-02-23, 2004-02-26, 2004-07-03; A.Russell – Nkhotakota District – Interview with WESM staff - 2002-07-11.
[278] A.Russell – Nkhotakota District – Interview with a chief - 2004-02-23.
[279] A.Russell – Nkhotakota District – Interview with a chief - 2003-12-04 *"The BVCs started in 2000 when we were called together by the FD. All the chiefs and fishermen, we made our own rules governing the BVCs. We decided on the dates of opening and closing of the lagoon on our own."*; 2004-02-24-Likuchi-B.Phiri – *"The first year the BVC went to do patrols but now they have lost heart. At first, people were*

for the lagoon to be turned into a sanctuary (similar to the DFS), requiring the relocation of all communities surrounding the lagoon.[280] However, given the significant hardships that this would cause for the communities, they decided to establish a half-year closed season for all fishing in the lagoon (Oct1-Mar.31), and a ban on small-meshed gillnets and all beach seines during the open season (i.e. Apr.2-Sept.31).[281]

Early Successes in the Lagoon

Large-scale meetings were held by TA Kanyenda and the FD to sensitize all fishermen to the new regulations in the lagoon, where they achieved widespread support from fishers and chiefs alike.[282] BVCs were then established and trained in August 2000 by WESM and FD (with financial and logistical support from Illovo) in all communities surrounding the lagoon. [283] In order to coordinate BVC activities, they were collected into

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happy to close fishing in the lagoon for a short while, but now they think that the government wants to close it for ever, and they don't agree with this."; A.Russell – Nkhotakota District – Interview with a chief - 2004-02-26; A.Russell – Nkhotakota District – Interview with WESM staff - 2002-07-11.

[280] A.Russell – Nkhotakota District – Interview with a chief - 2004-02-23; A.Russell – Nkhotakota District – Interview with Fish Traders - 2004-04-28, A.Russell – Nkhotakota District – Interview with a BVC - 2005-03-01.

[281] A.Russell – Nkhotakota District – Interview with fishers - 2002-07-12; A.Russell – Nkhotakota District – Interview with a chief - 2004-02-23; A.Russell – Nkhotakota District – Interview with fish traders - 2004-04-28; A.Russell – Nkhotakota District – Interview with a BVC - 2005-03-01.

[282] A.Russell – Nkhotakota District – Interview with fishers - 2002-07-12 *"They held a meeting of all fishermen between Matiki and Dwambazi, with transportation provided by the FD and TA Kanyenda, at which all accepted the closed season."*; A.Russell – Nkhotakota District – Interview with a chief - 2004-02-26 *"FD came to the GVH Kada telling him the need for establishing fishermen's groups (BVCs) to take care of the Unaka lagoon. The GVH said that the owner of the land is VHw Vwawa. Therefore they approached me and together with the fishermen we agreed it would be good for the fish to grow. Because at that time they were only catching small fish together with snails, and we were unable to separate the snails and fish. When we had closed (the lagoon) fish started to grow including 'nyungosale' [Oreochromis shiranus] which we could remember having ever seen before".*; A.Russell – Nkhotakota District – Interviews with chiefs - 2003-12-04, 2004-02-23; A.Russell – Nkhotakota District – Interview with WESM staff - 2004-02-23; - A.Russell – Nkhotakota District – Interviews with BVCs - 2004-02-24, 2004-04-28.

[283] Documents - 2000-08-23 "Training funding request to Illovo GM"; Documents - 2000-08-26 "BVC Training Schedule".

an Association ("Kambindingu Fisheries Association) chaired by GVH Wakunyanja, and whose membership were the chairmen of all the BVCs around the lagoon and DFS.

Further encouraged by WESM/FD training (again funded by Illovo) in December of 2000, BVCs were diligent in their enforcement of the regulations during the first closed season[284], and this was reflected in recovering fish stocks:

> *"It was in 2000, the settlement of BVCs. We started working in 2001 on October 1st which is when the Kambindingu closed season starts. By then we used our BVCs to protect [enforce the closed season]. After only 2 years we saw that there was many fish in Kambindingu. People saw that it was good to have laws protecting the fish."* [285]
>
> *"These days, fish are found since we forbade the use of beach seines since year 2000. Since we established the BVCs we started closing the lagoon for 6 months and when we opened we only allowed gillnets. Right now there are a lot of fish in the lagoon, up to 200-300 chambo in a single haul."*[286]

First Divisions – Livelihoods and Leadership

Although all communities around the lagoon were initially supportive of the closed season and gear restrictions, underlying divisions between communities emerged once the fish stocks started to return a year later. A map of the area is given in Figure 4-4, below.

[284] Documents - 2001-01-04 "BVC Training"; A.Russell – Nkhotakota District – Interviews with chiefs - 2003-12-04-; 2004-02-26; A.Russell – Nkhotakota District – Interview with fisher - 2004-02-27; A.Russell – Nkhotakota District – Interviews with BVCs - 2004-02-24, 2004-02-24.
[285] A.Russell – Nkhotakota District – Interview with BVC - 2004-02-24.
[286] A.Russell – Nkhotakota District – Interview with a chief - 2004-02-25.

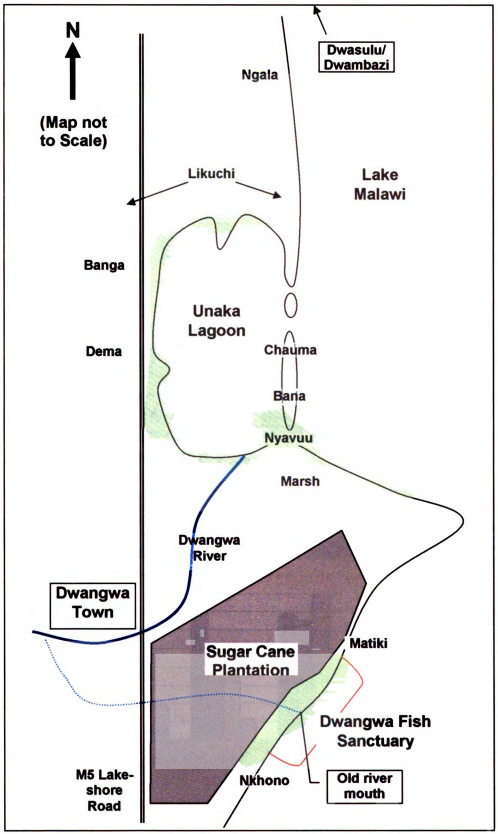


Figure 4-4. Map of the Kambindingu Fisheries Association

A number of differences between communities livelihood strategies and residency patterns illustrated by the household survey data may provide some explanation for these divisions (Figure 4-5 and 4-6, below).

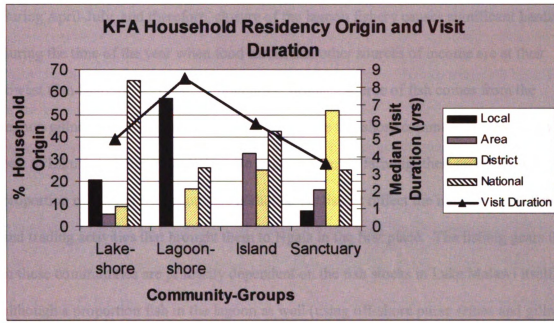


Figure 4-5. KFA Household Residency Origin and Visit Duration.

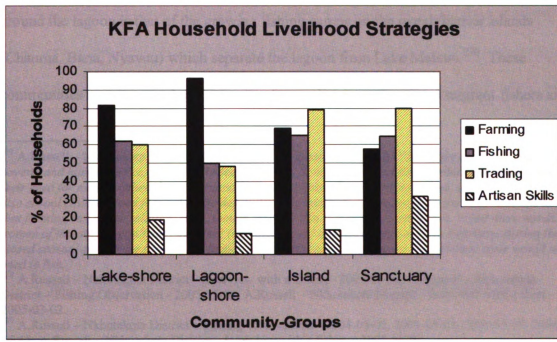


Figure 4-6. KFA Household Livelihood Strategies.

The dock-users located along the lagoon-shore (Dema, Banga, and a part of Likuchi) are characterized by the highest degrees of local residency and dependence on farming income of all community-groups. However, most farming income is earned during April-July, and therefore, closure of the lagoon fishery causes significant hardship during the time of the year when food stocks and other sources of income are at their lowest (Jan-March).[287] These communities' primary source of fish comes from the lagoon gillnet and beach seine fishery.[288] While the lakeshore communities (Ngala and part of Likuchi) similarly participate to a great extent in farming, their much greater proportion of migrants from outside Nkhotakota District reflect the importance of fishing and trading activities that brought them to Ngala in the first place. The fishing gears used in these communities are primarily dependent on the fish stocks in Lake Malawi itself, although a proportion fish in the lagoon as well (using off-shore purse seines and gillnets, but also near-shore gillnets and beach seines).[289] The third main group of "communities" around the lagoon is that of the growing fishing camps on the marsh/barrier islands (Chauma, Bana, Nyavuu) which separate the lagoon from Lake Malawi.[290] These communities are composed of a mixture of area, district and national migrant fishers and

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[287] A.Russell – Nkhotakota District – Interview with a fisher - 2004-02-27 *"The main problem here is poverty and hunger, hence, people still sneak in to fish. Some were raised fishing while others do it due to their need for money. Others have farmland and its just habit. Some need it for food, some buy fertilizer, also school children need fees paid. Life demands many things, food is a necessity therefore it seems to me that farming can be the solution. Here, though they say that it is [the] closed season, is just mere words, women of this society can't eat "mayani" (cassava leaves) as relish. Right now [in February, during the closed season] people are there in the lagoon fishing. If there was money to buy fertilizer some would not need to fish."*

[288] A.Russell – Nkhotakota District – Interview with a fisher; - 2005-03-01; A.Russell – Nkhotakota District – Fishing Observation - 2005-03-02; A.Russell – Nkhotakota District – Interview with a chief - 2005-03-02.

[289] A.Russell – Nkhotakota District – Fishing observations - 2004-05-02, 2004-05-02, 2004-05-05, 2004-05-11; A.Russell – Nkhotakota District – Interview with a fisher - 2005-03-01.

[290] A.Russell – Nkhotakota District – Interviews with chiefs - 2005-03-19, 2005-03-19; A.Russell – Nkhotakota District – Interview with a fisher - 2005-03-01.

traders, who have settled here primarily to harvest the bountiful *usipa* stocks in Lake Malawi using beach seines and *chilimira* purse seines. Additionally, a significant minority fishes the lagoon using gillnets.[291] The fourth category of communities is that of the two temporary settlements at either end of the Dwangwa Fish Sanctuary (DFS), whose residents are to a great extent composed of migrant fishers and traders from within Nkhotakota District. Their relative proximity to their resident homes may also have a direct influence on their relatively short times of occupancy in these communities and their abilities to engage almost equally in farming, fishing and business.

The different fishing livelihood strategies employed by these groups of communities rapidly became a source of disagreement over the KFA regulations in the lagoon, and some lagoon-shore community fishers called for the reopening of the lagoon to year-round fishing. However, in addition to reflecting livelihoods differences between communities' fishing dependencies in the lagoon or the lake, these disagreements also reflect a resistance against what might be perceived as jurisdictional encroachment by GVH Wakunyanja on GVH Wakuntunda communities' activities. Although the origin of the closed season lay with TA Kanyenda, GVH Wakuntunda, who represents Dema and Banga communities, felt that the KFA was biased against his communities by a KFA leadership which resides in GVH Wakunyanja's lakeshore communities:

- The KFA chairman, GVH Wakunyanja, lives at the southern end of Ngala;
- The KFA vice-chairman, Mr. Wotsogola, who is also steward of the Nkhono BVC patrol boat and the main enforcer of the lagoon closed season, has his family's residence at Ngala;

[291] A.Russell – Nkhotakota District – Interview with a fisher - 2005-03-01.

- and the KFA secretary, Mr. Boock Phiri (who was chairman of the short-lived Mpondabwaki BVC) lives in Likuchi.

However, while the leadership is biased toward GVH Wakunyanja's communities, GVH Wakuntunda's claims that his primary criticisms are not about how the KFA is led, rather, the undue burden that its regulations place on his communities' livelihoods overall:

> *"Some fishermen (including him) don't accept some rules like the closed season as it is long, and they consider this rule too tough. Some have left their homes due to the hardship of this rule causing even further difficulties for those family members left behind (due to loss of their contributions to household labor and income). We have grown tired of these rules. There is great hunger in the communities."*[292]

Additionally, while the above arguments would lead one to expect lagoon-shore fishers to argue for relaxation of the closed season regulation, this is not the case as most fishers, and the most significant village chief along the lagoon shore, support enforcement of the closed season despite the hardships caused.[293] There is some resentment in these communities as they claim that the KFA leadership turns a blind eye

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[292] A.Russell – Nkhotakota District – Interview with a chief - 2003-12-04; see also A.Russell – Nkhotakota District – Interviews with BVCs - 2003-11-01, 2004-02-24; A.Russell – Nkhotakota District – Interview with a fisher - 2004-02-24.

[293] A.Russell – Nkhotakota District – Interview with a chief - 2004-02-26 *"We already agree to close [the lagoon] so we don't want to change that, it should continue. Our ancestors used to catch big fish but now they are all gone and we have never seen some of the species that they ate because we never allowed time for fish to breed. So for our future generation to see what type of fish we were eating, we should continue to close and open, close and open.";*; A.Russell – Nkhotakota District – Interview with a BVC- 2004-02-26 **Have there been changes in fish catches over the last years?** *"There have been changes, as in the past we were fishing without restraint. Now we have a closed season. Though we face many difficulties during the closed season, when the open season comes the difficulties are past. Fish is caught in abundance."* **What do you do during the closed season?** *"During the closed season, many of us are idle...[and there] is a lack of capital for people to invest in other activities.";* A.Russell – Nkhotakota District – Interviews with fishers - 2004-02-27; 2005-03-02; A.Russell – Nkhotakota District – Interviews with fisher traders- 2005-03-18, 2005-03-18; A.Russell – Nkhotakota District – Interview with a BVC - 2004-02-25.

to poaching by fishers from Likuchi, which is the home of the KFA Secretary.[294] This bias and the harshness of the regulations are raised by GVH Wakuntunda regularly, and in his inability to end the closed season regulation, he even denies ever having agreed to it in the first place.[295] However, given the broader community's support for the closed season regulation, GVH Wakuntunda's resentment over not being able to exert any influence on a KFA whose regulations significantly impact local livelihoods must be seen as a significant motivator for his comments and actions.

Conflicts in the Lagoon

By 2002, most BVCs were becoming discouraged, with a major factor being their physical and social fear of poachers' (at times relatives') reprisals.[296] Mr. Wotsogola (Association Vice Chair, and steward of Nkhono BVC's patrol boat) who was the main remaining enforcer of the closed season, describes one of his conflicts while on patrol:

> *"Enforcing rules is difficult when people don't accept your reasons. Many people just blame you for being jealous. They say that you don't want them to make any money."*

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[294] A.Russell – Nkhotakota District – Interview with a chief - 2004-02-26 *"They (local BVCs) have stopped confiscating because of low morale. In the past they did enforce rules. However, fishermen from Ngala [probably referring to Likuchi] come to fish in Unaka during the closed season but they claim that it is fishermen from our side who do so."*; A.Russell – Nkhotakota District – Interview with a BVC -2005-03-06 *"A large problem with the Kambindingu Lagoon closed season is that the BVCs members are fishing there themselves, especially those from Banga, Dema, Likuchi, and Bana. We only realized this when we attended the Association meeting and met the BVC members who we had seen in the lagoon during the patrol."*

[295] A.Russell – Nkhotakota District – Interview with a chief - 2003-12-04 *"Some have left their homes due to the toughness of this rule causing even further hardship to those family members left behind. At first the rules worked well, but today many people violate these rules. They go fishing despite the closed season. We have grown tired of these rules. There is great hunger."*; A.Russell – Nkhotakota District – Interview with a chief - 2004-10-31 **Do you think that the closed season can work?** *"No. I havn't been conferred with at any point regarding the creation of the closed season and the Association is still chaired by GVH Kamkhondo [despite the initial planned 3 year chairmanship]."*.

[296] Documents - 2002-02-27- "Association Meeting minutes"; A.Russell – Nkhotakota District – Interviews with BVCs - 2003-11-01, ; 2004-02-24, A.Russell – Nkhotakota District – Enforcement observation - 2003-11-04.

Wotsogola is concerned about his safety at times. In 2002, he was patrolling together with Mr. Manda (FD) and 2 policemen, and they were attacked when they tried to confiscate the poacher's nets. The police were not prepared to shoot at anyone, so they, the enforcers, were forced to run away![297] These circumstances meant that the few who continued to patrol attempted to avoid social sanctions by trading enforcement duties with distant BVCs, and try to protect themselves by attracting the participation of the police or by arming themselves with savage-looking weapons.[298]

The social pressures were frequently also expressed in less obvious ways, as those BVC Chairs who were deemed too active in enforcing fishing regulations were removed or voted out of their positions. In the case of the Banga BVC, the Chairman became the target of a slander campaign by other BVC members, resulting in his demotion from the BVC by the local chief.[299] The consequences of this episode were described by one Banga community member:

> *"At first the committee was composed both of fishermen and farmers. I think this design was deliberate so that fishermen wouldn't be able to wield all the power. The first BVC Chair (who was not a fisherman himself) had been very effective at catching poachers in the lagoon. But*

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[297] A.Russell – Nkhotakota District – Interview with a BVC - 2003-11-01; see also A.Russell – Nkhotakota District – Interview with a BVC - 2004-02-24.

[298] A.Russell – Nkhotakota District – Interviews with BVCs 2002-07-11, 2003-11-01, Wotsogola is also concerned due to his awareness of the failure in other areas of the police to protect BVCs. For enforcing fishing rules a BVC Chair in southern Nkhotakota was attacked by poachers who slashed at his neck with a panga knife. To date no one had been arrested for the attack nor has any compensation been given to the disabled BVC Chair.; A.Russell – Nkhotakota District – Interview with a BVC - 2004-02-24 *"At first we worked together with the government to carry out patrols but that has ended now. Fisheries Assistant Manda and two police officers used to accompany us which caused people to fear us. Now Manda has left. The BVCs and chiefs all have fishing gears so they can't confiscate gears from each other and their relatives."*

[299] A.Russell – Nkhotakota District – Interview with BVCs - 2003-11-01, -2004-02-25; A.Russell – Nkhotakota District – Interview with fish trader - 2004-02-24; A.Russell – Nkhotakota District – Interview with a fisher - 2004-02-27.

this second BVC is composed of entirely of fishermen, which is why they fail in their duties."[300]

In addition to their unwillingness to enforce rules against their friends and relatives, many informants describe these BVC members as the primary culprits and beneficiaries of poaching activities:

"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."[301]

"The BVC members are actually the ones who encourage people to fish during the closed season in the lagoon. When they find people fishing they just confiscate a pail of fish and leave them to continue their fishing."[302]

Conflicts between chiefs and BVCs

The role of primary interlocutor between outsiders and the community is traditionally that of the chief, involving his/her receipt of homage and gifts which reinforces the chiefs' wealth and influence in the community.[303] In many cases, however, this role has also allowed many chiefs to divert much development assistance to their friends and relatives, as is noted by GVH Wakunyanja himself:

"There is little trust between people here, even with chiefs. An example is the starter pack in which it is the chief's friends and relatives who get the fertilizer handouts rather than people who might be more hardworking or deserving in the community."[304]

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[300] A.Russell – Nkhotakota District – Interview with a fish trader - 2004-02-24.
[301] A.Russell – Nkhotakota District – Interview with a chief - 2004-02-25; see also A.Russell – Nkhotakota District – Enforcement observation- 2003-11-04.
[302] A.Russell – Nkhotakota District – Interview with a fish trader - 2004-02-24.
[303] A.Russell – Nkhotakota District – Interview with WESM staff -2004-02-23.
[304] A.Russell – Nkhotakota District – Interview with a chief - 2004-10-31.

Due to the government's past experience with chiefs that dominate and manipulate village committees, FD-regulations explicitly excluded chiefs as voting members in BVCs. Instead the chiefs, who are the primary adjudicators for community conflicts, were given the roles of *ex-officio* patrons.

The conflicts between BVCs and their respective chiefs arose as the newly-founded BVCs started to divert the benefits and respect that had traditionally gone to chiefs. An example relates to the key role of receiving immigrant fishers and traders, which generally would have entailed gift-giving in homage in return for receiving an allocated space to build a house. Additionally, in the past chiefs organized the creation of beach seine fishing grounds through the removal of tree stumps in the water, and expected payment in return for allowing visiting fishers to use the beach.[305] Instead, many fishers have tended to simply visit the local BVC to have their fishing gears inspected, and build themselves temporary shelters without visiting the chiefs, a trend reflected by some chiefs' ignorance of their fishing residents.[306] Furthermore, the chiefs are losing influence and respect derived from their traditional roles as conduits for development programs and loans, a role that is now also being played by the BVCs.[307] Consequently, the chiefs may undermine BVC's activities out of ignorance or resentment of the BVCs role:

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[305] A.Russell – Nkhotakota District – Interview with a chief - 2004-05-03 "*A visitor had to register with the chief before being allowed to fish there. This was because these fishing grounds were under ownership at that time. The chiefs had full control of them. They had to create the fishing grounds to allow beach seining to take place. They had to remove many tree stumps from the lake.*"

[306] A.Russell – Nkhotakota District – Interviews with chiefs - 2004-06-28, 2004-07-03.

[307] A.Russell – Nkhotakota District – Interview with a BVC - 2003-11-04– Mr. Wotsogola tells me of a plan to build a fish market on the lake-shore road, which is a few hundred meters from his house, to be funded by IndeBank. With the help of the Fisheries Department he has also organized a loan from IndeBank for K1,000,000.; A.Russell – Nkhotakota District – Interview with a chief - 2004-10-31 "*BVCs are the only beneficiaries for the FD mediated loans allowing them to buy boats and nets.*"

"The VH were quite supporting initially, but because we elected others, excluding VH, we don't know what relationship exists between BVC and chiefs. It is a question of feeling excluded and a lack of respect. The small benefits (going to BVCs) are excluding VHs. Sometimes chiefs and people develop a sense of jealousy because of incentives like workshops or the boat of Nkhono BVC which don't benefit chiefs. When there is a problem the VH will have one group while the BVC will have another group and that will have a negative impact on the sanctuaries. In Malawi, we have some allegiance to VH and they command respect, and if they make rules most will accept them. Very few will resist. We haven't been able to take advantage of that. As long as we cause a division, disregard for the policies will be very high."[308]

An example of this undermining of BVC activities occurred when the Ngala BVC chased away the newly-arrived *lemu* fishermen whose fishing practices created conflicts with gillnet owners (see previous section for more info). Though initially successful, the *lemu* fishermen were subsequently permitted to settled in Ngala when they appealed directly to the chief, offering him fish in homage.[309] This exact same scenario was played out by the *kandwindwi*[310] fishers, who were forbidden from fishing at Ngala by

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[308] A.Russell – Nkhotakota District – Interview with WESM staff - 2004-02-23; see also A.Russell – Nkhotakota District – Interview with a BVC - 2002-07-12, One VH, whose community was relocated out of the area that is now known as the DFS, is known to have hippo traps near his house and during a tour of the DFS, and I have seen him deploy his beach seine inside the limits of the sanctuary, much to the embarrassment of the Nkhono BVC chair. On this occasion, Mr. Wotsogola tells me that those manning the beach seine will pay a fine, but the net is not confiscated.

[309] A.Russell – Nkhotakota District – Interview with FD staff - 2004-02-23 *"These [lemu] fishermen come from Liwaladzi and Matiki. They had attempted to settle and fish here [at Ngala] in the past and were chased away. However, now they have returned using their kinship with local fishermen as an excuse to be able to stay here. This is making it difficult to get them to go away."* ; A.Russell – Nkhotakota District – Interview with a BVC - 2004-02-24 *"Those people, we chased them away, but they came back. In the past there were none of these fishing gears. Those people don't care about others' nets, they simply cut them apart. But they have relatives living here and they give a lot of fish to the chiefs, and so it is really difficult to chase them away or to confiscate their nets."*; A.Russell – Nkhotakota District – Interview with a chief - 2004-05-03 *"When we had a meeting in 2001, a meeting at the closure of the Kambindingu, fisheries officers from Mangochi warned us not to allow lemu fishers from Mangochi to fish here as they said it was a bad practice. However, the FD licenses them and they are now fishing everywhere in the lake. When we challenge them [lemu fishers] they say that they have licensed their gears, and are therefore registered to fish anywhere. Now even the BVCs and chiefs don't agree on how to protect the lagoon fish."* ; A.Russell – Nkhotakota District – Fishing observation - 2004-05-02.

[310] This beach seine is named after the most powerful a commercial fish trawler used by MALDECO in Southern Lake Malawi and is pulled in to shore much more quickly than a regular beach seine by men who energetically 'walk' the ropes up the beach rather than rhythmically pulling them in a seated position. Thereby the net moves through the water more quickly, allowing fewer fish to escape.

the BVC, but were then permitted to do so by the VH after they presented him with gifts of fish.[311] In both of these contexts, added confusion has stemmed from FD statements that support BVCs' moves to bar the entrance of these fishing gears that seem to be contradicted by the FD fishing licenses that the lemu and kandwindwi fishers have paid for.[312]

Conflicts over leadership of the KFA

In addition to the individual BVCs' interactions with chiefs, the roles of the GVH and TA within the Association reflects this same tension between "traditional" and "modern" forms of community governance. At its inception, TA Kanyenda had named GVH Wakunyanja as Chairman of the KFA, reflecting his traditional role as mediator in issues that span more than one village chief's jurisdiction. However, as Mr. Wotsogola's (the KFA Vice-Chairman) increasing leadership in enforcement of the closed season and sensitization of surrounding communities reflects, his role is easily mistaken by fishers for that of a KFA chairman.[313] In addition, a number of factors of convenience make Mr. Wotsogola a logical and easier intermediary than GVH Wakunyanja: while Mr. Wotsogola is fluent in English, Chichewa (the national language), and Chitonga (the local

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[311] A.Russell – Nkhotakota District – Meeting observation - 2004-11-06, During this meeting, Mr. Wotsogola states: "*Beware of rivalry between BVCs and chiefs.*" "*When kandwindwi [fishers] arrived there was competition between the VH and BVC. BVCs didn't want the kandwindwis at Ngala, [and were] supported by the FD which doesn't like this gear. But the kandwindwi owners went to the VHs wih [gifts of] fish], and [they were] allowed to stay. This is the reason why the Association needs a single rule so that these types can't take advantage of rivalries.*"

[312] A.Russell – Nkhotakota District – Meeting observation - 2004-11-06, A.Russell – Nkhotakota District – Interview with a chief - 2004-05-03.

[313] A.Russell – Nkhotakota District –Interviews with BVCs - 2004-02-24, 2005-03-06; A.Russell – Nkhotakota District –Interviews with fishers - 2005-03-01, 2005-03-02; A.Russell – Nkhotakota District – Interview with fish trader - 2005-03-07; A.Russell – Nkhotakota District – Fishing observation - 2005-03-06.

language), GVH Wakunyanja feels most comfortable speaking Chitonga; while Mr. Wotsogola's home is close to the main road at Ngala, visiting the GVH's home requires a 1 hour walk along the beach or a 30 hour wade through marshes and due to the GVH's busy schedule, any visitor must make an appointment in advance of any planned meeting; and whereas a migrant fisher or visitor might expect requests for 'sopo'[314] from the GVH, this would not be expected behavior for Wotsogola. Consequently, Mr. Wotsogola has become the primary KFA contact for visiting governmental, NGO and research visitors, and has been invited to attend governmental workshops.[315]

For these reasons, GVH Wakunyanja has become somewhat resentful of Mr. Wotsogola's prominent role in the KFA. As with the conflicts between BVCs and village chiefs, the GVH has expressed this resentment of the community-leadership of the KFA by undermining Mr. Wotsogola. Two examples of this resentment are the GVH's refusal to attend meetings:

> *"There are several meetings being conducted by the FD but I have not been invited to attend as Association Chairman. It is always Wotsogola going to meetings and speaking on my behalf. He then tells me that they [FD] want to hold a meeting at such a time, but why should I do this? When they come they go to Wotsogola and not to me. He is trying to get me out of this seat as he wants to be chairman."*[316]

, and to abandoning Mr. Wotsogola when the time comes to facing the anger of poachers coming to retrieve their confiscated fishing gears:

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[314] a gift, see footnote 142 for further explanation.
[315] Zomba Workshop; A.Russell – Nkhotakota District –Interview with WESM staff - 2003-12-05-Dwangwa-T.Black; A.Russell – Nkhotakota District –Interviews with chief --02-03, 2004-05-03; A.Russell – Nkhotakota District –Interview with a BVC - 2004-04-28.
[316] A.Russell – Nkhotakota District –Interview with a chief -2004-05-03; also A.Russell – Nkhotakota District –Interviews with BVCs - 2003-12-02, 2004-04-28.

As recalled by Mr. Wotsogola, *"We caught 3 beach seines: one from the father of Boock (Chairman of Mpondabwaki BVC), one from Dema and one other one. They were brought to Wakunyanja's house, and I was together with the GVH, Boock and two other people from the Association. I told them that when the people come to collect the nets, we should all be there, not just me. When the people went to Wakunyanja's, he told them to go talk to Wotsogola. All of the people from the Association refused to come when people had to pay fines. They then came here to my house, many people...they were very serious (angry), especially the father of Boock. The father told me that I would die if I started to play this game (imposing this rule)."*

Events such as those described above have made Mr. Wotsogola fearful for his safety at times, severely shaking his interest in enforcing the closed season regulation in the lagoon:

"I don't know what I can do all alone! I hope [think] I will go back to Nkhono with my boat. Here I can kick the bucket and kiss the ground [die] if I am alone!"[317]

These various divisions had become most destructive in early 2004, leaving many BVCs unmotivated, easily corruptible, and actively involved in poaching themselves.[318] The commonly perceived hypocrisy of some BVC members is well illustrated by GVH Wakuntunda, who told me about a BVC member who instructed a poacher to go poaching during the following night in order to pay his fines:

"After they 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."[319]

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[317] A.Russell – Nkhotakota District –Interview with a BVC - 2004-04-28; see also A.Russell – Nkhotakota District –Interviews with BVCs - 2003-11-05; 2004-02-24.
[318] A.Russell – Nkhotakota District –Enforcement observation - 2003-11-04; A.Russell – Nkhotakota District –Interview with a BVC - 2005-03-06.
[319] A.Russell – Nkhotakota District –Interviews with a chief - 2003-12-04.

Growing institutional maturation

Despite these internal divisions that at times led one segment of the KFA or traditional leadership to undermine another, larger institution-building processes and a diffusion of leadership among BVCs seem to be forcing these opponents to overcome their divisions. During the course of 2003-04, FD personnel, foreign WESM-personnel[320] and the author himself[321] contributed greatly to the confidence of KFA and BVC members through their capacity-building activities and encouragement of both individual BVCs and the KFA as a whole. These activities, many of which attempted to involve previously disgruntled leaders, have also had the effect of legitimizing the KFA's activities through these leaders' public statements of support for the closed season regulations.[322] A key element that seemed to further solidify their communities' following was the BVCs' prestige and access to training/funding prospects provided by numerous external agencies (WESM-Dwangwa, Fisheries Department, COMPASS, African Development Bank, IndeBank).

In addition to the effect of the maturation of individual BVCs around the Kambindingu Lagoon and KFA, these BVCs were aided (and forced) out of their early 2004-inactivity due to the support (and competition) provided by the creation of a number of new BVCs at Dwasulu, Dwambazi and Nyavuu. Dwasulu and Dwambazi

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[320] A.Russell – Nkhotakota District –Interviews with BVCs - 2003-11-01,-2004-04-28; A.Russell – Nkhotakota District –Meeting observation - 2003-12-03.
[321] A.Russell – Nkhotakota District –Interviews with BVCs - 2003-11-01, 2003-11-05; A.Russell – Nkhotakota District –Enforcement observation - 2003-11-04; A.Russell – Nkhotakota District –Interviews with chiefs-2003-12-04, 2004-05-03; A.Russell – Nkhotakota District –Meeting observation - 2004-11-06; A.Russell – Nkhotakota District –Interview with a fish trader - 2005-03-07.
[322] A.Russell – Nkhotakota District –Meeting observationz - 2004-11-06, 2005-03-30.

BVCs were created in 2004 through the encouragement of Mr. Wotsogola[323], and Nyavuu BVC was recreated through a KFA meeting (it had been dormant since its involvement in the creation of the Dwangwa Fish Sanctuary).[324] Two patrols were conducted by Dwasulu and Dwambazi BVCs in late 2004 (one with the Nkhono BVC boat, the other with GVH Wakuntunda's boat at Dema),[325] which due to their distance from the lagoon may have had the effect of decreasing the association of lagoon enforcement with Mr. Wotsogola and thereby removing these activities from the scope of the conflicts between communities and chiefs. Additionally, Nyavuu and Dwasulu BVCs may have challenged the centrality of the DFS and Kambindingu Lagoon within the KFA when they proposed the creation of two additional, smaller sanctuaries at Nyavuu estuary and the Luluzi River estuary, respectively.[326] In proposing the creation of these sanctuaries, these BVCs may have stimulated the original KFA BVCs into overcoming their internal differences lest their comparative inactivity caused them to lose out in external agencies' funding/training to the new BVCs.

For whichever combination of reasons, the KFA seems to have regained momentum. Following the patrols conducted by Dwambazi and Dwasulu BVCs, Likuchi and Banga BVCs conducted further patrols of the lagoon.[327] Additionally, the KFA sponsored a meeting in March 2005 (this is of particular significance as until then, all meetings had been sponsored by WESM) inviting all chiefs and BVC Chairs to resolve

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[323] A.Russell – Nkhotakota District –Meeting observation - 2004-11-06; A.Russell – Nkhotakota District – Interview with a BVC - 2005-03-06; A.Russell – Nkhotakota District –Fishing observation - 2005-03-06.
[324] A.Russell – Nkhotakota District – Interview with a BVC -2005-03-01; A.Russell – Nkhotakota District – Interview with a chief - 2005-03-09.
[325] A.Russell – Nkhotakota District – Interviews with BVCs - 2005-03-01, 2005-03-06, 2005-03-16; A.Russell – Nkhotakota District – Interview with a chief - 2005-03-02.
[326] A.Russell – Nkhotakota District – Interviews with BVCs -2005-03-01, 2005-03-06; A.Russell – Nkhotakota District – Interview with a chief - 2005-03-09.
[327] A.Russell – Nkhotakota District – Interviews with BVCs - 2005-03-16.

the challenges to the enforcement of the closed season in the lagoon.[328] During the course of this meeting, all chiefs and BVC Chairs discussed the reasons why the Kambindingu Lagoon closed season wasn't functioning. The key issues raised were[329]:

- Fines were not high enough to deter poaching, but also may cause undue hardship due to the difficulty of having to pay in cash;
- Gear owners were not being penalized when they sent others to fish for them;
- The difficulty of enforcing the closed season given the large number of people living right on its shores;
- There is uncertainty among fishers regarding the start and end dates of the closed season;
- The conflicts that have arisen when chiefs permitted the use of fishing gears that their BVCs forbade.

To address these concerns, the KFA revised the regulations, resulting in regulations that would make enforcement easier, yet more deterrent for poachers:[330]

1. **Rule:** At the start of the closed season, all BVCs required to hold meetings to notify fishers.
2. **Rule:** No beach seines will be allowed in the lagoon
   - **Penalty:** Rather than being fined, these will be confiscated for 1 year
3. **Rule:** No small mesh gillnets, long lines, or *pyasa* allowed in the lagoon during closed season.
   - **Penalty:** Fines will be paid in the form of livestock:
   - 3000 yards gillnet - fined 1 goat,
   - 300 yards gillnet - fined 1 chicken (10 chickens = 1 goat),

[328] A.Russell – Nkhotakota District – Meeting observation - 2005-03-30.
[329] Ibid.
[330] Ibid.

- *pyasa*, longline - fined 2 chickens,
- Any gillnet owner who sends others to fish pays 5 chickens in addition to the fine paid by those actually caught fishing.

4. **Rule:** During the lagoon closed season, all people living in temporary habitations around the lagoon have to move away from the lagoon edge settlements.
    - **Penalty:** If they refuse, involve the VH, then the GVH, and then the TA who may bring in the police.
5. **Rule:** Any newcomer must have their gear assessed by the Association and VH
6 **Rule:** Fishing in the Lake Malawi closed season
    - **Penalty:** Fined K20,000.

Chapter 5

Understanding the Nature of Institutional Change in Fisheries Co-management

Having developed from a condition of resource abundance and low capital investment, few artisanal fisheries in Malawi were traditionally subject to any form of access-limitation. The key exceptions to this statement occurred where the exploitation of fish stocks by one group precluded others' attempts to do the same when using methods such as fishing weirs, beach seines, and poisons, discussed in Chapter Two. In addition to being widespread in Africa, similar systems of traditional access-sharing and rotational fishing have been documented in a variety of contexts such as the salmon harvest in the Teelin River in Ireland (Taylor 1987), fishing in the inter-village buffer zones between Atlantic fishing communities in Bahia, Brazil (Cordell and McKean 1986), and communal fishing territories on Lake Titicaca in Peru (Levieil and Orlove 1990). Otherwise, given the large expanse of Lake Malawi, the small populations of lake fishers, and their relatively inefficient fishing gears, little concern was given to the active management of the fishing economy.

Since the 1930's, however, the lakeshore and river fishers have increased their catch efficiency through the adoption of new fishing methods, gears, and materials. This increasing investment, combined with environmental changes and gradual increases in fisher populations has led many fish stocks to become locally depleted. The need to address these trends with a revision of government management paradigms was triggered in the early 1990's by the collapse of the highly prized *chambo* (*Oreochromys spp.*) fishery in Lake Malombe, which coincided with the international rise of participatory natural resource management regimes in the late 1980s. Similarly, at the local level in Malawi, fishers have become increasingly concerned with the depletions of the more desirable fish species, forcing them to target less desirable fish species and while expending greater effort in doing so.[331]

As documented by Hara (2001) and Ganter (2001), most of Lake Malawi's fishing communities have taken little initiative to address the increasingly precarious status of local fish stocks. This has been accompanied by gathering apathy and frustration among fishery managers at their inability to instill any sense of local stewardship in the fishing communities. However, in the previous chapter, I presented several case studies that defy this generalization. These case studies demonstrated how community willingness to support new local fisheries conservation institutions is intimately related with broader issues of community empowerment and institutional legitimacy.

[331] In the both the Dwangwa and Northern Karonga regions large proportions of gillnet fishers have transitioned from fishing primarily for *chambo* and potamodromous fish species (*mpasa, sanjika, ntchila, ningwi*) to *masohungu* and *bapu*, or have invested in *chilimara* to target *utaka*, *usipa*, *masohungu*, or in long-line fishing hooks for *kampango* and *mlamba*.

In order to understand the nature of these institutional changes, in this chapter, I first review the literature on co-management institutions, socio-economic resilience, and organizational learning, and then analyze the previous case studies using a framework that integrates these three theories.

Theoretical Frameworks

Co-management and CBNRM

Since the 1970s, the inadequacies of the past century's attempts to impose scientific management policies on the harvesting of natural resources have become apparent. National governments, in particular those of developing countries, recognized that population growth combined with colonial-era policies which took little account of local stakeholders' livelihoods needs were increasingly leading to conflict-ridden relationships between stakeholders and governments, and the uncontrolled exploitation of natural resources. Indeed, the establishment of many colonial or national regulations created open-access regimes by undermining or replacing pre-existing community-based natural resources management (CBNRM) norms and institutions that had maintained local stakeholder compliance through complex intra-community relationships based on mutual interdependencies of community members (Ensminger 1996; Jodha 1996; Jentoft 2000). Recognizing the inabilities of these national governments to enforce their regulations, many scientists turned to the study of persistent CBNRM regimes in order to better understand the reasons for their successes so that locally-appropriate institutional

designs might assist or replace the national governments' institutions in the management of resource use (i.e. co-management).

From an ethical standpoint, numerous authors have argued for co-management as a means for reversing colonial enclosures of resources that served the conservation and aesthetic priorities of expatriate and national elites, but which deprived rural communities of access to local natural resources. However, the more successful rationale for proponents of co-management or CBNRM regimes has been that decentralization of resource management decisions to stakeholder communities could improve stakeholder compliance with regulations (and thereby achieve conservation goals) due to stakeholder perceptions of the policies' legitimacy, transparency, fairness and relevance (Baland and Platteau 1996). As discussed in Chapter 2, "co-management" is a label that has been used by different people to describe a variety of different institutional frameworks. One definition of co-management, that illustrates the breadth of institutions that might be included in this category, describes it as,

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

Essentially, the co-management paradigm arose as an argument against resource economists' models that claim resources held in common will inevitably be over-harvested, and that the solution must be to assign property rights over them to individuals or to a government (Gordon 1954; Schaefer 1954; Hardin 1968). By the 1970-80's, however, a number of social and natural scientists began to criticize the assumptions

upon which these models were based (Bromley and Cernea 1989; Pinkerton 1989; Holling 1973; Holling 1978; Netting 1981; Berkes 1987; McCay and Acheson 1987):

- that individual resource stocks can be managed at what has been labeled the Maximum Sustainable Yield (MSY) indefinitely, rather than recognizing how different species interact in unpredictable ways;
- that each ecosystem is characterized by a linear series of successional stages, rather than fluctuating between a number of successional climaxes, and that management for stability may actually induce instability;
- that an open-access regime (mis-named 'common property' by Hardin (1968)) is the natural result of individualistic resource extraction running rampant, rather than due to erosion of local institutions and practices by incorporation into larger political and economic systems;
- that these common-property resources can best be regulated by a distant central governmental agency that bases its authority on 'science', rather than by local institutions that are directly accountable to, and therefore potentially more legitimate in the view of resource users.

Recognizing the shortcomings of these assumptions, many scientists became advocates for regimes that place local institutions in charge of natural resource management, or on an equal footing with governmental institutions, referred to as CBNRM and co-management, respectively. Baland and Platteau (1996) conducted a meta-analysis of resource management regimes, providing us with an overview of the

particular roles that might optimally make use of the strengths of government-based and community-based institutions, respectively:

Government Roles:

1. Process information on village-level resources, and help communities assess historical trends, potential remedial steps to be taken, and evaluation of regulatory successes;
2. Provide economic incentives to induce shifts in the use of resources;
3. Assist local initiatives by clarifying group territorial rights, providing legal frameworks; and protecting under-represented sub-groups;
4. Provide formal conflict-resolution mechanisms;
5. Provide financial and technical support for costly monitoring and enforcement activities;
6. Promote competition among management units, and disseminate information on best management practices between them.

Community Roles:

1. Devise rules, procedures and sanctions that will gain broad support among resource users through their understanding of and adaptation to local ecological, economic, social conditions;
2. Adjust local rules and procedures to changing circumstances which is easily done due to ease of communication in smaller communities;
3. Resolve conflicts through customary conflict resolution mechanisms that

minimize the incidence of interpersonal conflicts;

4. Organize self-monitoring (enforcement) by users, which is likely to be significantly less costly than centralized control exercised through formal administrative channels.

Depending on the specific capacities of the rural stakeholders, governments and communities might establish an array of different co-management institutional frameworks. To better illustrate the variety of forms which co-management may take, Sen and Nielsen (1996) represent them in the form of a continuum of management arrangements that they broadly classify into five categories, depending on the relationships between fisher stakeholders and the government:

- Instructive: There is only minimal exchange of information between government and fishers. This type of co-management regime is only different from centralized management in the sense that the mechanisms exist for dialogue with users, but the process itself tends to be government informing fishers of the decisions they plan to make.
- Consultative: Mechanisms exist for government to consult with fishers but all decisions are taken by the government.
- Cooperative: This types of co-management is where government and fishers cooperate together as equal partners in decision-making.
- Advisory: Fishers advise government of decisions to be taken and government endorses these decisions.
- Informative: Government has delegated authority to make decisions to fisher

groups who are responsible for informing government of these decisions.

While the authors distinguish between central government management and "Instructive co-management" at one end of the spectrum, and "Informative co-management" and CBNRM at the other, for the purposes of my analysis, I have chosen not to adopt these distinctions as they poorly reflect how fisheries have been managed in the Malawian context. Rather, most central governmental fishery management has entailed (either by design or for practicality) a minimum amount of information exchange and dialogue, at least at the local level. Similarly, most CBNRM regimes today fall within the national jurisdictions of governments, and absent any other governmental regulation, these regimes must be seen as enjoying at least tacit recognition by the government. A pictorial representation of this continuum, adapted from Pomeroy (1995), is presented in Figure 5-1, below.

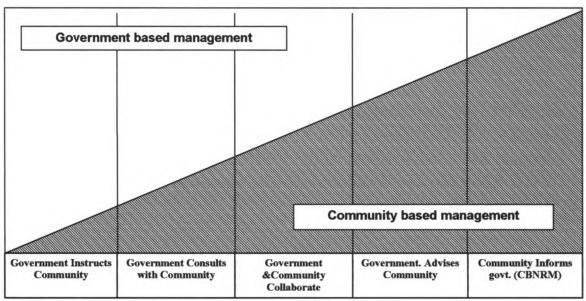


Figure 5-1. Co-management Continuum.

In most contexts, national or colonial regulations eroded or destroyed any pre-existing traditional institutions that had previously managed local access to natural resources. Consequently, the establishment of effective co-management regimes depends on the establishment of robust new local institutions to represent and act on behalf of the local counterparts to the government (Pinkerton 1989). Wade (1988), Ostrom (1990), and Baland and Platteau (1996) have greatly informed our understanding of the key social, economic, institutional and ecological characteristics typical of successful CBNRM regimes. These have been compiled by Agrawal (2002) into a list of "critical enabling conditions", reproduced in Figure 5-2, below.

Critical Enabling Conditions of Sustainability on the Commons

1) Resource system characteristics
- (i) Small size
- (ii) Well-defined boundaries
- (iii) Low levels of mobility
- (iv) Possibilities of storage of benefits from the resource
- (v) Predictability

2) Group Characteristics
- (i) Small size
- (ii) Clearly defined boundaries
- (iii) Shared norms
- (iv) Past successful experiences – social capital
- (v) Appropriate leadership – young, familiar with changing external environments, connected to local traditional elite
- (vi) Interdependence among group members
- (vii) Heterogeneity of endowments, homogeneity of identities and interests
- (viii) Low levels of poverty

(1 and 2) Relationship between resource system characteristics and group characteristics
- (i) Overlap between user group residential location and resource location
- (ii) High levels of interdependence by group members on resource system
- (iii) Fairness in allocation of benefits from common resources
- (iv) Low levels of user demand
- (v) Gradual change in levels of demand

3) Institutional arrangements
- (i) Rules are simple and easy to understand
- (ii) Locally devised access and management rules
- (iii) Ease in enforcement of rules
- (iv) Graduated sanctions
- (v) Availability of low-cost adjudication
- (vi) Accountability of monitors and other officials to users

(1 and 3) Relationship between resource system and institutional arrangements
- (i) Match restrictions on harvests to regeneration of resources

4) External environment
- (i) Technology:
  - (a) Low-cost exclusion technology
  - (b) Time for adaptation to new technologies related to the commons
- (ii) Low levels of articulation with external markets
- (iii) Gradual change in articulation with external markets
- (iv) State:
  - (a) Central governments should not undermine local authority
  - (b) Supportive external sanctioning institutions
  - (c) Appropriate levels of external aid to compensate local users for conservation activities
  - (d) Nested levels of appropriate, provision, enforcement, governance.

Figure 5-2. Critical enabling conditions for sustainability on the commons (Agrawal 2002).

This exhaustive analysis of "enabling conditions" has contributed greatly to our understanding of the ideal CBNRM regime characteristics. Unfortunately, while some conditions on this list might be useful for the strengthening of existing function CBNRM

regimes (such as establishing graduated sanctions), many conditions (such as homogeneity of communities, boundedness of communities and resources, and high dependencies on resources) are not aspects that governments can influence. In fact, many, if not most resource depletion scenarios, such as those of Lake Malawi's fisheries, exist precisely due to: the decline of physical boundaries, greater mobility of resource users and heterogeneity of resource user interests, and increasing integration with larger economies that have raised the demand for fish by distant markets (some of the primary "critical enabling conditions" listed above). Being rooted in rational choice philosophies, the "critical enabling conditions also tend to assume that stakeholders have perfect knowledge of the resource status and the reasons for resource declines, and that resource users (and managers) base their decisions and actions on simple individualistic economic evaluations rather than complex calculations based on social formulas of shared obligation, reciprocity, and equity (Hanna and Jentoft 1996; Jentoft, McCay et al. 1998).

These assumptions have been criticized by a number of authors who argue that formally-instituted, conservation-goal driven co-management institutions are unlikely to be effective if they try to replace informally-derived, consensus-based, process-driven social and cultural institutions that operate to maintain core values such as social solidarity, harmony, consensus and equity (although they may simultaneously maintain certain power imbalances and resource inequities) (Korten 1980; Pinkerton 1987; Mosse 1995; Ensminger 1996; Hanna and Jentoft 1996; Jodha 1996; Jentoft, McCay et al. 1998; Cleaver 2002; Jentoft 2004). In order to achieve this moral legitimacy the formation of new formal institutions has to allow for a time-consuming and energy-intensive process of "institutional bricolage" (Cleaver 2002). Through the negotiation of daily interactions

that are shaped by each individual's multiple social and livelihood identities and the influences of historical institutional processes, formal institutions then gradually attain informal consensus by establishing morally acceptable balances between individuals' and communities' needs (Cleaver 2002; Jentoft 2004). As a result the formal institutions will become "embedded" within the larger network of overlapping and competing social, economic, and political institutions, and thereby they will gain moral legitimacy, relevance, and effectiveness in achieving resource management goals through socially-appropriate methods of conflict resolution, negotiation, participation and other mechanisms for collaboration (Agrawal 1999; Folke 2002; Pinkerton 1988; Gronow 1995; Ensminger 1996; Hanna and Jentoft 1996; Jentoft, McCay et al. 1998; Leach, Mearns et al. 1999; Wilson and Jentoft 1999).

While seeking embeddedness will facilitate co-management institutions' achieving conservation objectives, an additional objective of co-management has always been to promote rural empowerment (Cleaver 2002; Jentoft 2005). Co-management advocates have learned from the failures of the community-development movements during the 1950-70s in which an acceptance of pre-existing power structures and an orientation towards centrally-defined blue-print projects resulted in most benefits accruing to traditional elites, and in projects neglecting the needs of the rural poor (Korten 1980). Therefore an emphasis has been placed on bringing about the empowerment of those groups that have traditionally been marginalized in local decision-making processes relating to the allocation of resources, such as minorities, women, low castes, and the "poorest of the poor" (Chambers 1984; Mearns 1995; Cleaver 2002; Nielsen, Degnbol et al. 2004; Jentoft 2005; Cleaver and Toner 2006). While formal

institutions may be changed quickly, empowerment of a "community" or stakeholder group takes time, and is dependent on a combination of external inputs and endogenous experiences that progressively lead to what Zimmerman (1990) describes as "learned hopefulness." As discussed by Jentoft (2005), empowerment is "perceived as an enabling process, in which individuals and communities can take responsibility and act effectively to safeguard or change their environment", and is therefore described as being both a precondition for, and the most important outcome of co-management.

Unfortunately, many resource management agencies have focused on the improvements in fisheries management that might be achieved through the establishment of formal co-management institutions without supporting the empowerment of the fisheries stakeholders involved. This reflects an unwillingness among government agencies to release control over resource management decision-making to local stakeholders, and has been motivated by a combination of factors, including: the vested interests of the government (and powerful elites) in the resource, lack of confidence in the abilities of local stakeholders to play a meaningful and sustainable role (an opinion that has been shared at times by donor agencies and fisheries scientists), and institutional disincentives (both from the governmental agencies and donor agencies) to invest significant amounts of time or energy in what are essentially poorly measurable outcomes (Holling and Meffe 1996; Nielsen, Degnbol et al. 2004; Jentoft 2005). The result has frequently been a crisis of legitimacy, in which stakeholders remain skeptical of the motivations and interests behind co-management institutions, do not consider themselves as being represented or empowered by these institutions, and therefore withhold their

moral support for the enforcement of conservation regulations (Ensminger 1996; Jentoft 2000; Nielsen, Degnbol et al. 2004; Jentoft 2005).

In addition to the question of the role that empowerment plays in co-management, scientists have increasingly come to appreciate the important roles of environmental and social change and variability on how institutions develop. Indeed, as identified by Stern et al. (2001), the key gap in our knowledge of co-management is of,

> *"the dynamics of resource management institutions, their evolution and adaptation, the ways in which they respond to problems of decision making and internal conflict, and the mechanisms that govern change in the institutions and in how they relate to resources" (Stern, Dietz et al. 2001).*

Socio-Ecological Resilience and Uncertainty

Traditional natural resource management paradigms have hinged upon assumptions that environmental variability could, and should be controlled in order to enable humans to maximize their harvests of resources. Since his introduction of the concepts of adaptive management and ecological resilience in the early 1970s, however, C.S. Holling (in particular) has radically transformed the ways in which resource scientists and managers think about resource management and ecosystem variability (Holling 1973; Holling 1978). Our current understanding of how variability functions to provide ecological resilience has been summarized into four main points (Holling and Meffe 1996; Holling and Sanderson 1996):

A. Environmental change is episodic rather than continuous or gradual;

B. The spatial organization of natural systems is patchy rather than uniform, and

non-linear processes organize the shift from one range of scale to another;

C. Rather than having a single equilibrium state, ecosystems are characterized by multiple, or are entirely without, equilibria; and

D. On one hand, destabilizing forces are important for maintaining structure and diversity, while on the other, stabilizing forces are important in maintaining productivity.

Overall, environmental variability is regarded by Holling and others as crucial for maintaining an ecosystem's capacity to absorb sudden shocks, and indeed to use these shocks for renewal and reorganization of the ecosystem (Folke 2002; Holling 1973; Holling 1978; Berkes and Folke 1998). In contrast, attempts by our resource management agencies to achieve stability through the maintenance of maximum sustainable yields make our ecosystems more vulnerable to such shocks, the consequence being that ecosystems may cross thresholds that will change the ecosystem's organization in unexpected ways (Holling 1973; Holling 1978; Holling and Sanderson 1996; Berkes and Folke 1998). Some examples of how management agencies have decreased ecosystem resilience include regimes that: mitigated natural cycles of floods, droughts, or fire; or induced changes in trophic interactions (Gunderson, Carpenter et al. 2006). This ironic relationship in which apparently effective management of an ecosystem may lead to declining ecosystem resilience due to a gradual loss of awareness and responsiveness to ecological shifts has been labeled, "the pathology of management" (Holling and Meffe 1996), and is described as having the following stages:

1. Initial centralized management policies succeed in removing disturbance and

enhancing growth;

2. Implementing agencies that are initially responsive to ecological, economic and social forces evolve to a focus on efficiency and self-preservation with increasingly rigid and myopic goals;
3. Economic sectors that have grown as a result of successful management become over-capitalized and increasingly dependent on perverse subsidies and the management agencies' abilities to maintain control over the ecosystem;
4. The relevant ecosystems gradually lose resilience as they become more homogeneous, and less spatially variable, while resource users and agencies are increasingly driven by selfish short-term survival goals;
5. Crisis and vulnerabilities begin to become more likely and evident and the public begins to lose trust in governance.

The primary examples used by Holling (1998) of this scenario of management failure include: forest management in New Brunswick; water management in the Florida Everglades; estuarine management in the Chesapeake Bay; salmon management and power development on the Columbia River; water quality, fisheries, and development in the Laurentian Great Lakes and Baltic Sea. Extending far beyond the simple management of natural resources, in his recent book entitled Collapse: How societies choose to fail or succeed, Jared Diamond (2005) has associated resource management pathologies with threats to, or the collapses of, a variety of historical and current-day societies and nation-states. The main factors (which he

called "psychological failures") which he outlined as contributing to failures of these societies' decision-making processes were a:

1. Failure to anticipate a problem before it actually arises due to a lack of prior remembered experiences or reasoning based on false analogies;
2. Failure to perceive a problem that emerges as a slow trend but which may be concealed by wide fluctuations (referred to as "creeping normalcy"), combined with "landscape amnesia" (forgetting how different the resource looked 50 years ago);
3. Failure to try to solve the problems due to individual stakeholders' rational choices to maximize short-term gains at the expense of long-term sustainability (i.e., tragedy of the commons scenario). In a context of poor enforcement of regulations, the status-quo may be defended in terms of a core societal value or simple denial of the problem;
4. Failure of attempted measures to solve the problem as it may be beyond stakeholders' capacities or resources to solve, or the efforts may have been made too late.

While Diamond's research focused primarily on the reasons for nations' failures to make wise resource management decisions and the ways in which this might be prevented, a number of authors have recognized that these crises may at times promote forms of institutional innovation. In particular, existing governments' loss of legitimacy produced by their failures to prevent crises may result in an institutional vacuum, which may in turn act as a catalyst for organizational learning to

resolve the crises (Lee 1993; Holling 1996; Berkes and Folke 1998; Holling, Berkes et al. 1998; Folke 2002; Gunderson 2002). To complement these descriptions of centralized management failures, as discussed above, numerous studies of small-scale societies and local resource management institutions (CBNRM) have provided us with clues about how effective resource management institutions might be designed. Paralleling the values of diversity within ecosystems, community-based institutions may be crucially strengthened by various members' regular contestation of leaders' powers, thereby legitimizing natural resource institutions within the broader community (possibly preventing "tragedy of the commons" scenarios) (Holling 1978; Leach, Mearns et al. 1999). The ability of CBNRM, or any management regime to avoid or learn from crises (both ecological and social) has been linked to their adaptability and transformability (Holling and Sanderson 1996). As defined by Walker (2004), these attributes are defined as,

> ***Adaptability*** *- In a SES [Socio-Economic System], adaptability is the collective capacity of the human actors in the system to manage resilience. Although the system as a whole self-organizes without intent, the capacities and intent of the human actors strongly influence the resilience and the trajectory of the SES.*
>
> ***Transformability*** *- The capacity to create a fundamentally new system when ecological, economic, or social (including political) conditions make the existing system untenable.*

In order to better understand how organizations and institutions adapt and transform themselves, I turn to studies of Organizational Learning, upon which many of the above insights are based.

Organizational Learning

The concept of "organizational learning" was initially proposed by Argyris and Schoen (1996) as an explanation for the different ways that industrial organizations evolve in the face of the changing demands of the internal social and external economic climates. Crossan et al. (1999) characterize the process of organizational learning as 'organizational renewal', requiring "that organizations explore and learn new ways while concurrently exploiting what they have already learned." This framework, or similar learning theories, have been adopted by a number of resource management scientists who link the abilities of rural stakeholders and governments to achieve sustainable resource management regimes to their institutions' abilities to learn from social and ecological threats and opportunities (Schusler and Decker 2003; Gunderson, Carpenter et al. 2006; Lee 1993; Pinkerton 1994; Holling and Sanderson 1996; Fazey, Fazey et al. 2005; Folke 2002; Olsson and Folke 2001; Olsson, Folke et al. 2004). The primary catalyst for organizational learning processes is the anxiety produced by the existing institution's failure to provide at the level that was expected, or the awareness of potential gains that have not been fully exploited (Argyris and Schön 1996; Lipshitz and Popper 2002; Cutcher-Gershenfeld and Ford 2005). As described by Gershenfeld and Ford (2005):

> *"The identification of disconnects can lead to a dialogue that can lead to shared knowledge of an issue or sets of issues. This can only occur when gaps are not avoided, discounted, or feared. As noted by Peter Senge, the gaps between vision and reality can lead to constructive tensions. These tensions, if harnessed properly, can facilitate the creative process."*

Two distinct, though not mutually exclusive, forms of organizational learning have been identified by a number of authors: (a) first-order, single-loop, evolutionary, or social learning during periods of internal and external prosperity and growth, and (b) second-order, double-loop, transformational, survival, or revolutionary learning during periods of social or economic turmoil (Greiner 1972; Argyris and Schön 1996; Coutu 2002; Schusler and Decker 2003). For my analysis, I have adopted the definitions posed by Argyris and Schön (1996):

> ***First-order learning*** – *"Incremental change or adaptation carried out to further exploit existing technologies, routines, and processes in ways that don't alter underlying assumptions or values."*
>
> ***Second-order learning*** – *"Those sorts of organizational inquiry which resolve incompatible organizational norms by setting new priorities and weighting of norms, or by restructuring norms themselves together with associated strategies and assumptions."*

While the visible events that characterize these two types of learning may be seen as separated in time (i.e., periods of growth and stability vs. periods of organizational turmoil and change), both types of learning processes should be seen as existing in an ever-present state of tension with different types of learning prevailing at different times and at different levels of the organization. Therefore, while first-order learning processes operate to exploit the learning gains already made, certain individuals or groups within the organizations will maintain a sensitivity to threats posed by conditions inside and outside the organization (Crossan, Lane et al. 1999). When existing institutions fail to address threats, or at times even cause threats to grow to a level that alarms a significant number of stakeholders, these individuals or groups have a greater chance of overcoming the resistance of the leadership in the organization, and may spur an episode of second-order learning (Argyris and Schön 1996; Coutu 2002).

A key to any organization's survival and prosperity, therefore, is the effective management of this tension between first order learning which enables the organization to exploit gains from past learning, and the second-order learning that attempts to affect change upwards from the individual to the group and organization-levels in response to external stimuli (Levitt and March 1988; Crossan, Lane et al. 1999). This tension between first and second-order learning processes has been described by numerous authors as a cycle, in which organizations first learn to address problems and consolidate the gains from their lessons learned, and then become inflexible and unresponsive to new threats, leading to the increased possibilities of new crises arising at which point second-order learning may lead to a new institutional framework that repeats this cycle (Holling, 1996; Lipshitz et al., 2002; Greiner, 1972; Crossan, Lane et al. 1999; Coutu, 2002). At the same time, Lipshitz et al. (2002) suggest that cultural norms of transparency, integrity, issue orientation, inquiry, and accountability may help organizations maintain a constructive first-order learning process that allows them to balance the characteristics of internal stability and outward sensitivity. This is supported by Argyris and Schön (1996), who argue that in order for workers' needs to be fulfilled, and therefore to prevent the rise of dissent and divisions, *"organization members must have the motivation, ability, and opportunity to inquire into resolving the perceived gap on behalf of the organization [or community]."*

Despite an organization's best attempts to maintain the cultural norms discussed above, some forms of institutional change are inevitably called for at times. These changes inherently cause resistance among those members and external stakeholders who have benefited from the status-quo power relationships, resource and rewards allocations,

levels of autonomy, etc. Indeed, organizations are frequently most easily defined by the processes, rules and hierarchies that seek to provide stability and predictability for its members and external stakeholders. It is unsurprising, therefore, that resistance to change in organizations is a phenomenon that is well documented by both social scientists (Katz and Kahn 1966) and ecologists (Hooley 2005) (Holling and Meffe 1996).

Rather than being surprised by this resistance to change, which has been labeled "entrenched learning", many of these sources of resistance could in theory be anticipated by change agents as a logical product of the institutional changes (Cutcher-Gershenfeld and Ford 2005). When these sources of resistance are viewed as rational attempts by members to protect their access to power and resources that they perceive as being threatened by the introduction of new institutions rather than being discounted as stakeholders' old-fashionedness or irrationality, they can be planned for and possibly avoided altogether. Additionally, entrenched learning may be contributed to by a number of "psychological failures" (Diamond 2005), discussed above, many of which can also be addressed in a preemptive manner before the institutional changes are introduced. Failure to do so may result in a variety of manifestations of entrenched learning: members' withholding of support, perceived inconsistencies in new institutions, cynicism regarding institutional effectiveness, or the active undermining of new institutions (Argyris and Schön 1996; Cutcher-Gershenfeld and Ford 2005).

Any analysis of organizational learning must also reflect the scale at which such learning processes occur. In many cases, first order learning occurs as a consolidation of the existing institutional framework, and may occur throughout the organization. In contrast, second-order learning frequently starts with an individual or a sub-group within

the organization, and then spreads to other parts of the organization, eventually replacing previous institutions (Greiner 1972; Argyris and Schön 1996; Crossan, Lane et al. 1999; Coutu 2002). Therefore, while the overall organization may undergo second-order learning processes, some of the constituent sub-groups within it, especially those with vested interests in maintaining previous institutional infrastructures, may resist these changes. An awareness of the nested nature of institutions, and the interactions between institutions at different scales has also been emphasized more recently in the socio-ecological literature that has labeled these nested systems as "panarchies" (Gunderson, Carpenter et al. 2006; Holling and Sanderson 1996; Noble 2000; Futemma, de Castro et al. 2002; Gunderson 2002). Consequently, in order to promote organizational resilience, which might here be understood as organizational learning, numerous authors have emphasized the need for the promotion of multiple, overlapping, and redundant institutions that are more likely to be sensitive to internal and external stimuli at a variety of institutional, ecological, and temporal levels (Ostrom 1990; Holling and Sanderson 1996; Folke, Berkes et al. 1998; Noble 2000; Olsson and Folke 2001; Folke 2002; Ostrom 2005).

The Use of Organizational Learning to Analyze Emergent Co-management Institutions

As these discussions illustrate, natural resource managers and scientists are becoming more aware of the interrelatedness between ecological and institutional resilience. We have seen that most organizations strive to maintain a stable set of social interactions and natural resource allocations, a condition that is promoted by many

stakeholders during times of seeming growth in earnings and efficiency (i.e., institutional learning is dominated by first-order learning). However, over time institutions frequently become myopic in their attempts to maintain growth, and unresponsive to the signs of declining resource resilience, a condition that may lead to an unpredictable resource collapse or reorganization. At these times of crisis, old institutions may lose popular support, and create opportunities for the emergence of new ones (i.e., second-order learning dominates).

In the case of Malawi, despite the erosion of their influence by economic processes, colonialism, and a 30 year dictatorship, village chiefs and Traditional Authorities (TAs) have always played a central role in regulating local stakeholders' access to limited resources and in mediating in disputes within or between communities. In contrast, President Banda's dictatorship never achieved local legitimacy in its attempts to impose fishing regulations, and following the simultaneous failures of centralized fisheries management in Lake Malombe and the national transition to democracy, donor agencies pushed an agenda of participatory fisheries management. An assumption in this movement was that the introduction of democratically elected, representative stakeholder committees (i.e., BVCs), that did not include an active role for the village chiefs, would be able to gain the legitimacy and support of fisherfolk necessary to achieve conservation goals. Another implicit assumption was that chiefs, whose rule was regarded as autocratic, untransparent and prone to corruption, were not suitable partners or leaders for the empowerment of fisheries co-management institutions, which was seen as a necessary precondition for achieving the conservation goals. The case studies of co-management successes discussed in the previous chapter, viewed within a context of widespread

indifference to co-management around most of Lake Malawi, call these assumptions into question. In order to understand the nature of these co-management successes I present an analysis in which I explore the validity of the assumption that the co-management goal of empowerment, as imposed by outside agents in Malawi, necessarily supports resource management agencies' objectives' of creating fisheries management institutions that have the legitimacy and support of local fisherfolk.

Adapting organizational learning theory to aid in analysis of the effectiveness of the Malawian government's implementation of fisheries co-management, I separately examine the previous case studies in terms of their "successes" in achieving both *empowerment* and *conservation* objectives. On one hand, given that the Malawian government (and its donor agency supporters) regarded chiefs as impediments to co-management, success might be measured based on the extent to which government-imposed BVCs supplanted the pre-existing chieftains' leadership roles in relation to interactions between and activities of fisherfolk (which includes the roles of arbitration, mediation, and facilitation of development assistance, and receipt of homage by immigrant fisherfolk). In this case the organizational learning framework would be described as:

- *First Order Empowerment Learning* –Where chiefs are able to address conservation issues by establishing their own BVCs, or where they are able to undermine the emergence of independent BVCs; this represents a continuation of the institutions, norms and values of the chieftaincy.
- *Second Order Empowerment Learning* - Where BVCs are successfully established by the government or fishery stakeholder groups to the exclusion of

the chiefs, this represents a profound departure from the institutions, norms, values and practices surrounding the chieftaincy.

On the other hand, the success of fisheries co-management must be measured by the extent to which local institutions are able to achieve legitimacy, gain acceptance, and mobilize broadbased support among fisherfolk for their rules and regulations aimed at changing fishing behavior. Based on this objective, the organizational learning framework would be applied as follows:

- *First Order Conservation Learning* - Those communities that are unwilling or unable to establish constraints on fishing activities reflect the continuation of first-order learning processes among stakeholders.
- *Second Order Conservation Learning* - Irrespective of whether chiefs or BVCs are responsible, those communities that effectively establish and gain support for institutions, values and practices that govern individuals' fishing behavior.

Set within the context of resource uncertainty, organizational learning effectively illustrates the unique and shared characteristics that define these case studies' alternate institutional innovations, some of which have been more successful than others in leading to sustainable fisheries management and stakeholder empowerment. While the Yiwemi case study represents a *first-order empowerment learning* process, it is also characterized by *second-order conservation learning*. Here, the existing chieftaincy has addressed ecological threats by establishing a BVC and fishery regulations that have resulted in changes in fishing methods. In contrast, the Dwangwa Fish Sanctuary case study represents both *second-order empowerment learning* and *second order conservation learning*, whereby the government has supported the empowerment of fishery

stakeholders, resulting in conservation outcomes. The Kambindingu Fisheries Association case study similarly represents an attempt to achieve *second-order empowerment and conservation learning* following an ecological crisis. However, *entrenched learning,* in the form of *first order empowerment learning* that arises in resistance to the *second-order empowerment learning*, by certain chiefs continues to threaten the sustainability of both empowerment and conservation outcomes. Finally, the North Rukuru River fishery represents an illustration of how *entrenched learning* (in this case, *first order conservation learning* in resistance to imposed *second order conservation learning*) may successfully resist the imposition of new regulations, while emphasizing that not all crises are due to empowerment learning failures. I conclude by extending my analysis of the roles of key variables and main actors that determined the forms of organizational learning in my case studies to explain the successes or failures in the other Malawian fisheries co-management regimes discussed in Chapter Two.

Analysis of Case Studies

The Self-starters of the Far North – Yiwemi BVC and Co-op (Case Study 2)

During the late 1980s and early 1990s' Village Headman Yiwemi's community perceived a number of growing threats to local fish stocks, livelihoods and security. The central concern was the visible declines in juvenile fish populations near shore, which was blamed on the 1980s growth of beach seine fishing, and fishers' non-observance of the Lake Malawi closed season. In addition to posing threats to fisher livelihoods, these

declines in fish catches were also leading to conflicts among (mostly female) fish traders as they competed to buy scarce fish supplies. In the context of the end of the national autocratic government, there was also a rise of theft among fishers of fish and nets, which was blamed on the increasing mobility of fishers. Additional concerns regarded public health issues near the beach: cholera outbreaks were blamed on poor sanitation due to a lack of public toilets, and spread of malaria-bearing mosquitoes was blamed on habitat provided by vegetation that grew on the beach.

First BVC - 1993 – Consequently, the VH Yiwemi decided to establish a committee of fishing industry leaders and traders (a BVC) that would set regulations to address each of these threats in the following ways:

- Beach seines were losing popularity, but were banned anyway. Working with a community policing committee, the BVC confiscated nets used during the closed season, returning them at the end of the season in exchange for the payment of fines. Any confiscated fish were donated to the local hospital;
- Any fishers appearing with new fishing gears had to show proof of ownership, and inquiries are made with neighboring communities regarding any gears that might have been lost or stolen. Thefts are referred to the chief and local police;
- BVC fish trader members acted as mediators in conflicts between traders.

Second BVC - 1996 – The first BVC had lapsed into inactivity after having addressed the first three issues, and a second committee was elected by fisherfolk to deal with the remaining issues.

- Brush was cleared from the beach;

- A pit latrine was constructed;
- Additionally, this BVC became active in removal of invasive aquatic pests (water hyacinth).

This second BVC took part in the removal of water hyacinths through a District Assembly-administered, UN-funded, "Food-for-Work" program that paid contributors of labor for projects of regional priority with bags of maize. However, when funding for this program ran out, the loss of financial incentives led to a severe decline in BVC activities altogether.

Third BVC - 2001 – By 2001 several new issues of concern were raised by the community regarding interactions with migrant fishers, fish pricing and destructive fishing practices, leading to the election of a third BVC. In particular, migrant fishers (many from Tanzania) were seen as having unfair advantages over local fishers as they had not registered their nets with the government to assure their legality. Additionally, migrant fishers were undercutting local fishers' livelihoods by selling locally-caught fish at prices below those offered by locals, and some outsider traders were able to outbid locals for fish, thereby depriving them from being able to afford fish.

In addition to these issues relating to equity between locals and migrant fisherfolk, there were renewed concerns over the protective measures for juvenile fish stocks. This time, the growing purse seine industry (which replaced the beach seine as the most profitable fishing gear investment) was having a deleterious effect on juvenile fish as fishers targeted river mouths and wetlands during windy days when they couldn't fish in deeper waters. Additionally, the mesh sizes of gillnets used in the area had

declined to a size where fishers using these nets near shore were catching juveniles. The third BVC addressed these problems as follows:

- Migrant fishers were required to register their gillnets with the government;
- BVCs regulated fish prices, fining any fishers or traders that attempted to circumvent the rule;
- Large fines were levied against purse-seine fishers fishing in river mouths or wetlands;
- Small mesh gillnets and traps were banned for use near shore.

Fourth BVC and Co-op – 2005 – A new BVC has been elected, primarily to relieve previous members of duties that seem to have achieved their intended goals. However, recognizing that fishing livelihoods are declining overall, a number of previous BVC members and fish traders established Yiwemi Co-operative to diversify livelihoods away from fishing into collective farming and marketing of produce. They have received significant encouragement from the local Fisheries Department extension worker and starter seeds, livestock and capital from the Evangelical Lutheran Development Program (ELDP), a development NGO.

- During the first growing season, they were reasonably successful in raising a number of new vegetable crops that were tended by the group as a whole;
- Similarly, later that year, they worked as a group to breed guinea fowl and goats loaned to them by the ELDP;
- In 2006, ELDP was so impressed by the dedication of Yiwemi Co-op members, that it planned to start a village banking scheme there.

During the last 15 years, Yiwemi community leaders have responded to a number of trends that were posing threats to local fish stocks, livelihoods, and social harmony (see Figure 5-3).

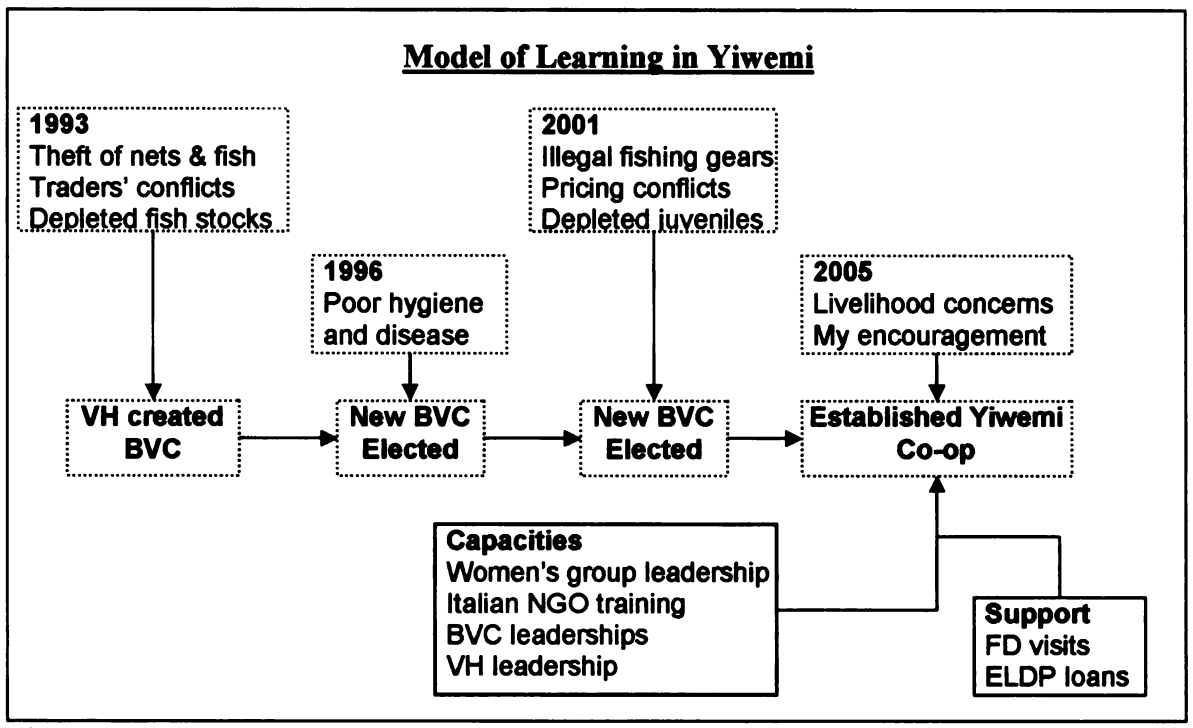


Figure 5-3. Repeated learning cycles in Yiwemi.

Although Chief Yiwemi has never occupied any official leadership role in any of these committees, he is seen by the community as a primary reason for their success as he is the final arbiter in any community disputes. Similarly, while the chief is a simple member of the Yiwemi Co-op, his hard-working example is regarded by the extension workers as the key to the group's success. This co-op also benefits greatly from organizational training that several members had received from a failed NGO-sponsored livelihood diversification program in the early 1990s, and the experience that several co-op members gained from having been on past BVCs and women's credit groups. A sign of the successes of the chief and his leaders in establishing support for these institutional

innovations is the fact that knowledge of, justifications for, and support for, these institutions was almost universal among interviewed community members.

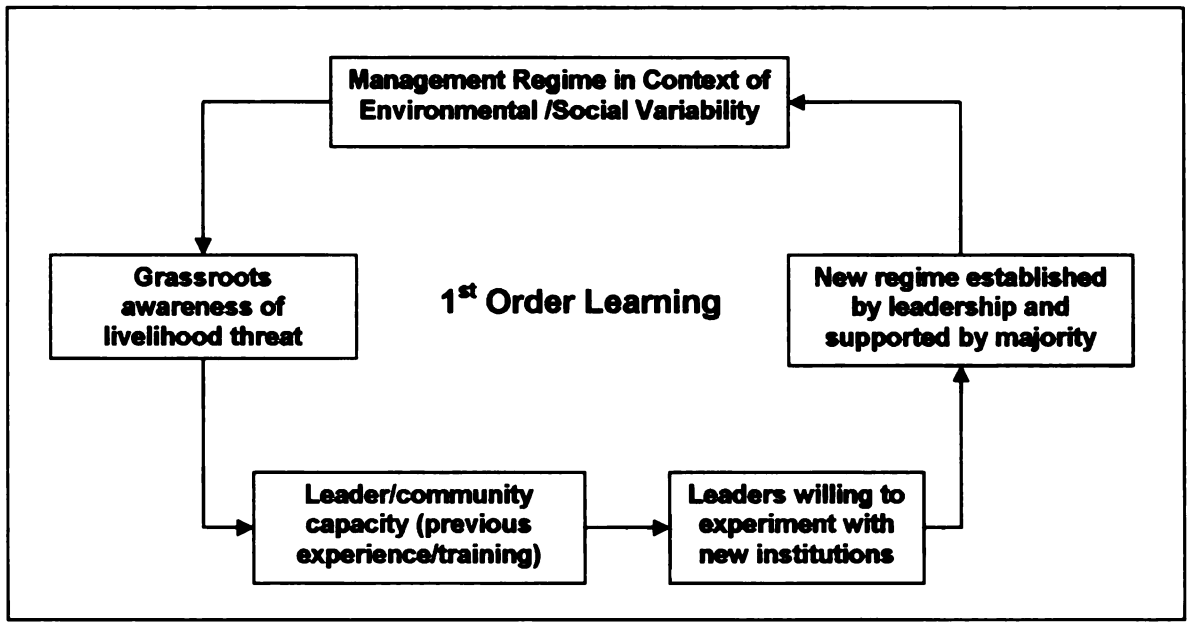


Figure 5-4. Model of First-order Empowerment Learning.

Due to the initiative of this chief in establishing a BVC and the successes of "his" institutions in adapting to new threats and taking advantage of development opportunities, he has strengthened his influence within his community. Therefore, as measured by the government's co-management assumptions regarding empowerment, the fact that the chief maintains such a powerful background role in this co-management scenario means that this case study would reflect *first order empowerment learning*, with each episode being construed as a mere refinement of pre-existing institutions (see Figure 5-4, above). However, this case study has succeeded overwhelmingly in changing fishing methods, fisherfolk interactions, social attitudes regarding the sharing of profits from the fishery, and while there is still concern regarding the long-term fishery outlook, the inshore waters have been repopulated with juvenile fish stocks. Therefore Yiwemi BVC can be said to have achieved *second order conservation learning* outcomes.

This case study must be regarded as a rebuttal of the governments' assumption that chiefs are necessarily poor facilitators of community empowerment. Rather than simply being a continuation of pre-existing institutions and norms associated with the chieftaincy, this chief has helped to create a supportive environment for the growth of a whole cadre of community leaders, resulting in a community development program that extends well beyond the immediate arena of fisheries management. Suffice it to say that this case study would indicate that the government and donor agencies assessments of the "correct" empowerment process to achieve conservation outcome needs to give greater recognition to roles that chiefs play in legitimizing new institutions. First of all, the government and donor agencies need to recognize that effective chiefs are not autocratic rulers. Indeed the formal powers of the chief are only as significant as his/her ability to effectively achieve social consensus within his/her community on the relative benefits of any newly proposed institutions. This was illustrated in a variety of contexts during colonialism, when chiefs were unable to implement governmental conservation and fisheries regulations that were primarily seen to benefit the government and the chiefs. Additionally, in the current case study, the power of the constituents to hold the chief accountable for his ability to maintain social harmony and welfare was illustrated by the community's unwillingness to participate in any community development activity until the chief dealt with their concerns over witch-craft in the community (see Figure 4-2 in Chapter 4).

Crisis Transformation - Dwangwa Fish Sanctuary (Case Study 3)

From the 1970s to the early 1990s, fishers had been embroiled in a simmering conflict with the sugar cane estate over access to fishing beaches along the estate shoreline, an area that is also a highly productive fish breeding area. Throughout the years of autocracy, the estate was primarily concerned with limiting potential sources of theft and conflict with estate workers, and had been supported by the government in regularly chasing away all squatting fisherfolk from the beaches. This conflict was exacerbated by increased fishing effort (in particular beach seines) that was causing declines in fish catch trends in other nearby areas, and which made the bounty of the estate shoreline all the more appealing to fishers. Then in the 1990's, the government transition to democracy and a change of ownership of the sugar cane estate led some senior company staff members who were involved with WESM[332], a local conservation NGO, to propose a novel solution to the conflict. The main stakeholders involved, and their respective priorities were:

- **Sugar cane company** – to limit fisherfolk presence on boundaries of the estate to prevent theft and conflicts;
- **Fisherfolk** – to secure access to beaches along sugar case estate shoreline from which to conduct fishing and trading operations, protect fish stocks from over-depletion;
- **NGO** – to conserve fish stocks; address animosity between estate and fisherfolk;
- **Fisheries Department** – to conserve fish stocks, and support fishers in achieving

[332] Wildlife and Environmental Society of Malawi – Dwangwa Branch

participatory fishery management institutions.

The solution to their common problem was to establish a 12km sanctuary which all fisherfolk would vacate, while allowing them to establish two temporary communities, one at each end of the sanctuary. In each community, a BVC would be established and trained in fisheries conservation and the Fisheries Department would assist the communities to successfully apply for a grant to buy a motorized patrol boat with which they would patrol the sanctuary to ensure that no fishing took place there.

A key champion of this transition was Mr. Mac Mtandizu, a senior manager in Illovo who effectively established the Dwangwa Branch of WESM. Within the fisher communities, key leadership role were played by fishing industry leaders from the settlements of Nkhono and Matiki, with the Chairman of Nkhono BVC, Mr. Wotsogola as the overall leader. Following the establishment of the sanctuary, however, the significant role played by Mr. Wotsogola created some friction with chiefs and Matiki BVC leaders who resent the personal financial benefits and prestige that he gained in doing so. The most significant source of friction revolved around Mr.Wotsogola's stewardship of a motorized sanctuary patrol boat donated by the COMPASS project. While this internal struggle led to the Matiki BVC leadership withholding their enforcement support of the sanctuary, and indeed, harboring of known poachers, Nkhono BVC, under Mr. Wotsogola's leadership has been able to keep most poachers away from the sanctuary simply due to the patrol boat's advantage of speed over poachers hand-powered boats. Overall, despite these tensions, the visible wealth that has accrued to both communities during the last few years as a result of the bountiful fishing catches

around the sanctuary's margins means that there is widespread support for the maintenance of the sanctuary.

During 2004-05, two new events have taken place that may have uncertain effects on the sustainability of the sanctuary. First of all, the tension between Matiki and Nkhono leaderships has recently diminished as severe erosion of the Matiki beach has forced its members to relocate to Nkhono and another nearby community (Nyavuu). It remains to be seen to which community the Matiki BVC leadership will relocate and what role they will play in supporting or resisting Nkhono BVC's protection of the sanctuary. At the same time however, Mr. Wotsogola has relocated his primary home to Ngala village, and is increasingly responsible for enforcing the closed season in the Kambindingu Lagoon, thereby diminishing his presence in and enforcement of the sanctuary.

In this case study, the conservation objectives of creating a sanctuary, introducing fishing regulations in the adjoining lakeshore areas, and bringing about a recovery in fish stocks have been overwhelmingly realized, and one might justifiably judge this case study to represent *second order conservation learning*. Additionally, as Nkhono BVCs has established itself as an effective fisheries management institution independent of any traditional leadership or the sugar cane company, based on the government and donor agency framework, we could also describe this case study as a *second order empowerment learning* success (see Figure 5-5, below). This conclusion would be further supported by noting the great wealth that has accumulated to both fisherfolk communities, and the NGO support that these communities have been able to attract for micro credit and water borehole programs.

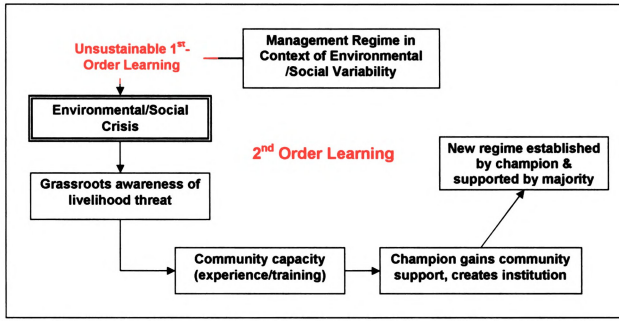


Figure 5-5. Second order empowerment learning in the Dwangwa Fish Sanctuary.

However, as with the Yiwemi case study, I would argue that this conclusion is premature. While the Nkhono BVC was reasonably successful in the first years due to its technological advantage over poachers, its long-term sustainability, given Mr. Wotsogola's absence will require the election and empowerment of a new BVC at Nkhono, possibly giving the former Matiki BVC leaders an opportunity to share this leadership role. This BVC will also require the presence of the patrol boat to affect the enforcement of the sanctuary, and it remains to be seen how such a BVC would negotiate gaining ownership of this boat given the leadership and enforcement roles that Mr. Wotsogola now plays in the Kambindingu Fisheries Association (partly due to his use of this same patrol boat for patrols in the Kambindingu Lagoon). Failing this, the conservation successes could begin to be eroded, and if this resulted in significant encroachment by fishers along Illovo 's shoreline, one can easily imagine a scenario in which Illovo felt a need to revert to its legally-supported basis for ejecting fisherfolk from the shoreline altogether, thereby nullifying any role played by BVCs.

Kambindingu Lagoon Closed Season (Case Study 4)

Fishing effort in the Kambindingu Lagoon, a highly productive fish breeding area, increased sharply in the 1980-90's, leading to declining fish catches in the late 1990s, and a complete collapse of the fishery in 2000. Due to the Traditional Authority's observation of the successful establishment of the Dwangwa Fish Sanctuary (DFS-Case Study 3) a year earlier, he decided, in consultation with local fisherfolk and chiefs, to establish a half-year closed season in the lagoon and set restrictions on the types of fishing gears that could be used in the lagoon (in particular banning the use of beach seines and small-meshed gillnets that were destructive of juvenile fish stocks). The NGO that had been pivotal in providing training for BVCs in the DFS provided similar training for the establishment of elected BVCs in all communities around the lagoon. For a year, the extended closed season was widely supported, and these BVCs became members of a coordinating body, the Kambindingu Fisheries Association.

However, divisions soon emerged as chiefs in the lagoon-dependent communities (Dema and Banga) perceived an inequitable distribution of power within the Fisheries Association in favor of the BVCs, and in favor of those chiefs who lived in communities with easier access to lakeshore fish stocks (Ngala, Likuchi). Additionally, divisions emerged between individual chiefs and their respective BVCs, as these organizations became the primary foci of visits by fishers, and NGO and government agency personnel, through which the BVC members benefited (and chiefs lost) both in terms of prestige and income. During the following years, these sources of resentment and jealousy gave rise to a variety of symptoms of entrenched learning. These included withholding support for

regulation enforcement activities and cynicism over the regulations' successes, out-right denials of having ever consented to the establishment of regulations, active poaching during the closed season using illegal fishing gears, and physical threats against enforcers of regulations. These conflicts occurred between stakeholders at a variety of levels, including:

- **Within communities** – Membership in, and leadership over, BVCs has become highly contested as these positions may provide them with prestige and economic benefits, including paid invitations to attend workshops and training sessions, and the ability to demand bribes from poachers.
- In several communities, different groups have attempted to establish rival BVCs within a single community in the hopes of attracting benefits to their members.
- Following his loss in the election of the Banga BVC chairmanship, the rival candidate resented the Chairman's enthusiasm for enforcing regulations, and through a slandering campaign convinced the local chief to remove the BVC Chairman from his position. Since then this BVC has become known for corruption and poaching activities.
- **Between chiefs** – the group village headman of the lagoon-side communities resented the awarding of the position of Fisheries Association chairman by the Traditional Authority to the group village headman of the lakeshore communities, and this chief feels excluded from the process.
- **Between communities** – Community leaders from lakeshore and lagoon shore communities accuse fishers from the other communities of poaching, and accuse

their respective counterpart BVCs of selectively enforcing regulations. An example of this is fishers from Dema who accuse BVCs members from Ngala and Likuchi of selective enforcement of regulations, while allowing their own fishers to continue poaching.

- **Between chiefs and BVCs** – Chiefs may feel a loss of influence and income due to the rise of BVCs and therefore try to undermine their activities. For example, after Ngala BVC had forbidden the use of two harmful fishing gears that new arrivals were introducing from southern Malawi, the Ngala village chief granted the incoming fishers permission to live and fish from his community in return for gifts of fish.

However, some of the most emotional conflicts revolve around the role played by the vice-Chairman of the Fisheries Association (Mr. Wotsogola), who was also chairman of Nkhono BVC, and therefore the steward of the motorized patrol boat. In addition to Mr. Wotsogola's visible leadership in conducting patrols, for a number of reasons of convenience discussed in chapter 4, many outsiders direct their requests and visits to Mr. Wotsogola rather than the GVH (appointed Chairman of the Fisheries Association by the Traditional Authority). Consequently, Mr. Wotsogola benefits from his interactions with outsiders in a variety of ways, and his prestige has become a self-reinforcing cycle as other BVC chairmen regularly visit with Mr. Wotsogola in the hope of gaining access to governmental or NGO-funded community or fisheries development programs. The GVH's resentment of Mr. Wotsogola's growing prestige (probably reinforced by his visible business acumen) has led the GVH to undermine Mr. Wotsogola's activities within the Fisheries Association in a number of ways:

- In an effort to bridge the conflict between lakeshore and lagoon shore communities, the FD had organized a meeting of all chiefs and BVCs around the lagoon. However, because the FD had asked Mr. Wotsogola to invite the GVH rather than visiting and inviting him personally, the GVH refused to attend the meeting.
- More alarmingly, on one occasion, when poachers arrived to claim confiscated nets, the GVH denied having given his support for the enforcement patrol and directed the poachers to seek out Mr. Wotsogola at his home, abandoning him to face their anger alone. In the ensuing confrontation, one of the poachers threatened to kill Mr. Wotsogola if he insisted on demanding payment of the stipulated fine, and lacking the support of the GVH or other BVC chairmen, Mr. Wotsogola was forced to release all fishing gears in exchange for relatively insignificant fines.

Throughout 2001-2004, the Fisheries Association and its BVCs had mixed success in enforcing regulations. However, in 2004, the Fisheries Association conducted a number of sensitization meetings around the lagoon, during which several BVCs held new elections, and with the encouragement of Mr. Wotsogola, two more distant communities (Dwasulu and Dwambazi) formed BVCs and joined the Kambindingu Fisheries Association. A watershed moment occurred when these new BVCs conducted patrols during the lagoon and lakeshore closed seasons, at which point the communities, BVCs and chiefs around the lagoon realized that their intransigence would only benefit the outsider BVCs who pocketed all fines levied during their patrols. Soon after these patrols were conducted, the KFA held a meeting to which all BVC chairmen and Chiefs

were invited and at which they resolved many of the sources of conflict and jealousy between them.

In this case study, I observed a number of different learning processes taking place at different scales and among different stakeholder groups. At both the community and Association levels, fishery leaders have attempted to replace the inadequate leadership of the traditional leaders with stakeholder driven institutions, however, their levels of success differed greatly. At the community level, most traditional leaders displayed severe entrenched learning processes as they came to realize the amount of influence that the BVCs were gaining. Additionally, leaders, chiefs and the Group Village Headman of the lagoon-shore communities resented the disproportionate influence and benefits accruing to the lakeshore communities. Finally, the GVH in charge of the Association has come to resist many of the KFA activities due to the growing importance of his vice-chairman, Mr. Wotsogola.

The traditional leaders in the KFA have, on the whole, proven highly resistant to the establishment of empowered and effective BVCs, and this has led to mixed successes for BVCs in their enforcement of new fishing regulations. The primary motivators of empowerment learning have been local "champions", represented by some active BVC chairmen, and the KFA vice-chairman, Mr. Wotsogola, in particular. These champions could not, however, have succeeded without the legitimation of WESM, COMPASS[333], and the Fisheries Department, who have sponsored and facilitated a series of workshops aimed at providing the KFA with a legal constitution. Additionally, some of the resistance to the KFA ended with the enforcement interventions of two new BVCs'

[333] Community Partnerships for Sustainable Resource Management in Malawi, and USAID-funded project.

(Dwasulu, Dwambazi) in 2004, and the planned establishment of sanctuaries by Dwasulu and Nyavuu BVCs in 2005, both of which may have caused the original KFA BVCs to put aside some of their internal rivalries for fear of losing NGO/governmental support to these new BVCs. This complex series of events is illustrated in the Figure 5-6, below.

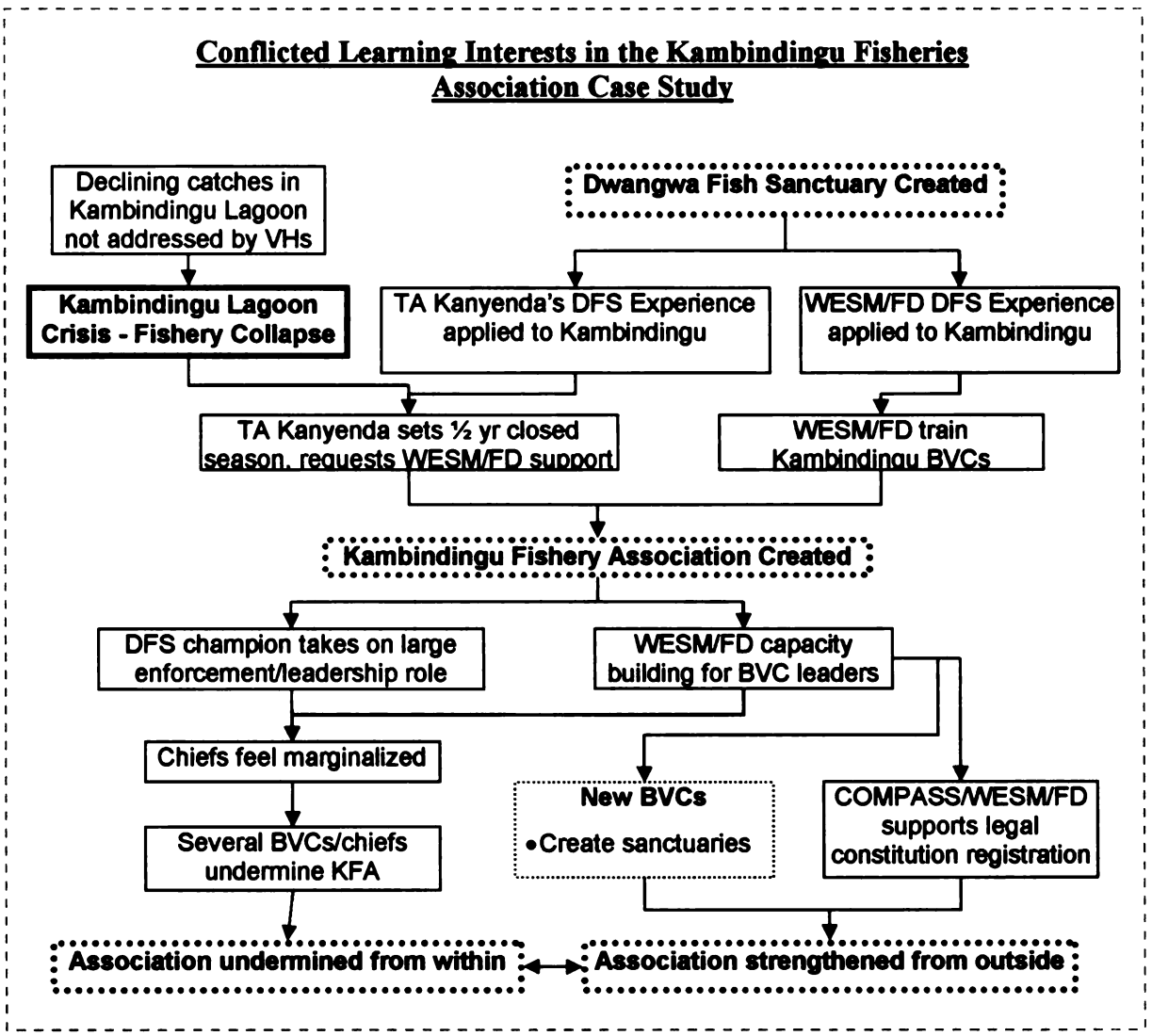


Figure 5-6. Conflicted Learning Interests in the Kambindingu Fisheries Association Case Study

In the KFA case study, the existing chiefs at several levels have *resisted second-order empowerment learning* processes through their own *entrenched learning* processes despite the government and NGO attempts to legitimize the BVCs. Therefore, *second-*

order conservation learning similarly remains only partly realized as *entrenched learning* by chiefs provides sufficient institutional ambiguity to allow a significant amount of poaching to occur. It remains to be seen to what degree the activities of the new BVCs and the revised KFA rules succeed in overcoming the conflicts between chiefs and BVCs, and between lakeshore and lagoon-shore communities. This will result in either first order or second order institutional and conservation learning at the KFA level (see Figure 5-7, below).

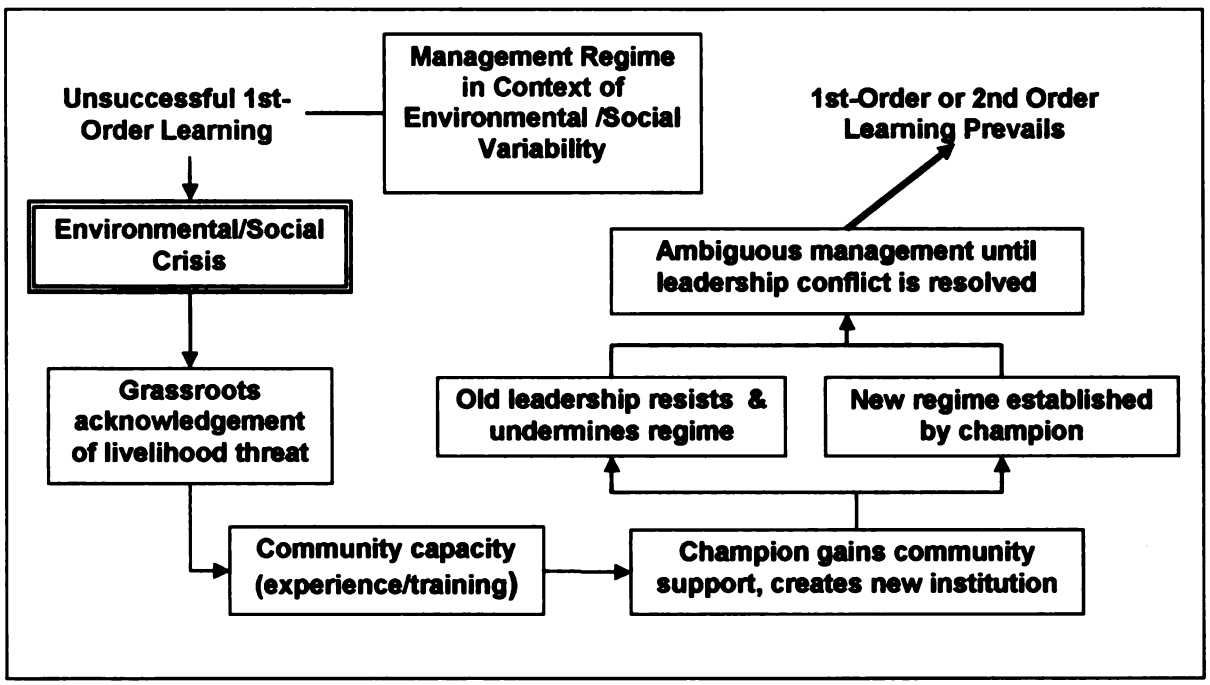


Figure 5-7. Unresolved Second order Empowerment Learning cycle.

A key determinant of whether the KFA (and its incorporated DFS) regulations become the accepted institutions remains to be seen once the KFA receives its official governmental charter. Most significantly, the constitution will require BVCs and the KFA to hold regular elections, and if the representatives chosen reflect a popular desire for enforcement of the KFA regulations, then some of the leadership rivalries may disappear (i.e., achieving both second order empowerment learning and second order

conservation learning). As part of this process, the roles of Mr. Wotsogola, his role as Nkhono BVC chairman in absentia, and his stewardship of the Nkhono BVC boat need to be clarified, and made transparent. Overall, a majority of fisherfolk are supportive of maintaining some form of closed season in the Kambindingu Lagoon, but second order conservation learning will not be achieved until chiefs, BVCs, and Mr.Wotsogola allow their roles to be validated by the institutional bricolage needed to bring about institutional legitimacy and thereby second order empowerment learning.

Traditional River Fisheries Management in the North Rukuru River (Case Study 1)

Given that the establishment of traditional river fishing institutions on the N. Rukuru River occurred at least 100 years ago, I have no first hand information regarding the process through which it came about, and rely entirely on stakeholders' perceptions of these institutions today. However, the assumption that these fishing institutions were established to avoid conflicts between the stakeholder communities is plausible, especially given the historical account of a conflict between chiefs over river fishing rights along another river. As access to most other resources was established by the military power and alliances of individual chiefs, this system of shared access might seem like an example of second-order empowerment learning if it wasn't for the fact that those chiefs who today share access rights to the fishing grounds are allied through a common ancestry. Consequently, this case, reflecting evidence from other river fishing institutions in Malawi, indicates that access to these river fishing grounds was a simple extension of chiefs' political powers, and any sharing which occurred was done in order to cement local power structures, and amounts to simple *first order empowerment learning*. From

the current sources, there is no indication that there was any purposeful conservation intent in the timing or method of fishing weir construction, and therefore it is a moot point to discuss conservation organizational learning at the time of the river fishing weir institution inception.

Since then the only significant changes to these river fishing institutions were the colonial regulations (subsequently adopted by post-independence governments) which stipulated that all fishing weirs should leave a 5% gap in the middle of the barriers to allow a certain proportion of adult fish to pass upstream unharmed. However, since the colonial period, there is evidence that this regulation never attained the status of accepted institution and fishing weirs continued to block the entire width of the river in 2005. This regulation was established as a reflection of colonialists' Eurocentric distaste for any form of hunting and fishing that wasn't "sporting" (i.e., didn't allow the prey a chance to evade capture), and an ignorance regarding the actual impact of these fishing weirs (discussed at length in chapter 2). Realistically, the timing of the construction of these fishing weirs, which occurs after the end of the main rainy season, should allow enough adult fish to pass upstream to reproduce, and the reed/bamboo mesh of the weirs should allow enough offspring to arrive in the lake to repopulate the stock. Given that this regulation was established based on one colonial officer's concern for the plight of *chambo* migrating from Lake Malawi into the Shire River at a time of low lake levels (see Chapter 2 for further explanation), this institution made little sense of potamodromous fish (in particular, *mpasa* and *sanjika*) migrations up the North Rukuru River that did not suffer from low water levels. Therefore, while this regulation may have been intended to establish a greater conservation awareness and therefore could

have been regarded as an attempt to bring about second-order conservation learning, it failed to achieve institutional legitimacy and entrenched first order conservation learning prevailed.

A more serious disruption to these institutions has evolved since the 1970s, in the form of declining fish stocks, that have made the amount of effort expended on the construction of fishing weirs unattractive to a younger generation of fishers, and thereby caused an overall decline in institutional relevance among fishers. Some scientists have blamed declining potamodromous fish species, such as the *mpasa* and *sanjika,* on the fishing weirs, and have criticized the Traditional Authorities poor observance or enforcement of the gap-rule. The persistence of the traditional fishing weir institutions may be regarded as successful *entrenched empowerment learning* against the government's attempted imposition of the gap-rule.

However, while the river fishery does face some pressure from the few remaining fishing weirs, the primary culprit for fish stock declines is more likely the siltation of fish spawning beds in the river's tributaries due to widespread deforestation and erosion of the watershed. As these activities fall well outside the jurisdiction and influence of the TA's authority, the fishing weir institutions cannot reasonably be blamed for the declines of the fish stocks, and therefore *this case study does not imply any conservation learning conflicts.* This case study also illustrates the importance of scale when linking the effects of organizational learning processes to ecological resilience.

Common Elements in the Organizational Learning Process

Catalytic uncertainties and crises. In each case study discussed above, as well as in the contexts of L. Malombe, L. Chiuta, L. Chilwa, Chia Lagoon, Mbenji Island, and Lake Malawi NP, the threatened disruption of livelihoods and access to particular fish stocks, or their collapse altogether was a key catalyst in bringing about support for a change in institutions regulating the fishery. The most obvious form of uncertainty for fishers is that of declining fish catches, which is generally due to an unsustainable overall growth in fishing effort and the growth of particularly harmful fishing methods, such as beach seines (which may be highly disruptive of fish breeding grounds and capture large numbers of juvenile fish). In almost all such contexts, fishers have called for bans on specific fishing gears (the use of beach seines in Yiwemi), and in some cases they have banned fishing altogether in fish breeding areas (DFS) or during fish breeding seasons (KFA, Mbenji Island).

Aside from declining fish stocks themselves, fishers have also mobilized to resist the enclosures of fish stocks by such actions as the privatization of lakeshore (DFS), or the establishment of national parks (Lake Malawi NP, Nkhotakota Wildlife Refuge). In these particular cases, the resulting institutionalized behaviors were regarded by authorities as 'poaching' or 'squatting', although their persistent resistance to imposed institutions have at times led to revisions of regulations in favor of fishers (through the establishment of the DFS, and the Lake Malawi NP Village Trusts). Similarly, claims of ownership over fish stocks led to the same illegal institutionalized behaviors among fishers when the Banda government tried to enforce fishing regulations. Ironically, since the start of participatory fisheries management in Malawi, most fishers along Lakes

Malawi and Malombe have rejected the government's language of shared ownership and responsibility over the fisheries because the FD extension and chiefs' efforts to monopolize the membership and objectives of BVCs exposed the minimal degree of ownership actually being offered.

At a less obvious level, a number of other factors are contributing to the uncertainty posed by fish stock declines to stimulate stakeholders' perceived need to establish new regulations. These include an awareness of overall environmental degradation (erosion, soil fertility), perceptions of declining social norms and security, and the declining abilities of people to maintain standards of living amidst the unpredictable but growing costs of poor agricultural harvests, family members living with HIV/AIDS, and the ever-increasing costs of school fees, fuel, and necessities. Therefore, some fishing communities have taken action, not only against the immediate problems of declining fish stocks, but also to address social issues of theft (Yiwemi, Mwenibabu), drunkenness/conflicts (Yiwemi, Mwenibabu, Mbenji Island), and equity among stakeholders (Yiwemi, Mwenibabu).

Recognizing the need for change. In most fishing communities surrounding Lake Malawi described thus far, traditional chiefs have been unable or unwilling to address the growth of ecological and social threats associated with fishery declines. In a few cases, where livelihood or ecological uncertainties developed into crises, this lack of leadership enabled empowered stakeholder-driven BVCs to take over many roles traditionally played by chiefs, thereby achieving second order empowerment learning (DFS, KFA, L.Chiuta, and possibly Chia Lagoon). In the DFS, KFA, and L.Chiuta case studies, this

empowerment has also resulted in second order conservation learning, although in the cases of the DFS and KFA, with ongoing questions regarding the long-term sustainability of both empowerment and conservation learning objectives.

In contrast, several chiefs have recognized the need for new regulations and institutions to address a variety of social, economic and ecological threats, and their leadership status has been strengthened by these innovations, i.e., first order empowerment learning (Yiwemi, Mwenibabu, Songwe, Mbenji Island, and possibly Chembe Village Trust in Lake Malawi NP and the N.Rukuru River afforestation initiative). In all of these cases, a variety of social and economic outcomes were gained for constituent communities, and in the cases of Yiwemi, Mwenibabu and Mbenji Island, second order conservation learning outcomes were achieved as well. However, the majority of Malawian fishing communities seem both unwilling to pursue second order empowerment processes, and unable to achieve second-order conservation learning outcomes. Both the facilitating factors and resistance to empowerment or conservation require further exploration.

Impacts of the Traditional Leadership While most commercially valuable near-shore fish stocks throughout Malawi are quite obviously under threat, most traditional leaders have not shown a combined ability and willingness to address this livelihood concern through the establishment of conservation institutions. Worse still, in all studied contexts where BVCs have been introduced but are failing to achieve conservation outcomes, one of the key factors limiting the empowerment process has been the entrenched learning through action or purposeful inaction of strong institutional rivals (i.e chiefs,

governmental representatives and political elites). In a variety of ways, they resist institutional innovations that threaten the status quo distribution of power, incomes, and resources, or their participation is motivated by self-interest which undermines the empowerment of the BVCs involved (L. Chiuta, L. Malombe, L. Chilwa, Chia Lagoon, Lake Malawi NP Village Trusts).

This is even the case where poor traditional leadership has resulted in livelihood crises that brought about the establishment of BVCs. As the KFA case study illustrates, a crisis-based institutional vacuum is not a permanent condition, and once the full extent of the threats to preexisting power-brokers, and the exact distribution to resources and power among the new leadership becomes apparent, internal divisions may quickly emerge enabling chiefs (or other institutions) that had lost importance to once again gain support. These divisions may reflect genuine concerns over inequitable distributions of burdens and benefits (KFA: between the lagoon-shore and lake-shore communities, and between Mr.Wotsogola and GVH Wakunyanja; DFS: between Nkhono and Matiki BVCs), but these may also be created and used by rival leaders (KFA: GVH Wakuntunda against GVH Wakunyanja; Lake Chiuta chiefs against BVCs) for personal gain.

However, in most cases where second order conservation learning has occurred (with the notable exception of Lake Chiuta) the active support of chiefs has been a key to success in legitimizing new BVC regulations. In addition, while not recognized by the dichotomy established by the government co-management program's assumptions, in some cases chiefs may be seen as highly empowering influences for fisheries stakeholders. The Yiwemi case study, in particular, illustrates how the chief's leadership has provided legitimacy and support for the training and empowerment of several BVC

leaderships, which has subsequently given rise to the Yiwemi Co-op. It is less clear to what extent fisheries stakeholders are genuinely empowered at Songwe, Mwenibabu, and Mbenji Island, or whether they simply act as appointed representatives of their respective chiefs. Overall, however, these cases show that chiefs are not inherently inept, corrupt or always motivated by self interest. They may instead participate in fisheries conservation institutions for the benefit of their communities and the sustainability of the fish stocks and may indeed strengthen their positions and influence in their communities due to their leadership in addressing conservation issues (Yiwemi, Mbenji Island, Songwe and Mwenibabu).

Regardless, both the positive and negative roles that have been shown to be played by chiefs in facilitating and limiting empowerment and conservation outcomes indicate the continued importance of traditional leaders in rural Malawi and the need to actively engage with them in the establishment and support of BVCs. Recognizing that BVCs will always have a certain dependence on chiefs as the final local arbiters in conflicts between fisherfolk, and in the BVCs' attempts to enforce regulations, these empowerment conflicts may be lessened or avoided if the chiefs are encouraged to participate in the discussion of particular regulations, and if the institution of their traditional office is shown simple respect. However, even where the chiefs do not take the lead or where they resent the leadership of BVCs (i.e., GVH Wakunyanja in the KFA case study), a successful approach to maintaining their support (without giving them too much power) has taken the form of giving them ceremonial titles (such as the "patron" titles given to chiefs in Lake Malawi NP Village Trusts).

The Roles of BVCs and Champions. While we have limited data on the specific roles of non-traditional leaders (champions) in isolation from the activities of their respective BVCs, there are indications that most BVCs act as support groups for dominant fishing industry leaders rather than as representatives of a wide range of stakeholder needs. This is reflected in Donda's (2000) description of how co-management at L. Chiuta was initiated by a single fisher in response to the village chief and Traditional Authority's unwillingness to address the threats posed by the migrant seine fishers. Similarly, we note the dominant leadership role played by Mr. Wotsogola in the DFS and KFA case studies. Beyond the leading roles played by BVC chairmen, however, and despite the fact that BVCs are made up of 10 individuals, most BVC initiatives in the DFS, KFA and L. Chiuta have been the result of a maximum of 1-4 individuals' leadership. In Mwenibabu BVC, after having initially established a 10 member BVC, during the second iteration, the chief decided instead to allocate two individuals each to addressing three specific tasks.

This over-dependence on a single or few individuals to lead all BVC activities has also resulted in the limited abilities or motivation of these institutions to continue operations when their leaders are absent (ex. Nkhono BVC, Kalambo BVC in Karonga). Given that one objective of the establishment of BVCs was to promote stakeholder empowerment and legitimization of local institutions, fisheries co-management regimes have, therefore, not yet achieved this goal in most documented cases in Malawi. Instead we must recognize that we may simply be replacing one form of centralized local institution (the chief) with another (the fishing industry leader). In the case of the DFS and KFA, many positive results have come from the almost solitary leadership provided

by Mr. Wotsogola, however, as is the case with chiefs, given an absence of balancing powers and oversight from their BVCs and communities, even BVC champions may become vulnerable to weaknesses of corruption and nepotism. This potential for corruption is heightened by the fact that many BVCs give their constituents few or no opportunities for input into the crafting of institutions, and show little transparency regarding the collection and use of money taken in fines.

Capacity-building and Legitimization by External Supporters. In these case studies, a number of external sources of support have proven extremely valuable to the successes of new institutions and organizations. In most cases where second order conservation learning occurred without second order empowerment learning (Yiwemi, Mwenibabu, Songwe, Mbenji Island, N.Rukuru River afforestation initiative) most of the conservation learning success was achieved with little contemporary NGO and government support. It is interesting to note, however, that several of these initiatives had received extension support from some past, capacity-building or training programs (Yiwemi Coop: Italian NGO Co-op training in the early 1990's; Mwenibabu: fisheries extension support for BVC in late 1990s; N.Rukuru Reafforestation: discontinued DANIDA watershed management program). Additionally, Yiwemi Co-op (at Yiwemi) gained crucial financial support due to networking opportunities provided first by me, followed by that of the local Fisheries Department extension worker, who successfully lobbied the ELDP to extend their loans program (of seeds, livestock, gardening materials, and soon a village banking infrastructure) to this community.

With the noteworthy exception of Lake Chiuta, all case studies that achieved both second order empowerment and conservation learning outcomes were highly dependent on external support and legitimization. In the DFS case study, the initial motivations for establishing the sanctuary came through Illovo's interaction with a national environmental NGO – WESM (particularly through the leadership of the WESM-Dwangwa chairman, Mr. Mtandizu), and the fishers' interactions with WESM and the local Fisheries Department extension worker. Subsequently, the establishment of the BVCs was facilitated (logistically and financially) by the Illovo and WESM-funded training programs, and the FD-supported proposal to the USAID-funded COMPASS program for a patrol boat. The BVCs likely also benefit from the fact that they are the organizations that brokered the agreement with Illovo allowing fisherfolk to use the beaches, and as long as WESM and Illovo recognize the BVCs, no other institution has any comparable claim to legitimacy in these communities.

Based on their experiences in establishing the DFS, WESM (again, headed by Mr. Mtandizu), FD, and Mr. Wotsogola (from the leadership of the DFS) were able to promote a similarly novel management institution for the KFA after the lagoon fishery collapsed. The initiative to establish a half-year closed season in the Kambindingu Lagoon came from TA Kanyenda, who played a role in building fishers' consensus for the establishment of the DFS, and whose customary ownership of the area gives the KFA legitimacy. Illovo and WESM embraced the notion of helping the communities around the KFA to improve livelihoods and conserve fish stocks based on their positive experience with the DFS, and provided initial financial and logistical support for BVC training activities. The FD provided the nascent KFA and its leaders with official

governmental sanction through its public support during stakeholder meetings, its hosting of BVC leadership educational visits, and the government's impending registration of the KFA constitution. In a small way, my regular discussions with KFA leaders and observation of its activities have also tangibly contributed to the KFA leadership's legitimacy. These sources of knowledge and leadership transfers from the DFS to the KFA, and the ongoing support of the KFA are shown in Figure 5-8, below.

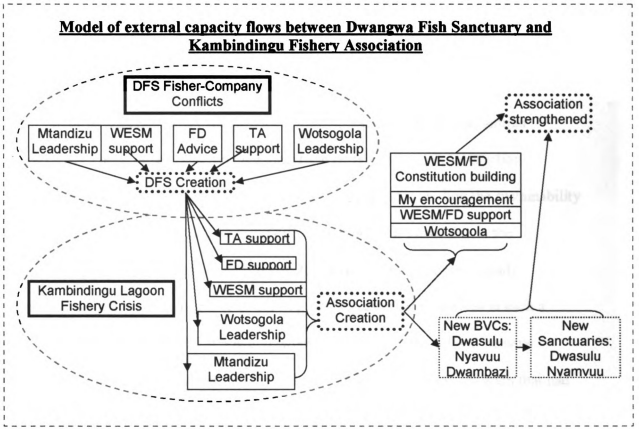


Figure 5-8. Model of external capacity flows between Dwangwa Fish Sanctuary and Kambindingu Fishery Association.

Similar support for training and the drawing up of management plans and constitutions in Lakes Chilwa, Chiuta, and Malombe were provided by the Fisheries Department. However, this raises the issue of the negative effects that such support can have on local institutions. In a number of cases (Lake Malombe, southern Lake Malawi,

Lake Chilwa), the FD and GTZ-sponsored NARMAP program's "support" of the formation of BVCs was largely to blame for their failures. In these cases (discussed extensively in Chapter 2), the politicized allocation of financial incentives provided for participation in BVCs (or even just the anticipated access to these incentives) severely undermined these institutions' abilities to gain legitimacy. Additionally, in their guidance of the establishment of BVCs and fisheries management plans in these water bodies, the FD and its donor agency supporters have tended to adopt blue-print approaches that inadequately address the needs and priorities of local stakeholders, and that make little real effort to empower them.

In other contexts, while not provided with the intent to undermine, similar concerns have been raised regarding the long-term sustainability of conservation outcomes if incentives are provided. Concern has been raised regarding the sustainability of the second order conservation learning outcomes at Mbenji Island due to the government's and NGOs' provision of lavish financial incentives to this already successful institution. The negative effect of providing external incentives in such a context was illustrated in 2000 at Yiwemi, when the second Yiwemi BVC became dormant after the funding ran out for a short-lived UN Work-for-Food program that had paid BVC members to remove invasive aquatic plants. The provision of small incentives for participation by NGOs and donor agency projects (ranging from the small - provision of food, refreshments, and t-shirts, to the provision of sitting allowances and loans) has become a significant source of frustration for many FD field staff who report that their communities have become entirely unwilling to participate in any development or

resource management activities due to their growing expectation of incentives for which the government field staff have no budget.

Overview of the Roles of the Fisheries Department. Throughout Malawi the primary constructive role played by the FD has been to disseminate information to fishing communities regarding institutional innovations that traditional or BVC leaders might make to address local threats. They have also provided important capacity building opportunities by hosting exchange visits and by training BVC members in their tasks. Additionally, where they have provided legitimacy to BVCs, this may have helped some BVCs to establish their credibility in the communities, and at times their mediation between different BVCs has helped local stakeholders to overcome rivalries.

Where co-management has failed most glaringly, a significant contributory factor has been the FD's reluctance to place the priorities of the communities over those of the elites, resulting in their imposition of regulations and frameworks without seeking or incorporating meaningful dialogue with stakeholders. Inversely, the FD may also have contributed to entrenched learning among chiefs in other areas due to their neglect of these important stakeholders in the sensitization and BVC formation process. While providing public legitimacy to BVCs is important for the operation of these groups, the FD's continued legitimization of a majority of ineffective, undemocratic BVCs around Lake Malawi may be doing more harm than good. As many of these ineffective BVCs (that are dominated by the chiefs and elites) occupy the official roles as fisheries management institutions, it becomes all the more difficult for other stakeholders to mobilize community support for second-order conservation learning. Additionally, by

allowing these elites to claim stewardship over the resources despite their own support of illegal fishing activities, other local stakeholders are shown the limited extent to which the government is really interested in empowering them.

A final crucial role that can only played by the FD is to facilitate the registration of all Fishing Associations, as is provided for under the 1999 Fisheries Conservation and Management Regulations. Despite the fact that the legal basis for registration is codified in law, currently no BVC or Fisheries Association in Malawi has this legal identity, placing BVCs' successes at the mercy of the charismatic leadership skills of champions or chiefs. Without this documentation of their legal basis to enforce fisheries regulations as well as the supporting materials such as BVCs' licensing forms, BVCs are at risk of having their enforcement activities challenged on the water and the in courts. An additional concern relates to the sustainability of BVCs that may currently be successful due to the presence of strong leaders, but which lacking a legal framework, may collapse following a leader's departure, sickness or death (which are real risks for the DFS, Mwenibabu BVC, and N.Rukuru River afforestation program).

Overview of the Roles of NGOs. NGOs may play a useful role as long as their efforts are supportive of the FD field staff and the District Assemblies to whom these staff are gradually becoming accountable. While some NGOs work in close collaboration with the FD staff, numerous others work in relative isolation of governmental agencies' development programs. Many of these NGOs are under pressure to show relatively rapid successes, for which purpose they frequently provide small financial incentives in exchange for communities' participation. In doing so, however, these NGOs can

severely undermine FD staff's efforts to mobilize BVCs as they do not have budgets to pay for the incentives that have become expected by the communities. Similarly, the laudable desires of NGOs to support, and be associated with, successful fisheries management regimes through the provision of financial incentives may actually result in undermining the institutions' effectiveness. NGOs' and donor agencies' support of governmental agencies may also be harmful if they fail to adequately assess the accuracy of starting premises declared by governmental agencies or local leaders.

Aside from these caveats, NGOs are frequently more able to access resources from donor agencies than are national agencies, and to the extent that they collaborate closely with the FD staff and District Assemblies, that may significantly contribute to these agencies' and BVCs' achievement of respective goals. Possibly more important than financial contributions, however, some of the most useful contributions to local communities' initiatives have come from training and capacity building by NGOs.

Conclusion

Rethinking links between Empowerment and Conservation

From the preceding analysis of case studies, it seems evident that a number of assumptions in the Malawian government's program to bring about empowerment and conservation outcomes are flawed. Some chiefs have shown a capacity to provide leadership for conservation efforts, exemplified in the Yiwemi case study (and to a certain degree the Kambindingu Fisheries Association case study), which illustrates how chiefs can help empower fisheries stakeholders to reverse alarming ecological and social trends. Additionally, criticisms of susceptibility for autocratic and corrupt behavior, typically raised of chiefs and national governments, have been seen to develop in stakeholder committees, even where the BVCs are products of democratic elections.

Until now, empowerment has tended to be measured on the basis of the existence of specific forms of organizational structures and regulations that stem from donor agencies' and governments' imposed perceptions of what a democratic organization should look like. However, as Malawi's past and present conservation programs have shown, while chiefs may be represented as being all-powerful, they actually have never

been able to impose conservation regulations on their constituents, and are only able to operate effectively based on informal consensus-driven legitimacy. I argue instead that stakeholder empowerment should be measured by the extent to which the community accepts and supports conservation regulations regardless of the formal institutional form taken. This deeper definition of empowerment enables us to better account for effective chiefs' conservation regulations, and be more critical of BVCs' claims to legitimacy and empowerment.

These case studies reflect conclusions by Jentoft (2005) argueing that empowerment must be seen as a necessary precondition for, as well as an outcome of effective co-management or CBNRM conservation, and that empowerment of an organization is both reflective of, and a source for further community empowerment. A caveat to this statement is that at times of livelihood uncertainty, not all segments of the population need to be empowered in order to establish effective conservation institutions, and indeed, attempts to induce radical changes in existing social hierarchies, cultural values and power dynamics may engender strong forms of resistance (Cleaver 2002). Instead empowerment of the previously disenfranchised might best be achieved through incentives once livelihood stability has been reestablished.

Based on these conclusions, I propose a unified model of organizational learning for co-management success that is measured primarily by the ability of community-based institutions to achieve conservation outcomes, and that is independent of the specific form that the conservation institutions take (see Figure 6-1, below).

Figure 6-1. A Model of Organizational Learning for Conservation

In this model, when key social, economic, or ecological trends present a threat to a community's livelihoods and security, the extent to which stakeholders are empowered (either through chiefs or BVCs) determines whether they are able to: recognize the extent and causes of the threat, develop new ways of addressing the threat, and achieve broad-based community support for the new institutions or regulations (i.e., second order organizational learning). If community leaders and institutions are effective in doing so, corrections to the threatening trends may be achieved, thereby re-establishing stability of livelihoods (which in the case of fishing communities, also implies reversing declines in fish stocks). This would represent second order organizational learning in relation to both empowerment and conservation.

On the other hand, if community leaders are not sufficiently empowered, they may fail either to recognize the causes and needs for institutional change, or may to be unable to implement the needed regulations for a lack of legitimacy or capacity. Thereby they may allow a continuation or growth of a fishery/livelihood threats (i.e., first order organizational learning), eventually leading to some form of ecological and/or livelihood crisis. Such a crisis may then permit and prompt the rise of a new leadership in the community (as with the rise of BVCs in Lake Chiuta, the DFS and KFA case studies), although in some cases this leadership may only emerge with the support of external agencies. Depending on their empowerment due to their own capabilities and knowledge, legitimacy granted by the community, and their ability to overcome entrenched learning by pre-existing leaders and interests, these new institutions and leaders my enable the community to re-attain livelihood stability (i.e. second order learning). However, in some cases (what seems to have been the case in most Malawian fishing communities), a

lack of BVC empowerment, results in an inability to unseat the entrenched learning of the pre-existing fishery power brokers (including chiefs, government officials, fishing industry leaders). In this case, first order learning will prevail leading to the perpetuation of status-quo conservation institutions that are poorly designed and go unobserved, and the continued decline of fish stocks and livelihood standards.

In addition to assessing the successes or failures of relatively recent institutional innovations, it is important that we (and more importantly, the FD) recognize the ongoing, cyclical nature of institutional learning processes. In contexts like the KFA, where empowerment has taken quite a while to be achieved, WESM and the FD have recognized the need for their regular support of the capacity-building and legitimization process. However, while some co-management regimes may seem to require little direct involvement from national agencies (Lake Chiuta, Yiwemi, Mbenji Island), complacency by resource management agencies may allow these BVCs and Fisheries Associations to be undermined by new sources of unanticipated social, economic, political or ecological uncertainty. Examples of seemingly effective co-management regimes that now require a further FD investment include: Lake Chiuta, where the legitimacy of BVCs is under threat from chiefs; DFS, where reorganization of BVCs is necessary following the departure of the primary community leader and the relocation of Matiki community to Nkhono and Nyavuu communities). Similarly, although the Yiwemi BVC was functioning quite well, the active support of FD extension enabled it to achieve hitherto unanticipated goals through the establishment of Yiwemi Co-op. Therefore, in order to support an institution's viability over time, we must actively seek to discover the key variables and processes that limit the regime's empowerment learning processes, while

being careful not to introduce any new limiting factors (such as the introduction of perverse incentives introduced in the Mbenji Island and Yiwemi BVC cases studies).

An exploration of resistance to empowerment and conservation

By analyzing these case studies through a framework of first-order and second-order learning rather than simple successes and failures, I have come to a greater appreciation of the inherent resistance (entrenched learning) that second-order learning processes may engender if the leadership does not take pre-existing institutions into account. In the case of the current Malawian fisheries management policies, while BVCs are being empowered to manage the fish stocks, chiefs have been explicitly excluded as stakeholders due to the government's past experiences in which chiefs have proven prone to corruption. However, one must keep in mind that the patterns of governance exhibited by many of those chiefs were the products of an autocratic government's example of rule by nepotism, lack of transparency, and corrupt patron-client relationships. And indeed, much as poorly empowered BVCs have shown similar tendencies toward corruption, institutions such as Transparency International report that patterns of corruption continue to pervade the government's civil service today (Khembo 2005). Therefore, chiefs should not be singled out for these criticisms. More importantly, by ignoring the variety of formal and informal community-level institutions that continue to be centered around the powers of the chiefs, the fisheries policies would seem to be forcing all fishing communities to embark on second-order learning in direct conflict with the traditional leadership.

Instead of setting these forces in opposition to one another, the Fisheries Department and supporting NGOs should examine the sources of resistance in individual second-order learning cases and consider adopting an extension approach that bridges the divide between first-order and second-order learning, thereby engendering less resistance from pre-existing institutions and interests. Whether a regime is introduced through a successful process of second-order learning or following a crisis that unseats entrenched first order learning processes, there are a number of common factors that may contribute to their success or failure. However, there are also many common solutions to helping them overcome these detractors to successful learning. If sources of ignorance, dissention, and resentment can be directly addressed, BVCs have a greater chance of actually receiving the support of traditional leaders, rather than being undermined by them. Indeed, the traditional leaders might even enforce a greater degree of accountability and transparency in the BVCs themselves (as is the case in Yiwemi BVC).

Corresponding closely to the variety of "psychological failures" that Jared Diamond (2005) described as contributing to ecological collapse at nation-state levels, a number of similar reasons have been sited by fishery stakeholders around Lake Malawi to explain their lack of stewardship initiatives. These factors include:

1. Failure to recognize the long-term declining trends in fish stocks amidst large short-term fluctuations (creeping normalcy and landscape amnesia).
2. Rejection of the cause-effect relationship between fishing practices and the fish stock declines,
    a. related to spiritual beliefs that fish stock abundance is due to the will of ancestral spirits or God;

b. perception that fish stock declines are caused by other influences so that limits to one's own fishing would not help (false analogy);

3. Lack of leadership capacity/experience/willingness to create appropriate regulations,

    a. Insufficient knowledge of how alternative institutions might work, whether they would produce claimed results, and concern over unpredictable consequences;

    b. New institution may be seen as loss of power and income;

    c. Cultural values that fisheries should be open to all Malawians.

4. Fear that limits accepted by one's own community may simply result in better catches for other communities' (prisoner's dilemma) or poachers (free-ridership);

5. Inability of leaders to enforce new institutions due to institutionalized resistance from fishers or other leaders.

The Adaptive Organizational Learning Process

By overlaying the list of "psychological failures" onto a simplified organizational learning cycle (see Figure 6-2, below), we may gain a better appreciation for the specific challenges that resource management agencies and local institutions need to remain aware of, if they are to empower an adaptive organizational learning process. Based on my analysis of the Malawi fishery's co-management case studies, I will discuss the ways in which each regime has become the victim of these learning failures, and suggest ways in which governments, communities, chiefs, NGOs, donor agencies, and other

stakeholders can help to return organizations and leaders to the adaptive organizational learning cycle.

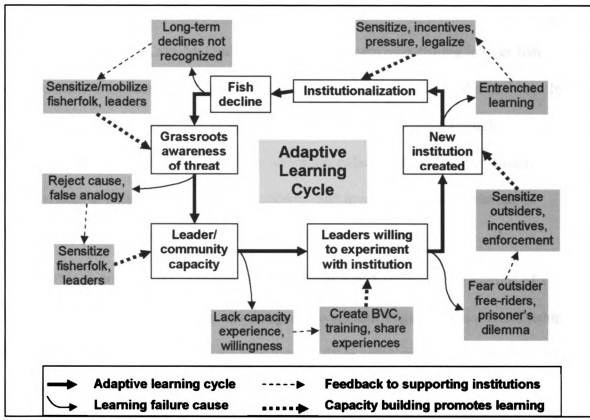


Figure 6-2. Potential sources of empowerment failures and support for adaptive learning

Recognition of the Crisis

First and foremost, the introduction of new institutions requires that stakeholders be aware of the problem and perceive the need (or in the case of new opportunities, the desire) for new institutions and norms. In the case of the two most significant unsuccessful government-initiated regimes (Lake Malombe, Lake Chilwa), the psychological failures were on the part of the donor agencies and the government, as they chose to ignore the local and scientific ecological knowledge that fish stock declines were

more likely affected by water level changes (Lake Chilwa and Lake Malombe) and fishing pressures outside of their control (Lake Malombe), than over-fishing in these Lakes themselves. Building on these "false analogies", the government was unable to mobilize local stakeholder alarm to match that of the expatriates' and elites' regarding the plight of the chambo (Lake Malombe). Similarly, concern over fishing in river fish refugia did not warrant expansions of restrictions to the whole Lake (Lake Chilwa). In both cases, the government's best strategy might be to encourage a thorough reassessment of the failed institutions by scientists, policy makers, and particularly stakeholders to determine stakeholder concerns, and invest its limited resources in helping to address these concerns.

Circumstances will also arise in which local stakeholders are the victims of a failure to recognize threats, or an unwillingness to acknowledge the causal relationships between those threats and their own activities. In these cases, which might apply to many local Malawian fisheries, the government and NGOs should help fishers to recognize the threats by engaging in extensive sensitization of the fisherfolk and their leaders. The government is ideally-placed to conduct this form of education as it frequently has the best information regarding long-term trends that might be obscured by short-term fluctuations, and can place the conditions of the local fishery within that of the large scale trends.

Finding Willing and Able Leaders

Secondly, for stakeholders to accept new institutions, they need confidence in their leadership's capacities (both technical and moral) to guide institutional change. To

the extent that existing leaders (in most cases, chiefs) are able and willing, with the advice and support of the government, NGOs and other community members, to make such changes, the institutional innovations may not encounter significant resistance (Yiwemi BVC, Mwenibabu BVC, Songwe BVC). While the above cases required little government encouragement, in most instances chiefs may need extensive sensitization regarding the threats, and enlightenment as to the merits, of potential institutional solutions before they will take any initiative. One tactic might involve playing to their existing insecurities and frustrations over the declining relevance of the chieftaincy in an increasingly unpredictable, mobile, and capitalized Malawi, and offering them an alternative vision of following in the successful footsteps of such chiefs as sub-TA Msosa (Mbenji Island), TA Kanyenda (DFS, KFA), VH Yiwemi (Yiwemi BVC and Co-op), VH Mwenibabu (Mwenibabu BVC), and the late-GVH Nzeruzakale (N. Rukuru River afforestation effort). The respect that these chiefs have gained in their communities, and around the country (TAs Msosa and Kanyenda have been profiled on the national radio) for their efforts has paid highly-visible dividends in terms of prestige, and in some cases, more tangible economic benefits.

However, where existing leaders and institutional frameworks are not seen to reflect the necessary moral standards or technical capacities to introduce change that works for the benefit of their stakeholders, their institutional innovations may quickly be undermined by passive or even active stakeholder resistance (Lake Chiuta, Lake Malombe, Lake Chilwa, Chia Lagoon, Bua River, Lake Malawi NP Village Trusts). If this is the case, then the government, community, and/or other change agents might help to resolve this impasse by encouraging a grassroots mobilization around an alternative

source of leadership within the community (DFS, KFA, Lake Chiuta). In either case, the government should support the existing or potential leadership with training opportunities, both in terms of expanding their skills (i.e.. coaching in effective literacy, numeracy, leadership, ecology, functions in a committee) as well as providing them with experiential learning opportunities by taking them on visits to examine similar initiatives elsewhere. These proposed institutional innovations must be recognized as largely foreign to most leaders, and therefore, extensive capacity-building and advice is needed if the new organizations and leaders are to maintain popular confidence in their abilities and motivations. Although the Malawian government and certain NGOs have been able to provide some useful training for BVCs, there is great need for more investment in this direction. More importantly, the government needs to make greater efforts to be seen as an honest broker for fishers rather than allowing their training and workshop opportunities to be bought and sold as political favors to the elites.

Supporting New Institutions

If the existing leadership or the new champions have the mandate (or at least, the tacit support) of a majority of stakeholders, the challenge for supporting organizations and NGOs is to help the leaders navigate the various learning failures that may arrest their success at an early stage. These threats may come from a variety of internal and external sources, each of which will be explored briefly here.

Some stakeholders question the wisdom of new regulations in view of the burdens on their livelihoods, and these complaints may be used by disgruntled community leaders to undermine the legitimacy of the regime (*entrenched learning*) (KFA, Lake Chiuta).

The primary reasons for these sources of entrenched learning are the government's and NGO's neglect of key leaders (KFA, Lake Chiuta) and stakeholders' livelihood needs (Lake Malawi NP, Bua River fishery), or perceived corruption and nepotism on the part of the new leadership (DFS, KFA). This is one of the primary sources of friction associated with second-order learning processes, and should be addressed in advance by the government and NGOs as they sensitize the community and bring about the establishment of new institutions and leaders. Realistically, if the process is transparent and allows all stakeholders to voice their concerns, no large group of stakeholders should be neglected as in the manner of the Lake Malawi NP Village Trusts. The Bua River fishery reflects a similarly limited participation of stakeholders in the setting of goals, producing a continued conflict-ridden situation. To address these two scenarios, the Dept. of National Parks and Wildlife has offered Lake Malawi NP stakeholders extensive incentives for their cooperation, but has not been as generous in the Bua River, meaning that while Lake Malawi NP Village Trusts seems to be having some success, the Bua River regime does not.

The FD, NGOs, and BVCs have not adequately addressed the neglect of disgruntled leaders in Lake Chiuta, and this may continue to cause unpredictable forms of friction in the future, as was exhibited most recently in the form of a TA ruling against the BVCs. In the KFA, the BVC leadership eventually made some efforts to invite disgruntled chiefs to their discussions, and a number of sources of conflict were resolved as a consequence. Realistically, bridging divides between stakeholder groups and leaders should be one of the FD's and NGO's primary roles beginning early on in the sensitization process. These conflicts also speak to a larger need and a task that only the

government can undertake: only by establishing a legal identity can BVCs withstand fishers', chiefs', and politicians' challenges to their authority. Consequently, a key role that the Fisheries Department should spearhead is to assist BVCs and Fisheries Associations in developing constitutions, and to have their organizations registered with the national registrar as officially sanctioned enforcers of fisheries regulations.

From these internal divisions, or simply by being given the opportunity to do so, some fishers may choose to reap benefits from the conservation policies by illegally harvesting the surplus produced (*free-ridership*). This has been a challenge to almost all fisheries regimes discussed, including Yiwemi. In each case, the community has had to invest time and energy in enforcement, and in some cases they were successful in stemming the poaching quickly by levying large fines (Yiwemi, N.Rukuru River fishery), or by engaging some of the poachers and giving *them* enforcement powers against poachers (Yiwemi). The government has also sourced funding-support from COMPASS for patrol boats in the DFS and Lake Chilwa cases, and although the DFS boat has been quite effective in keeping poaching down in the sanctuary, the ownership of the boat has also become a point of great contention. Enforcement of regulations is one of the least relished tasks for most BVCs, and while the government has infrequently been able to conduct some enforcement efforts, these actions have generally not motivated the existing BVCs to patrol on their own (Chia Lagoon, KFA). Governmental and NGO financial support of BVC enforcement activities is likely to lead to a greater BVC dependency on external support; however, donations of materiel (i.e. boats, uniforms, ID badges, flashlights) may, if done carefully, provide some BVCs with the confidence needed to enforce their rules. Realistically, I would argue that the best support for

enforcement is through development of greater *local legitimacy* through improvements in accountability, transparency, and official status rather than material support. This lack of legitimacy was illustrated by the government's futile attempts to stop poaching in Lake Malawi NP (before the establishment of Village Trusts) despite enjoying technological advantages over the community members.

Beyond the legitimacy of the local BVC or Fisheries Association, however, many stakeholders may also be unwilling to follow new regulations if they perceive that a neighboring community or some other group will simply reap the benefits of their sacrifices (*prisoner's dilemma*). Ideally, BVCs should be grouped into Fisheries Associations that organize around ecologically significant units (such as the KFA), and thereby establish a common set of regulations to be respected by all constituent communities. In some cases, however, Traditional Authority or district boundaries may bisect these ecosystems (Chia Lagoon, Dwambazi River estuary), in which case the Fisheries Department, as an organization with a national mandate, is ideally suited to mediate between stakeholders.

The Need for Organizational Learning Among all Stakeholders at all Institutional Levels

Related to the various institutional innovations discussed above, these local actors in the fisheries co-management relationship will need to revise some values and attitudes that are counterproductive to adaptive organizational learning.

Fishers. Fishers have traditionally seen management of the fishery either as the job of the government or as the domain of God. They have to take greater responsibility for the effects of their activities on the sustainability of fish stocks or lose their livelihoods.

Chiefs. Historically, traditional leaders have depended on their positions for influence and income. They now have to be helped to embrace new forms of institutions; otherwise, they risk becoming marginalized completely by the new BVCs.

Field staff. Historically, fishery extension workers have depended on their positions to maintain influence over, and receive income (through contributions and bribes) from fishers. They need to realize that their futures lie precisely in giving away the power that they have sought to hold on to. Given that most FD staff positions are in the process of being devolved to District Assemblies, if they fail to achieve successes in terms or empowering their local stakeholders, they may lose their jobs altogether.

Many of the recommendations discussed above have centered on improving the relationships between relatively local actors: fishers, chiefs, and government extension staff. However, ultimately, there are a number of national and international organizations who wield great influence on the determination of national policies and allocation of resources to the field staff. Therefore, responsibility for fisheries co-management failures and successes must be taken at all levels.

Fisheries Department upper management. Due to the highly politicized history of the government civil service, upper managers at the district and national levels typically spent greater amounts of time seeking invitations to meetings and workshops than in supporting the field staff in their unrewarded jobs. This is probably the most significant obstacle to achieving effective fisheries co-management. Instead, the upper management needs to give greater financial, administrative, and training support to field staff, and the measures of managers' effectiveness and their rewards should be tied directly to the success of their field staff.

NGOs. As donor agencies have become disillusioned with the corruption and lack of transparency within governmental civil service, NGOs have benefited greatly as they are assumed to be better able at delivering quick results. However, due to their greater access to financial resources, NGOs have also attracted the best civil servants to work for them, and have been able to provide incentives to local communities for their participation. Both of these actions have severely diminished government agencies' abilities and capacities to address development issues on their own. NGOs should work more closely with government agencies to ensure that the agencies benefit from the lessons learned and are better able to retain expertise.

Donor agencies. These agencies' project funding has tended to be driven by expatriate and elites' bio-centric perceptions that ignored fisherfolk needs. Additionally, their short funding cycles have reinforced a

syndrome of dependency in government agencies, and have diverted much expertise from the government to NGOs. Finally, most funding has gone to sponsoring endless workshops for NGOs and governmental elites with little attention or funding given to ensure that this capacity is transferred to the lower level actors who actually implement the policies. These agencies need to provide more long-term support for development, with a greater emphasis on capacity-building and support of the civil service. Rather than seeking rapid, but too-frequently short-lived successes through funding of NGOs, donor agencies should help to reform and provide greater financial support directly to government agencies. A model that might be followed is that of Mozambique, where all donor agency funding for agricultural services is invested in a single governmental trust that is managed and overseen by a board of donor agencies and national agency representatives.

In Closing

As we look at the various fisheries co-management regimes in Malawi today (shown in Figure 6-3, below), we note that, with the exception of the management of the small "commercial fishing" fleet, those regimes that have proven most successful in achieving stakeholder support and fish stock sustainability (outlined in solid black) tend to be skewed toward community-driven initiatives. This pattern would seem to lend support to the concept of co-management in principle. However, the predominance of less successful regimes (outlined in solid grey) and failed regimes (outlined in dashed

grey) that are skewed toward the government-driven axis indicates that significant lessons remain to be learned by the Fisheries Department in how to successfully empower resource stakeholders for the introduction and ongoing support of co-management regimes.

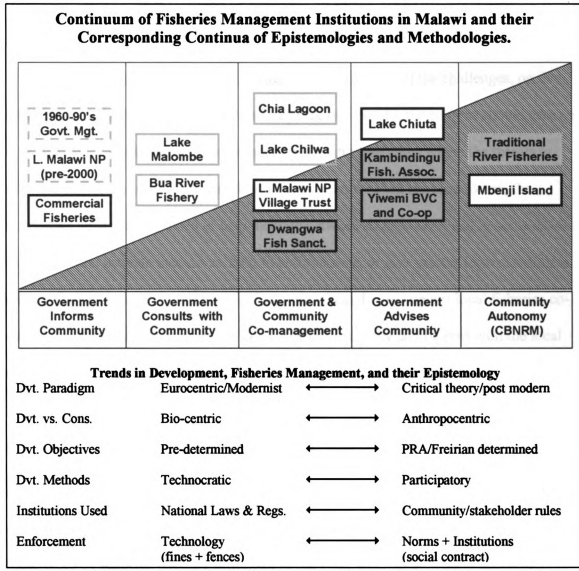


Figure 6-3. Continuum of Fisheries Management Institutions in Malawi and their Corresponding Continua of Epistemologies and Methodologies.

By providing co-management regimes with a broad array of feed-back capacity-building mechanisms, we can help them avoid future crises through an adaptive

organizational learning process At the inception of any institutional innovation, it must be assumed that the leadership of local resource management regimes will tend to cater to a social demand for stability, efficiency and continuity. Therefore, the primary objectives of national resource management agencies and development NGOs should be to assist these local institutions in retaining or achieving an awareness of the larger ecological trends that they may not (genuinely or choose to) perceive, and to assist these organizations in adapting their local institutions accordingly. If the challenges, on the other hand, relate to a perceived institutional lack of capacity, the support should take on a training and capacity building approach. Finally, in those cases where the threats to adaptive learning stem from external influences or entrenched learning forces, the supportive agencies may need to help mediate between stakeholders, and in some cases exert pressure, provide incentives, help in enforcement, or give greater legal standing to the new institutions. Part and parcel of an agency's ability to support local fisheries co-management regimes, however, lies in its overall legitimacy and rapport with the local stakeholder groups, meaning that all initiatives have to reflect the needs and priorities of the stakeholders.

To a significant degree, the examples of successful and unsuccessful fisheries management regimes discussed in this dissertation reflect the local extension agents' manner of interaction with their stakeholders. For an agency to succeed in promoting these types of adaptive learning processes at the local level, its staff must perceive themselves as sensitizers, facilitators, and advisors for the locally-relevant needs to a greater degree than as instructors and enforcers of the national conservation plan. While Malawian resource management agencies are struggling under severe financial

constraints, this is not a sufficient reason for co-management failure. Indeed, many of the most successful fisheries co-management regimes discussed were partly achieved due to an absence of funding that made a more enforcement-oriented approach prohibitive, while an availability of funds and personnel (that were poorly invested) may have contributed to some regime failures. The challenge, therefore, is for the Fisheries Department to internalize the concept that achieving success in terms of its conservation goals depends on its abilities to be successful in supporting local livelihoods in a variety of ways and to empower its field staff to help individual communities seek locally appropriate conservation strategies.

APPENDIX A

Primary fishing gears, targeted fish species in each Case Study.

Community	*Fishing Gears*	*Targeted Spp.*
Case Study 1: North Rukuru Traditional River Fishery		
N. Rukuru River	**Vyelo**	**Mpasa, mperere, sanjika**
	Drifting gillnets	**Mpasa, mperere, sanjika**
Case Study 2: Kaporo BVC and Co-op		
Kaporo	**Chilimira**	**Sangu, Masohungu, Kabwiri, usipa, chambo**
	Gillnet	**mpasa, nkholokolo, masuhunju**, ningwi, sanjika, nkhozola, mkunguni, batala, Mbuvu, chambo
Case Study 3+4) Dwangwa Fish Sanctuary and Kambindingu Fisheries Association		
Liwaladzi	**Lemu**	**Chambo**
	Chiombera (Gill)	**Chambo**
	Chilimira	**Usipa , Utaka**
	Gillnet	Utaka, mayera
Nkhono	**Chilimira**	**Usipa**
	Gillnet	Mabuno, Chambo, ntcheni, mayera
Matiki	**Lemu**	**Chambo**
	Gillnet (3 ½)	**Chambo, mabuno, mbaba**
	Gillnet (1 ½)	Utaka
Nyavuu	**Gillnet**	**Chambo**
	Kauni (Chili)	**Usipa, chambo**
	Beach Seine	Chambo, mlamba
Bana + Chauma	**Kauni (Chili)**	**Usipa**
	Beach Seine	**Usipa**
	Kambuzi BS	Chambo
	Gillnet	Mabuno/Kampango
Banga + Dema	**Beach Seine**	**Usipa**
	Kambuzi BS	**Chambo**
	Gillnet	Chambo
Likuchi	**Kambuzi BS**	**Chambo**
	Gauze Wire BS	**Usipa**
	Chilimira	Usipa, Chambo
	Gillnet	Chambo, Mkututu
Ngala	**Kauni (Chili)**	**Utaka, Usipa**
	Gillnet	Mabuno, mayera, Kampango, Chambo, utaka,
	Beach Seine	Usipa
Dwasulu	**Gillnet**	**Utaka, chambo**
	Beach Seine	Chambo
	Kauni (Chili)	Utaka, Usipa
Kasitu	**Chikwitu (Chili)**	Usipa
	Beach Seine	Usipa
	Kambuzi Seine	Chambo
Dwambazi	**Gillnet**	**Mayera**, Chambo, Kampango, Mpasa
	Chilimira	Usipa, Utaka
	Beach Seine	Utaka
***Bold gears indicate the most important gears and their main targeted species at each dock**		

Common vernacular (Chewa, Tonga, Tumbuka, Ngonde) and Latin fish nomenclature			
Latin name	**Common Names**	**Latin name**	**Common Names**
?	nkhozola	*Labeo cylindricus*	ningwi
?	kabwiri	*Labeo mesops*	ntchila
?	mkunguni	*Lethrinops spp.*	kambuzi, mayera
?	mabuno, kota	*Opsaridium microcephalus*	mperere, sanjika
Bagrus meridionalis	Kampango, mbuvu	*Opsaridium microlepis*	mpasa
Barbus eurystomus	kadyakolo, mpusi, kuyu	*Oreochromys lidole*	chambo
Barbus johnstonii	ngumbo, chikas, chimwe	*Oreochromys saka*	chambo
Barbus litamba	tamba	*Oreochromys shiranus*	mkututu
Clarias gariepinus	mlamba	*Oreochromys squamipinnis*	chambo
Copadichromis spp.	utaka		
Copadichromys spp.	mbaba	*Ramphochromis spp.*	ntcheni, batala, sangu
Diplotaxodon spp.	masuhunju	*Synodontis njassae*	nkholokolo
Engraulicypris sardella	usipa		

Fishing Gears Defined		
Chilimira (open-water purse seine)	**Chilimira**	Refers to daytime fishing (also known as Tolola)
	Kauni	Night time fishing with light attraction
	Chikwitu	¼ inch mesh (not mosq.) for adult usipa
Beach Seines	**Beach Seine**	Seated, mosquito mesh-lining for usipa
	Kambuzi	Seated, 1, 1 ½ inch mesh for chambo
	Gauze Wire	Seated, wire mesh for usipa
	Kandwindwi	Walked, for adult and juvenile fish (matemba)
Gillnet	**Gillnet**	Passive capture
	Chiombera	Noise used to scare fish into gillnet

APPENDIX B

Case Studies Data Coding Table

Code	Descriptions
BVCs	
BVC-Wotsogola	Statements or observations that relate to Mr. Wotsogola's role in the KFA or DFS.
BVC-Activity	Statements or observations that relate to a BVC's enforcement of rules, or activities that are conducted.
BVC-Assoc	Statements or observations of relationships between individual BVCs and the Fisheries Association as a whole.
BVC-Collabor	Statements or observations of collaboration or cooperation between BVCs.
BVC-Conflict	Statements or observations of conflicts within or between BVCs.
BVC-Creat	Statements that relate to the manner in which a BVC started or the motivation for starting.
BVC-Effec	Statements or observations that relate to a BVC's effectiveness.
BVC-Election	BVC elections, redesign of the committee structure.
BVC-FD Role	Statements or observations that relate to an interaction between BVC's and the Fisheries Department.
BVC-Govt.	Statements or observations of interactions or relationships (or lack thereof) between fishers (or BVCs)and governmental agecies or representatives such as the District Commissioner, police, EXCLUDING local FD (allows for FD in another district).
BVC-Illovo	Statements or observations of interactions or relationships between fishers (or BVCs)and Illovo or other foreign-run companies (such as Ethco, Ngala lodge, Unitrans).
BVC-Incent	Statements or observations of perverse incentives or self-interested motivations among BVCs.
BVC-Lagoon	Statements or observations regarding the BVCs' enforcement of the lagoon closed season.
BVC-Leader	Statements or observations that relate to the role of a community leader in the workings of a BVC.
BVC-NGO	Statements or observations of interactions or relationships between fishers (or BVCs)and NGOs, including WESM and COMPASS.
BVC-Outsiders	Statements or observations of interactions or relationships between BVCs and non-residents.
BVC-Rules	Statements or observations that relate to a BVC's rules and regulations.
BVC-Sanctuary	Statements or observations regarding the BVCs' enforcement of the dwangwa fish sanctuary.
BVC-VH-Lead	Statements or observations regarding the relationships between BVCs and VH/GVH/TA.
BVC-VH-VH	Statements or observations regarding the relationships between different chiefs (VH/GVH/TA) associated with BVCs.
BVC-VH role	Statements or observations that relate to the role of the VH/GVH/TA in the BVC's creation, activities, enforcement.
Communities	
Com-Capital	Refers to any comment made about the origin, raising, and use of capital.

Com-Charity	Refers to any comment about or observation begging, charity, children collecting fish from the bottoms of boats.
Com-Describe	Refers to any description (through comments or observation) of the community, fishing activities, and the beach.
Com-Ecol Ch.	Refers to any description (through comments or observation) of the ecological changes, including fish stocks.
Com-Fish Sale	Refers to any comment about or observation of fish sales, either at the dock or at market, etc.
Com-History	Refers to any description of the history of the community and its' people.
Com-Livelihood	Refers to any comment made about other livelihood activities that are combined with, resulting from, or dependent on fishing or fish trading.
Com-Loan/Credit	Refers to any comment made about the giving or receiving of loans (in money or barter), including credit groups.
Com-Magic	Refers to any comment made about the the use or roles of magic and religion in the community.
Com-Soc/Econ Ch.	Refers to any comment made about changes that have or are occuring in the social and economic institution of these communities.
ComCap-Crisis	Refers to any comment about or observations of social, economic or ecological crisis or problems, the need for changes in or reluctance and resistance against conservation regulations.
ComCap-Leader	Refers to any comment about or observation of leadership by community members, individually or as a group. This excludes the leadership of the VH/GVH/TA.
ComCap-Mission	Refers to any mission statement or observation/comment about an ethic of work/conservation/stewardship.
ComCap-Past	Refers to any comment about or observation of past community-based social/economic institutions or experiences from elsewhere that could be useful/harmful in organizaitonal learning for future/current efforts.
ComCap-Support	Refers to any comment about or observation of (or failure of) training, mediation, capacity-building by governmental extension agencies or NGOs.
ComCap-VH	Refers to any comment about or observation of the leadership role of the VH/GVH/TA. This can include actions in relationship to BVCs.
Extension	
ExtCap-Collab	Refers to any comment about or observation of collaboration and mutual assistance between different governmental agencies or NGOs.
ExtCap-Leader	Refers to any comment about or observation of leadership/initiative taken by governmental agency or NGO personnel in working with communities.
ExtCap-Mission	Refers to any comment or observation that indicates an NGO/Govt. agency's mission statement or stewarship/work ethic. This may at an agency or an personal level.
ExtCap-Past	Refers to any comment about or observation of past experiences of NGO/Govt. agency personnel in working with communities that could be useful/harmful in organizaitonal learning for future/current efforts.
ExtCap-Support	Refers to any comment about or observation of administrative support of field extension workers' jobs.
Fisherfolk	

Fisher-Crew	Refers to any comment about or observation of fishing crew members.
Fisher-Fish Trade	Refers to any comment about or observation of fish traders.
Fisher-Gear Own	Refers to any comment about or observation of fishing gear owners.
Fisher-Life Hist.	Refers to any descriptions of life histories.
Fisher-Other Trade	Refers to any comment about or observation of trader who are trading good other than fish. This includes tea room, restaurant owners, non-fishing labor.
Fisher-Relat-BVC-F	Statements or observations of interactions or relationships (or lack thereof) between different Fishers and BVCs. This includes interactions between BVC Chairs and fishers.
Fisher-Relat-BVC-T	Statements or observations of interactions or relationships of (or lack thereof) between Traders and BVCs. This includes interactions between BVC Chairs and traders.
Fisher-Relat-F-F	Statements or observations of interactions or relationships between different Fishers.
Fisher-Relat-T-F	Statements or observations of interactions or relationship between Fishers and Traders.
Fisher-Relat-T-T	Statements or observations of interactions or relationship between different Traders.

Fisheries

Fishery-Change	Refers to any comment about or observation of changes in the fishery over time, its causes, and potential solutions.
Fishery-River	Refers to any comment made about River fishing.
Fishery-Sp Hist	Refers to any comment or observation of fish species that used to be caught before the advent of modern fishing gears, i.e., before the 1950's though this date may depend on when certain technologies arrived in the setting.
Fishery-Sp Now	Refers to any comment or observation of fish species that have been caught since year 2000.
Fishery-Sp Recent	Refers to any comment or observation of fish species that used to be caught since the advent of modern fishing gears, i.e., 1950's, though this date may depend on when certain technologies arrived in the setting.
Fishery-Tech Hist	Refers to any comment or observation of fishing gears in use BEFORE the advent of modern fishing gears, i.e., 1950's, though this date may depend on when certain technologies arrived in the setting.
Fishery-Tech Now	Refers to any comment or observation of fishing gears in use since year 2000.
Fishery-Tech Recent	Refers to any comment or observation of fishing gears that were used SINCE the advent of modern fishing gears, i.e., 1950's, though this date may depend on when certain technologies arrived in the setting.

Fishing Technologies

Gear-Biiu	All mention of vyelo and biiu, which are fishing weirs that are constructed to block rivers, targeting anadromous fish.
Gear-BS	All mention and observation of Beach Seines
Gear-Chilimira	All mention and observation of chilimira fishing (Purse seines).
Gear-Gillnet	All mention and observation of gillnets.
Gear-Hooks/Long.	All mention of the use of hooks, either singly or in long-line fishing.

Gear-Lemu	All mention of lemu or chikwekwesa which is a gillnet that is set like a purse seine, targeting Chambo, a technology expanding north from Mangochi.
Gear-Poison	All mention and observation of the use of poisons in fishing.
Gear-Pyassa	All mention and observation of pyassa or ipyerasjo, which is a traditional, large triangular scoop net, commonly used in Chia River.
Gear-Traditional	All mention and observation of traditional fishing gear (other than biiu and pyassa). This includes: traps (mono), jab stick/spears, small beach seine (vwero/nkhwawo), small gillnets used to scoop up fish in shallows (njero).
Locations	
Loc-Bana	All mention and observation of Bana island community, its fishery, livelihoods, and institutions.
Loc-Banga	All mention and observation of Banga lagoon-shore community, its fishery, livelihoods, and institutions.
Loc-Chauma	All mention and observation of Chauma island community, its fishery, livelihoods, and institutions.
Loc-Dema	All mention and observation of Dema lagoon-shore community, its fishery, livelihoods, and institutions.
Loc-Dwambazi	All mention and observation of Dwambazi community, its fishery, livelihoods, and institutions.
Loc-Dwasulu-Luluzi	All mention and observation of Dwasulu and Luluzi communities, its fishery, livelihoods, and institutions.
Loc-Likuchi	All mention and observation of Likuchi lake-shore community, its fishery, livelihoods, and institutions.
Loc-Liwaladzi	All mention and observation of Liwaladzi community, its fishery, livelihoods, and institutions.
Loc-Markets-Dist.	All mention and observation of major distant fish markets (ex.Lilongwe, Mzuzu, Salima, Mzimba, Kasungu).
Loc-Markets-Loc.	All mention and observation of local fish markets (ex.Dwangwa, Matiki, Dwambazi).
Loc-Matiki	All mention and observation of Matiki sanctuary community, its fishery, livelihoods, and institutions.
Loc-Ngala	All mention and observation of Ngala lake-shore community, its fishery, livelihoods, and institutions.
Loc-Nkhono	All mention and observation of Nkhono sanctuary community, its fishery, livelihoods, and institutions.
Loc-Nyavuu	All mention and observation of Nyavuu island community, its fishery, livelihoods, and institutions.
Loc-Sanctuary	All mention and observation of the Dwangwa Fish Sanctuary, its fishery, habitat, enforcement, poaching.
Loc-Unaka	All mention and observation of the Unaka (Kambindingu Lagoon), its fishery, habitat, livelihoods, enforcement, poaching.
Loc:Chia Lagoon	All mention and observation of Chia Lagoon, its fishery, livelihoods, institutions, and communities.
Researcher Role	
Researcher Role	Refers to any comment that indicates the researcher's exertion of influence on the participant (whether by the researcher or participant).
Don't Understand	Refers to quotes that only in hind-sight do I realize that I do not understand.

APPENDIX C

List of Data Sources
Case Study 1: North Rukuru River Fishery

	NGO/FD	VH/GVH/TA	BVC	Gear owner	Crew member	Trader	Community member	Observation	Group Discussion	Total Men	Total Women	*Total Interviewees*
Interviews												
2004-03-05	1									1		*1*
2004-03-10		1								1		*1*
2004-03-10		1								1		*1*
2004-03-10		1					1			2		*2*
2004-03-13		1								1		*1*
2004-04-07		1								1		*1*
2004-04-07		1								1		*1*
2004-04-12		1								1		*1*
2004-04-19		1								1		*1*
2004-04-19		1								1		*1*
2004-04-19		1								1		*1*
2004-04-22		1			1					2		*2*
2004-05-31		1								1		*1*
2004-05-31		1		1						1		*1*
Total Stakeholders - Interviews	*1*	*13*	*0*	*1*	*4*	*0*	*1*	*1*	*0*	*19*	*0*	*19*
Observations												
2004-06-02					3			1		3		*3*
2004-03-10					5		1	1		6		*6*
Total Stakeholders - Observation	*0*	*0*	*0*	*0*	*8*	*0*	*1*	*2*	*0*	*9*	*0*	*9*
Group Discussions												
2004-04-07				10	10				1	20		*20*
Total Stakeholders - Group Discussion	*0*	*0*	*0*	*10*	*10*	*0*	*0*	*0*	*1*	*20*	*0*	*20*

APPENDIX D

List of Data Sources
Case Study 2: Yiwemi BVC

	NGO/FD	VH/GVH/TA	BVC	Gear owner	Crew member	Trader	Community member	Observation	Group Discussion	Total Men	Total Women	*Total Interviewees*
Interviews												
2002-07-17	1									1		*1*
2002-07-22						2					2	*2*
2004-03-05	1									1		*1*
2004-03-09		1								1		*1*
2004-03-10		1								1		*1*
2004-04-08		3								3		*3*
2004-04-12		2								2		*2*
2004-05-31		1								1		*1*
2004-06-02		2								2		*2*
2004-11-31	1									1		*1*
2005-01-29	1									1		*1*
2005-01-29	1									1		*1*
2005-02-05					1					1		*1*
2005-02-05				1						1		*1*
2005-02-05						1					1	*1*
2005-02-11					1					1		*1*
2005-02-11			1	1						1		*1*
2005-02-11						1					1	*1*
2005-02-11					1					1		*1*
2005-02-11						3	3				5	*5*
2005-02-11						1					1	*1*
2005-02-11			1		1					1		*1*
2005-02-11					1		1			1		*1*
2005-02-11						1					1	*1*
2005-02-14		1								1		*1*
2005-02-13						1				1		*1*
Total Stakeholders - Interviews	***5***	***11***	***2***	***2***	***5***	***10***	***4***	***0***	***0***	***24***	***11***	***35***
Observations												
2002-07-22					10	40		1		20	30	*50*
2005-02-05					16	50		1		26	40	*66*
2005-02-11					15	70		1		45	40	*85*
2005-02-11					5		10	1			1	*1*
Total Stakeholders - Observations	***0***	***0***	***0***	***0***	***46***	***160***	***10***	***4***	***0***	***91***	***111***	***202***

	NGO/FD	VH/GVH/TA	BVC	Gear owner	Crew member	Trader	Community member	Observation	Group Discussion	Total Men	Total Women	*Total Interviewees*
Group Discussions												
2002-07-19		1	10	10	20				1	31		***31***
2004-04-22		1		10	20				1	31		***31***
2004-06-11		1	11	4	6	3			1	8	3	***11***
2004-06-11			10						1	10		***10***
2004-06-11		1					5		1	6		***6***
Total Stakeholders - Group Discussions	***0***	***4***	***31***	***24***	***46***	***3***	***5***	***0***	***5***	***86***	***3***	***89***

APPENDIX E

List of Data Sources
Case Study 2: Supporting Data for Yiwemi BVC

	NGO/FD	VH/GVH/TA	BVC	Gear owner	Crew member	Trader	Community member	Observation	Group Discussion	Total Men	Total Women	*Total Interviewees*
Interviews												
2002-07-17	1									1		*1*
2004-03-05	1									1		*1*
2004-03-10		1								1		*1*
2004-03-13		1	1	1						1		*1*
2004-04-06		1								1		*1*
2004-05-31		1								1		*1*
2004-11-31	1									1		*1*
2004-12-01	1			1						1		*1*
2004-12-09	1	2			3					6		*6*
2005-01-29	1									1		*1*
2005-01-31			1							1		*1*
2005-01-31		1		1						1		*1*
2005-02-01				1						1		*1*
2005-02-01				1						1		*1*
2005-02-01						2					2	*2*
2005-02-01						5				2	3	*5*
2005-02-01				1						1		*1*
2005-02-06						2					2	*2*
2005-02-06						1					1	*1*
2005-02-07				1						1		*1*
2005-02-07					1					1		*1*
2005-02-07				1						1		*1*
2005-02-07						1					1	*1*
2005-02-07					1					1		*1*
2005-02-07						1				1		*1*
2005-02-10				1						1		*1*
2005-02-10						1					1	*1*
2005-02-10			1	1						1		*1*
2005-02-10				1						1		*1*
2005-02-12				1		1				1		*1*
2005-02-12						1				1		*1*
2005-02-13				1		1				1		*1*
2005-02-13						1				1		*1*
2005-02-13						1				1		*1*
2005-02-13		1								1		*1*
2005-02-14		1								1		*1*
2005-02-14		1		1						1		*1*

	NGO/FD	VH/GVH/TA	BVC	Gear owner	Crew member	Trader	Community member	Observation	Group Discussion	Total Men	Total Women	*Total Interviewees*
2005-02-14		1								1		***1***
2005-02-14			1	1						1		***1***
2005-02-14				1						1		***1***
2005-02-14		1		1						1		***1***
Total Stakeholders - Interviews	***6***	***12***	***4***	***17***	***5***	***18***	***0***	***0***	***0***	***42***	***10***	***52***
Observations												
2004-12-02				2				1		2		***2***
2005-02-01				5	10	40		1		25	30	***55***
2005-02-06				5	10	20		1		25	10	***35***
2005-02-07				4		25	20	1		19	30	***49***
2005-02-10				4	20	10		1		24	10	***34***
2005-02-12				16		150	30	1		71	125	***196***
2005-02-13				5		10		1		8	7	***15***
2005-02-15				21		75	25	1		61	60	***121***
Total Stakeholders - Observations	***0***	***0***	***0***	***62***	***40***	***330***	***75***	***8***	***0***	***235***	***272***	***507***
Group Discussions												
2004-06-04				20	15				1	35		***35***
2004-04-21		1	2		6				1	9		***9***
2004-06-03			1	14	1				1	15		***15***
2005-02-10	1	3	2	10	1	4	3		1	20	3	***23***
2002-07-20			6	15	15				1	35		***35***
Total Stakeholders - Group Discussions	***1***	***4***	***11***	***59***	***38***	***4***	***3***	***0***	***5***	***114***	***3***	***117***

APPENDIX F

List of Data Sources
Case Studies 3 & 4: Dwangwa Fish Sanctuary and Kambindingu Fisheries Association

	NGO/FD/Corporate	VH/GVH/TA	BVC	Gear owner	Crew member	Trader	Community businesses	Observation	Group Discussion	Total Men	Total Women	*Total Interviewees*
Interviews												
2002-07-11	1									1		*1*
2002-07-11			1	1						1		*1*
2002-07-12			2	3	2					6		*6*
2002-07-12			2	1						2		*2*
2003-11-01			1	1						1		*1*
2003-11-01	1									1		*1*
2003-11-03	1									1		*1*
2003-11-04			1	1						1		*1*
2003-11-05			1			2				2		*2*
2003-11-05			2	1						2		*2*
2003-11-07			1							1		*1*
2003-11-21		1					1			1		*1*
2003-12-02		1	2	2						3		*3*
2003-12-03	4		7							11		*11*
2003-12-04		1		1						1		*1*
2003-12-05	1									1		*1*
2004-02-13				1	1					1		*1*
2004-02-23	1									1		*1*
2004-02-23		1								1		*1*
2004-02-24			1	1						1		*1*
2004-02-25			1	1						1		*1*
2004-02-25	1						1			1		*1*
2004-02-25		1		1						1		*1*
2004-02-26		1									1	*1*
2004-02-27							1			1		*1*
2004-04-28			1	1						1		*1*
2004-04-28			2	2						2		*2*
2004-04-28					1	2				1	2	*3*
2004-05-02					4					4		*4*
2004-05-03		1		1						1		*1*
2004-05-03				1						1		*1*
2004-05-07	2									2		*2*
2004-05-08	1									1		*1*
2004-05-10			2	2						2		*2*
2004-06-28			1	1						1		*1*

	NGO/FD/Corporate	VH/GVH/TA	BVC	Gear owner	Crew member	Trader	Community businesses	Observation	Group Discussion	Total Men	Total Women	*Total Interviewees*
2004-06-28		1					1			1		*1*
2004-07-03		1					1			1		*1*
2004-10-31		2								2		*2*
2004-10-31		1		1						1		*1*
2005-03-01			1	1						1		*1*
2005-03-01					1					1		*1*
2005-03-01					1					1		*1*
2005-03-01				1		1				1		*1*
2005-03-02				1	1					2		*2*
2005-03-02		1		1						1		*1*
2005-03-02						1				1		*1*
2005-03-04	2									2		*2*
2005-03-04					1	1				1		*1*
2005-03-04				1						1		*1*
2005-03-05						1				1		*1*
2005-03-05					1		1			2		*2*
2005-03-05				1						1		*1*
2005-03-05						1					1	*1*
2005-03-05						1					1	*1*
2005-03-05	1									1		*1*
2005-03-05			1				1			1		*1*
2005-03-06			2							2		*2*
2005-03-07						2				2		*2*
2005-03-07				1						1		*1*
2005-03-16			2	2						2		*2*
2005-03-17				1						1		*1*
2005-03-17				1						1		*1*
2005-03-17			2							2		*2*
2005-03-17						1				1		*1*
2005-03-17				1	1					1		*1*
2005-03-17		1	1							1		*1*
2005-03-17						1				1		*1*
2005-03-17					1					1		*1*
2005-03-17				1						1		*1*
2005-03-17				1						1		*1*
2005-03-17		1								1		*1*
2005-03-18						1	1			1		*1*
2005-03-18						1				1		*1*
2005-03-19		1		1						1		*1*
2005-03-19		1	1	1						1		*1*
2005-03-20		1								1		*1*
2006-08-16	1									1		*1*

	NGO/FD/Corporate	VH/GVH/TA	BVC	Gear owner	Crew member	Trader	Community businesses	Observation	Group Discussion	Total Men	Total Women	*Total Interviewees*
2006-11-14	1									1		*1*
2006-11-20	1									1		*1*
Total Stakeholders	***19***	***18***	***38***	***40***	***15***	***16***	***8***	***0***	***0***	***110***	***5***	***115***
Observations												
2003-11-02			1	1	6			1		7		*7*
2003-11-04		1	1		8			1		10		*10*
2003-11-19			2					1		2		*2*
2004-05-02				1	7			1		8		*8*
2005-03-06				1	3			1		4		*4*
2005-03-04				3				1		3		*3*
2005-03-05				2		2		1		2	2	*4*
2005-03-02		2				20		1		11	11	*22*
2005-03-01					6	50		1		31	25	*56*
2005-03-01			1	10	50	50		1		61	30	*91*
2004-05-11				1	6			1		7		*7*
2004-05-05				1	10			1		11		*11*
2004-05-02			2	3	3			1		7		*7*
Total Stakeholders - Observations	***0***	***3***	***7***	***23***	***99***	***122***	***0***	***13***	***0***	***164***	***68***	***232***
Group Discussions												
2004-11-06	4	6	30						1	38	2	*40*
2004-02-23	2	2	2						1	6		*6*
2004-02-26		1	1		30				1	29	1	*30*
2005-03-30	1	6	10						1	17		*17*
Total Stakeholders - Group Discussions	***7***	***15***	***43***	***0***	***30***	***0***	***0***	***0***	***4***	***90***	***3***	***93***

Literature Cited:

Acheson, J. M. (1981). "Anthropology of Fishing." Annual Review of Anthropology **10**: 275-316.

Acheson, J. M. (1987). The lobster fiefs revisited: Economic and ecological effects of territoriality in the Maine lobster fishery. The Question of the Commons. B. McCay and J. Acheson. Tucson, AZ, University of Arizona Press: 37-65.

Adams, J. S. and T. O. McShane (1992). The Myth of Wild Africa: Conservation without Illusion. New York, W.W.Norton & Company.

Agar, M. H. (1996). The Professional Stranger: an informal introduction to ethnography. San Diego, CA, Academic Press.

Agnew, S. and C. Chipeta (1979). Fishing and Fish Trading: Socio-economic Studies. Lake Chilwa: Studies of Change in a Tropical Ecosystem. M. Kalk, A. J. McLachlan and C. Howard-Williams. The Hague, Dr. W.Junk bv. Publishers: 345-368.

Agrawal, A. (1999). "Enchantment and Disenchantment: the Role of Community in Natural Resources Conservation." World Development **27**(4): 629-649.

Agrawal, A. (2002). Common Resources and Institutional Sustainability. The Drama of the Commons. E. Ostrom, T. Dietz, N. Dolsaket al. Washington, D.C., National Academy Press: 41-86.

Allison, E. H. and P. M. Mvula (2002). Fishing Livelihoods and Fisheries Management in Malawi. Norwich, U.K., Overseas Development Group, U.of East Anglia.

Allison, E. H., P. M. Mvula, et al. (2002). Conflicting Agendas in the Development and Management of Fisheries on Lake Malawi. Africa's Inland Fisheries: The Management Challenge. K. Geheb and M.-T. Sarch. Kampala, Uganda, Fountain Publishers: 49-73.

Anderson, E. N., Jr. (1987). A Malaysian tragedy of the commons. In. The Question of the Commons. B. McCay and J. Acheson. Tucson, AZ, U. of Arizona Press: 327-343.

Anonymous (1999). Fish Stocks and Fisheries of Malawian Waters Resource Report 1999, Fisheries Department, Government of Malawi.

Argyris, C. and D. A. Schön (1996). Organizational Learning. Reading, MA, Addison-Wesley.

Association, C. (1998). CAMPFIRE Fact Sheet. Harare, Zimbabwe, African Resources Trust.

Baland, J.-M. and J.-P. Platteau (1996). Halting Degradation of Natural Resources: Is there a role for rural communities? Rome, Italy, FAO.

Banda, H. K. (1977). Address by His Excellency the Life President, Ngwazi Dr. H. Kamuzu Banda, at the Inauguration of Youth Week, Mapanga Malawi Young Pioneer Training Base, Blantyre, Malawi.

Banda, H. K. (1977). Address by His Excellency the Life President, Ngwazi Dr. H. Kamuzu Banda, to open the Advisory Board Meeting of the Commonwealth Youth Development Centre for Africa, Kwacha International Conference Centre, Blantyre, Malawi, Department of Information, Government of Malawi.

Banda, M. C., J. Chisambo, et al. (2000). Fisheries Research Unit Research Plan 2000 & 2001. Lilongwe, Malawi, Department of Fisheries: 54.

Bell, R. H. V. (1987). Conservation with a human face: conflict and reconciliation in African land use planning. Conservation in Africa: people, policies and practice. D. Anderson and R. Grove. Cambridge, Cambridge University Press: 79-101.

Bell, R. H. V. and S. Donda (2000). Lake Malawi National Park Strategic Management Plan. Lilongwe, Malawi, Department of National Parks and Wildlife.

Bell-Cross, G. (1971). "Weir fishing on the Barotse Flood Plain in Zambia." Fisheries Research Bulletin, Zambia **5**: 331-40.

Berkes, F. (1987). Common property resource management and Cree Indian fisheries in subarctic Canada. The Question of the Commons. B. J. McCay and J. M. Acheson. Tucson, AZ, Univ. of Arizona Press: 66-91.

Berkes, F. and C. Folke (1998). Linking social and ecological systems for resilience and sustainability. Linking Social and Ecological Systems: Institutional Learning for Resilience. C. Folke and F. Berkes. Cambridge, U.K., Cambridge University Press: 1-25.

Bernard, H. R. (1995). Research Methods in Anthropology. Walnut Creek, CA, Alta Mira Press.

Berry, V. and C. Petty, Eds. (1992). The Nyasaland survey papers 1938-1943 : agriculture, food and health. London, Academy Books Ltd.

Bertram, C. K. R., H. J. H. Borley, et al. (1942). Report on the fish and fisheries of Lake Nyasa. London, Crown Agents for the Colonies.

Bland, S. J. R. (1992). A Desk Study on Community Based Management for the Fisheries of Malawi. London, Overseas Development Administration: 45.

Bland, S. J. R. and S. Donda (1994). Management initiatives for the fisheries of Malawi, Malawi Fisheries Department, Government of Malawi.: 13.

Bohannan, P. and D. van der Elst (1998). Asking and Listening: Ethnography as personal adaptation. Prospect Heights, IL, Waveland Press, Inc.

Borley, H. J. H. (1954). Annual Report of the Department of Game, Fish and Tsetse Control. Zomba, Nyasaland, Department of Game, Fish and Tsetse Control.: 16.

Borley, H. J. H. (1960). Annual Report of the Department of Game, Fish and Tsetse Control. Zomba, Nyasaland, Department of Game, Fish and Tsetse Control.: 27.

Borley, H. J. H. (1962). Annual Report of the Department of Game, Fish and Tsetse Control. Zomba, Nyasaland, Ministry of Natural Resources and Surveys, Nyasaland: 52.

Borrini-Feyerabend, G., M. T. Farvar, et al. (2000). Co-management of Natural Resources: Organising, Negotiating and Learning by Doing. Yaoundé, Cameroon, IUCN.

Brelsford, W. V. (1946). Fishermen of the Bangweulu Swamps - A Study of the Fishing Activities of the Unga Tribe. Rhodes-Livingstone Papers. Manchester, UK.

Bromley, D. W. and M. M. Cernea (1989). "The management of common property natural resources: some." World Bank Discussion Papers(57): 84.

Bulirani, A. E., M. C. Banda, et al. (1999). Fish Stocks and Fisheries of Malawian Waters Resource Report 1999. Lilongwe, Malawi, Fisheries Department.

Busse, J. (1995). Die Nyakyusa : Wirtschaft und Gesellschaft. Muenster, LIT Verlag.

Carrier, J. G. (1987). Marine tenure and conservation in Papua New Guinea: Problems of interpretation. The Question of the Commons. B. McCay and J. Acheson. Tucson, AZ, University of Arizona Press: 142-167.

Chambers, R. (1981). "Rapid rural appraisal: rationale and repertoire." Public Administration and Development **1**(2): 95-106.

Chambers, R. (1984). Rural development : putting the last first. London, UK, Longman.

Chambers, R. (1994). "The Origins and Practice of Participatory Rural Appraisal." World Development **22**(7): 953-969.

Charsley, S. R. (1969). The Princes of Nyakyusa. Nairobi, Kenya, Published for the Makerere Institute of Social Research by the East African Publishing House.

Chinsinga, B. (2002). The Politics of Poverty Alleviation in Malawi: a Critical Review. A Democracy of Chameleons: Politics and Culture in the New Malawi. H. Englund. Blantyre, Malawi, Christian Literature Association in Malawi (CLAIM/MABUKU): 25-42.

Chirwa, W. C. (1996). "Fishing rights, ecology and conservation along Southern Lake Malawi." African Affairs **95**(380): 351-377.

Chirwa, W. C. (1997). Lake Malombe and Upper Shire River fisheries co-management programme: An assessment. Fisheries Co-management in Africa: proceedings from a regional workshop on fisheries co-management research. A. K. Normann, J. R. Nielsen and S. Sverdrup-Jensen. Hirtshals, Denmark, Insitute for Fisheries Management and Coastal Community Development: 61-78.

Chung, K. (2000). Qualitative Data Collection Techniques. Designing and Implementing the Living Standards Measurement Surveys: Lessons from Ten Years of Experience. M. Grosh and P. Glewwe. Washington, D.C., World Bank: 337-363.

Cleaver, F. (2002). "Reinventing Institutions: Bricolage and the Social Embeddedness of Natural Resource Management." European Journal of Development Research **14**(2): 11-30.

Cleaver, F. and A. Toner (2006). "The evolution of community water governance in Uchira, Tanzania: The implications for equality of access, sustainability and effectiveness." Natural Resources Forum **30**: 207–218.

Coleman, G. (1974). "The African Population of Malawi: An Analysis of the Censuses between 1901 and 1966." Society of Malawi Journal **27**(1): 27-41.

Cordell, J. C. and M. A. McKean (1986). Sea Tenure in Bahia, Brazil. Proceedings of the Conference on Common Property Resource Management, Washington, D.C., National Academy Press.

Coutu, D. L. (2002). "The anxiety of learning: An interview with Edgar H. Schein." Harvard Business Review **80**(3 (March)): 100-106.

Crane, J. G. and M. V. Angrosino (1992). Field Projects in Anthropology: a student handbook. Prospect Heights, IL, Waveland Press, Inc.

Crossan, M. M., H. W. Lane, et al. (1999). "An organizational learning framework: from intuition to institution." Academy of Management Review **24**(3): 522-537.

Cutcher-Gershenfeld, J. and J. K. Ford (2005). Valuable Disconnects in Organizational Learning Systems: Integrating bold visions and harsh realities. Oxfork, UK, Oxford University Press.

De Gabriel, J. (1998). Evaluation of the Participatory Fisheries Management Programme for Lake Malombe and the Upper Shire. Malawi, Consultancy on behalf of Malawi Fisheries Department: 32.

Denzin, N. K. (1978). The research act : a theoretical introduction to sociological methods. New York :, McGraw-Hill.

Derman, B. and A. Ferguson (1995). "Human Rights, Environment, and Development: the Dispossession of Fishing Communities on Lake Malawi." Human Ecology **23**(2): 125-142.

Diamond, J. (2005). Collapse: How Societies Choose to Fail or Succeed. New York, NY, Penguin Books.

Eccles, D. H. (1960). Activities of the Organization in Nyasaland: The Long-Line Fishery. Joint Fisheries Research Organization: Annual Report. Lusaka, Northern Rhodesia, Government Printer: 48.

Englund, H. (2002). Introduction: The Culture of Chameleon Politics. A Democracy of Chameleons: Politics and Culture in the New Malawi. H. Englund. Blantyre, Malawi, Christian Literature Association in Malawi (CLAIM/MABUKU): 11-24.

Ensminger, J. (1996). Culture and property rights. Rights to Nature: Ecological, economic, cultural, and political principles of institutions for the environment. S. Hanna, C. Folke and K.-G. Maeler. Washington D.C., Island Press: 179-204.

FAO (1993). Fisheries management in the south-east arm of Lake Malawi, the Upper Shire River and Lake Malombe, with particular reference to the fisheries on chambo (Oreochromis spp.). Rome, GOM/FAO/UNDP Chambo Fisheries Research Project: 113p.

FAO (2005). Fishery Country Profile - Republic of Malawi. Rome, Italy, FAO.

FAO/UN (1966). "Report to the Government of Malawi on a Programme for Fisheries Development. Based on the work of H.L.F. Renson, UNDP/TA Advisor." Rep FAO/UNDP(TA) **TA2239**: 53.

Fazey, I., J. A. Fazey, et al. (2005). "Learning more effectively from experience." Ecology and Society **10**(2): 4. [online] URL: http://www.ecologyandsociety.org/vol10/iss2/art4/.

Ferguson, A. and B. Derman (1991). Mismanaging the commons: development strategies and the future of Lake Malawi. Canadian Association for African Studies Annual Meeting, Toronto, Canada.

Ferguson, A. and B. Derman (1993). The Science and politics of crisis: a re-analysis of the collapse of a fishery in Malawi. Annual Meeting of the American Fisheries Society, Portland, Oregon.

Ferguson, A. and B. Derman (2000). Writing Against Hegemony: Development Encounters in Zimbabwe and Malawi. Development Encounters: Sites of Participation and Knowledge. P. Peters. Mass., Harvard University Press: 121-155.

Ferguson, A., B. Derman, et al. (1993). "The New Development Rhetoric and Lake Malawi." Africa **63**(1).

Folke, C. (2002). Social-Ecological Resilience and Behavioural Responses. Beijer Discussion Paper. Stockholm, Sweden, Beijer International Institute of Ecological Economics: 19.

Folke, C., F. Berkes, et al. (1998). Ecological practices and social mechanisms for building resilience and sustainability. Linking Social and Ecological Systems: Institutional Learning for Resilience. C. Folke and F. Berkes. Cambridge, U.K., Cambridge University Press: 414-436.

Fosbrooke, H. A. (1934). "Some aspects of the Kimwani Fishing Culture, with Comparative notes on Alien Methods." Journal of the Royal Anthropological Institute of Great Britain and Ireland **64**: 1-22.

Furse, M. T., P. R. Morgan, et al. (1979). The Fisheries of Lake Chilwa. Lake Chilwa: Studies of Change in a Tropical Ecosystem. M. Kalk, A. J. McLachlan and C. Howard-Williams. The Hague, Dr. W. Junk bv. Publishers: 209-230.

Futemma, C., F. de Castro, et al. (2002). "The emergence and outcomes of collective action: An institutional and ecosystem approach." Society and Natural Resources **15**: 503-522.

Gaiger, M. C. L. (1994). Report to the Government of the Republic of Malawi on Fisheries Legislation. Rome, Italy, FAO: 41.

Ganter, E., J. Chisambo, et al. (2001). NARMAP Socioeconomic Survey Reports. Mangochi, Malawi, NARMAP.

Gordon, H. S. (1954). "The Economic theory of a common property resource: the fishery." Journal of Political Economy **62**: 124-142.

Greiner, L. E. (1972). "Evolution and revolution as organizations grow." Harvard Business Review **50**((July-August)): 37-46.

Grenfell, S. A. (1993). Lake Malawi National Park Management and Development Plan. Malawi, Department of National Parks and Wildlife.

Gronow, C. J. V. (1995). Shifting power, sharing power: issues from user group forestry in Nepal. Power and participatory development: Theory and practice. N. Nelson and S. Wright. London, UK, ITP: 125-132.

Guba, E. (1981). "Criteria for assessing the trustworthiness of naturalistic inquiries." Educucational Communication and Technology **29**(2): 75-91.

Gunderson, L. H., and C. S. Holling, Ed. (2002). Panarchy: understanding transformation in human and natural systems. Washington, D.C., Island Press.

Gunderson, L. H., S. R. Carpenter, et al. (2006). "Water RATs (resilience, adaptability, and transformability) in lake and wetland social-ecological systems." Ecology and Society **11**(1): 16. [online] URL: http://www.ecologyandsociety.org/vol11/iss1/art16.

Hanna, S. and S. Jentoft (1996). Human use of the natural environment: an overview of social and economic dimensions. Rights to Nature: Ecological, economic, cultural, and political principles of institutions for the environment. S. Hanna, C. Folke and K.-G. Maeler. Washington, D.C., Island Press.

Hara, M. M. (2001). Could Co-Management Provide A Solution To The Problems Of Artisanal Fisheries Management On The South-East Arm Of Lake Malawi? Faculty of Arts, University of the Western Cape, South Africa: 181.

Hara, M. M., S. J. Donda, et al. (2002). Lessons from Malawi's Experience with Fisheries Co-management Initiatives. Africa's Inland Fisheries: the Management Challenge. K. Geheb and M.-T. Sarch. Kampala, Uganda, Fountain Publishers: 31-48.

Hara, M. M. and E. Jul-Larsen (2003). The "Lords" of Malombe: An analysis of Fishery Development and changes in Fishing effort on Lake Malombe, Malawi. Management, co-management or no management? Major dilemmas in southern African freshwater fisheries, 2. Case Studies. E. Jul-Larsen, J. Kolding, R. Overa, J. R. Nielsen and P. A. M. van Zwieten. Rome, Italy, FAO: 179-200.

Haraldsdóttir, G. (2002). Cooperation and Conflicting Interests: An Ethnography of Fishing and Fish Trading on the Shores of Lake Malawi. Dept. of Anthropology. Iowa City, Iowa, University of Iowa: 240.

Hardin, G. (1968). "The Tragedy of the Commons." Science **162**: 1243-1248.

Hartmann, B. (2001). Will the circle be unbroken? A critique of the Project on Environment, Population, and Security. Violent Environments. N. L. Peluso and M. Watts. Ithaca, N.Y., Cornell University Press: 39-64.

Holling, C. S. (1973). "Resilience and stability of ecological systems." Annual Review of Ecology and Systematics **4**: 1-23.

Holling, C. S. (1978). Adaptive Evironmental Assessment and Management. Chichester, NY, John Wiley and Sons.

Holling, C. S. (1996). "Surprise for Science, Resilience for Ecosystems, and Incentives for People." Ecological Applications **6**(3): 733-735.

Holling, C. S., F. Berkes, et al. (1998). Science, sustainability and resource management. Linking Social and Ecological Systems. F. Berkes and C. Folke. Cambridge, England, Cambridge University Press: 342-362.

Holling, C. S. and G. K. Meffe (1996). "Command and Control and the Pathology of Natural Resource Management." Conservation Biology **10**(2): 328-337.

Holling, C. S. and S. Sanderson (1996). Dynamics of (dis)harmony in ecological and social systems. Rights to Nature: Ecological, economic, cultural, and political principles of institutions for the Environment. S. Hanna, C. Folke and K.-G. Maeler. Washington, D.C., Island Press: 57-86.

Homer-Dixon, T. F. (1999). Environment, Scarcity, and Violence. Princeton, N.J., Princeton University Press.

Hoole, M. C. (1955). "Notes on Fishing and Allied Industries as Practised amongst the Tonga of the West Nyasa District [1934]." Nyasaland Journal **8**(1): 25-38.

Hooley, N. (2005). "Participatory action research and the struggle for legitimation." Australian Educational Researcher **32**(1): 67-82.

Ihonvbere, J. O. (1997). "From despotism to democracy: the rise of multiparty politics in Malawi." Third World Quarterly **18**(2): 225-247.

Jackson, P. B. N., T. D. Iles, et al. (1963). Report on the Survey of Northern Lake Nyasa, 1954-55. Zomba, Malawi, Nyasaland Government Printer.

Jacob, A. (2001). "Möglichkeiten und Grenzen der Triangulation quantitativer und qualitativer Daten am Beispiel der (Re-) Konstruktion einer Typologie erwerbsbiographischer Sicherheitskonzepte." Forum: Qualitative Social Research [On-line Journal] **2**(1): 1-29.

Jentoft, S. (2000). "Legitimacy and disappointment in fisheries management." Marine Policy **24**(2): 141-148.

Jentoft, S. (2004). "Institutions in fisheries: what they are, what they do, and how they change." Marine Policy **28**: 137–149.

Jentoft, S. (2005). "Fisheries co-management as empowerment." Marine Policy **29**(1): 1-7.

Jentoft, S., B. J. McCay, et al. (1998). "Social theory and fisheries co-management." Marine Policy **22**(4-5): 423-436.

Jodha, N. S. (1996). Propert rights and development. Rights to Nature: Ecological, economic, cultural, and political principles of institutions for the environment. S. Hanna, C. Folke and K.-G. Maeler. Washington D.C., Island Press: 205-220.

Jones, D., S. Akester, et al. (1990). Evaluation of ODA Institutional Support to Malawi Fisheries Department. London, UK, Evaluation Dept., Overseas Development Administration: 111.

Jul-Larsen, E., J. Kolding, et al. (2003). Management, co-management or no management? Major dilemmas in southern African freshwater fisheries 1. Synthesis report. Rome, Italy, FAO: 117.

Kalinga, O. (1985). "Colonial rule, missionaries and ethnicity in the North Nyasa District, 1891-1938." African Studies Review **28**(1): 57-72.

Kalinga, O. J. M. (1974). A History of the Ngonde Kindom in Malawi. Berlin, Mouton Publishers.

Kamanga, B. E. (1974). "The nature of the fishing industry centred on Chisumulo Island." Dziko: a geographical magazine **5**: 40-52.

Katz, D. and R. L. Kahn (1966). The social psychology of organizations. New York, Wiley.

Kelle, U. (2001). "Sociological explanations between micro and macro and the integration of qualitative and quantitative methods." Forum: Qualitative Social Research [On-line Journal] **2**(1): 1-19.

Kemmis, S. and R. McTaggart (2000). Participatory Action Research. The Handbook of Qualitative Research. N. K. Denzin and Y. S. Lincoln. Thousand Oaks, CA, Sage Publications, Inc.: 567-606.

Khembo, N. (2005). National Integrity Systems TI Country Report - Malawi 2004. Berlin, Germany, Transparency International.

Korten, D. C. (1980). "Community Organization and Rural Development: a Learning Process Approach." Public Administration Review **1980**(September/October): 480-511.

Kydd, J. and R. Christiansen (1982). "Structural change in Malawi since independence: Consequences of a development strategy based on large-scale agriculture." World Development **10**(5): 355-375.

Lancaster, N. (1979). The Changes in the Lake Level. Lake Chilwa: Studies of Change in a Tropical Ecosystem. M. Kalk, A.J. McLachlan and C. Howard-Williams. The Hague, Dr. W. Junk Publishers.: 41-58.

Leach, M., R. Mearns, et al. (1999). "Environmental Entitlements: Dynamics and Institutions in Community-Based Natural Resource Management." World Development **27**(2): 225-247.

Lee, K. N. (1993). Compass and Gyroscope: Integrating Science and Politics for the Environment. Washington, D.C., Island Press.

Levieil, D. P. and B. Orlove (1990). "Local control of aquatic resources: Community and ecology in Lake Titicaca, Peru." American Anthropologist **92**(2): 362-382.

Levitt, B. and J. G. March (1988). "Organizational learning." Annual Review of Sociology **14**: 319-340.

Lincoln, Y. S. and E. Guba (2000). Paradigmatic controversies, contradictions, and emerging confluences. Handbook of Qualitative Research. N. K. Denzin and Y. S. Lincoln. Thousand Oaks, CA, Sage Publications: 163-188.

Lipshitz, R. and M. Popper (2002). "A multifacet model of organizational learning." Journal of Applied Behavioral Science **38**(1): 78-98.

Livingstone, D. and C. Livingstone (1865). Narrative of an expedition to the Zambesi and its tributaries: and of the discovery of the Lakes Shirwa and Nyassa, 1858-1864. London, John Murray Publishing.

Löfgren, O. (1972). Resource management and family firms: Swedish west coast fishermen. North Atlantic Fishermen. R. Andersen and C. Wadel. St. John's, Newfoundland, Memorial University of Newfoundland.: 82-103.

Lowe, R. H. (1948). "Notes on the Ecology of Lake Nyasa Fish." Nyasaland Journal **1**(1): 39-50.

Lowe, R. H. (1952). Report on the Tilapia and other fish and fisheries of Lake Nyasa 1945-47., Fishery Publications of the Colonial Office: 1–126.

Malawi, G. o. (1974). Fisheries Act: 53.

Malawi, G. o. (1999). United National Development Programme Fifth Country Programme Component VI - Capture Fisheries Report. Lilongwe, Malawi, Government of Malawi.

Mandala, E. C. (1990). Work and Control in a Peasant Economy: A History of the Lower Tchiri Valley in Malawi, 1859-1960. Madison, Wisconsin, University of Wisconsin Press.

Marsland, N., I. Wilson, et al. (2001). A methodological framework for combining quantitative and qualitative survey methods. Reading, UK, Natural Resources Institute, University of Reading: 24.

Maxwell, J. (1996). Qualitative Research Design. Thousand Oaks, CA, Sage Publications.

McCay, B. and J. A. Acheson (1987). Human Ecology of the Commons. Tucson, AZ, University of Arizona Press.

McCay, B. J. (1984). "The pirates of piscary: Ethnohistory of illegal fishing in New Jersey." Ethnohistory **31**(1): 17-37.

McCracken, J. (1977). "Underdevelopment in Malawi: the missionary contribution." African Affairs **76**(303): 195-209.

McCracken, J. (1987). "Fishing and the colonial economy: The case of Malawi." Journal of African History **28**(3): 413-429.

McCracken, J. (2002). "The Ambiguities of Nationalism: Flax Musopole and the Northern Factor in Malawian Politics, c. 1956–1966." Journal of Southern African Studies **28**(1): 67-87.

Mdaihli, M. and S. Donda (1992). Profitability of Fishing in Lake Malombe, the Upper Shire River and the South-East Arm of Lake Malawi., GOM/UNDP/FAO Chambo Fisheries Research Project, Malawi: 20.

Mearns, R. (1995). Environmental Entitlements: Towards Empowerment for Sustainable Development. Empowerment for Sustainable Development. N. Singh and V. Titi. Winnipeg, Manitoba, International Instituted for Sustainable Development: 37-53.

Miles, M. and A. M. Huberman (1994). Qualitative Data Analysis. Thousand Oaks, CA, Sage Publications.

Morris, B. (1996). A Short History of Wildlife Conservation in Malawi. Edinburgh, Scotland, Centre of African Studies, Edinburgh University.

Morris, B. (1997). "G.D. Hayes and the Nyasaland Fauna Preservation Society." Society of Malawi Journal **50**(1): 1-12.

Mosse, D. (1995). Local institutions and power: The history and practice of community management of tank irrigation systems in south India. Power and Participatory Development: Theory and Practice. N. Nelson and S. Wright. London, UK, ITP: 144-156.

Msosa, W. (1999). Fishery Culture and Origins of the Ethnicity-Tonga People of Lake Malawi. Ancient Lakes: Their Cultural and Biological Diversity. H. Kawanabe, G. W. Coulter and A. C. Roosevelt. Belgium, Kenobi Productions: 271-280.

Mumba, P. P. and M. Jose (2005). "Nutrient composition of selected fresh and processed fish species from Lake Malawi: a nutritional possibility for people living with HIV/AIDS." International Journal of Consumer Studies **29**(1): 72-22.

Munthali, S. M. (1994). Protected Areas and People: Sustaining Lake Malawi's Ecology. Lilongwe, Malawi, Department of National Parks and Wildlife, Malawi.: 1-36.

Murray, T. P., J. J. Kay, et al. (2003). Linking Human and Ecosystem Health on the Amazonian Frontier: An Adaptive Ecosystem Approach. Conservation Medicine: Ecological Health in Practice. A. A. Aguirre, R. S. Ostfeld, C. A. House, G. M. Tabor and M. C. Pearl. Oxford, UK, Oxford University Press.

Mzumara, A. J. P. (1967). "The Lake Chilwa Fisheries." Society of Malawi Journal **20**(1): 58-68.

Namagonya, S. S. R. and N. Zamadenga (1992). Msaka Fishing Camp, Chimphamba Village (Mangochi), Southern Region. Lilongwe, Malawi, Bunda College of Agriculture.

Nangoma, D. and S. Nyirenda (1991). Ndyaka Fishing Village, Northern Region. Lilongwe, Malawi, Bunda College of Agriculture.

Netting, R. M. (1981). Balancing on an Alp : ecological change and continuity in a Swiss mountain community /. Cambridge [Eng.] ;, Cambridge University Press.

Ng'ong'ola, C. (1990). "The State, Settlers, and Indigenes in the Evolution of Land Law and Policy in Colonial Malawi." International Journal of African Historical Studies **23**(1): 27-58.

Nielsen, J. R., P. Degnbol, et al. (2004). "Fisheries co-management—an institutional innovation? Lessons from South East Asia and Southern Africa." Marine Policy **28**(2): 151–160.

Njaidi, D. (1995). "Towards an exploration of game control and land conservation in colonial Mangochi 1891-1964." Society of Malawi Journal **48**(2): 1-25.

Njaya, F. J. (2001). Review of management measures for Lake Chilwa, Malawi. Reykjavik, Iceland, United Nations University - Fisheries Training Program: 50.

Njaya, F. J. (2002). Fisheries Co-management in Malawi: Implementation Arrangements for Lakes Malombe, Chilwa and Chiuta. Africa's Inland Fisheries: the Management Challenge. K. Geheb and M.-T. Sarch. Kampala, Uganda, Fountain Publishers: 9-30.

Noble, B. F. (2000). "Institutional criteria for co-management." Marine Policy **24**(1): 69-77.

Nsiku, E. (2001). The use of fishers' knowledge in the management of fish resources in Malawi. Putting Fishers' Knowledge to Work., Vancouver, B.C., Canada, University of British Columbia, Vancouver, B.C., Canada.

Nyasaland, G. o. (1923). Colonial Reports - Annual: Nyasaland. London, His Majesty's Stationary Office.

Nyasaland, G. o. (1930). Colonial Reports - Annual: Nyasaland. London, His Majesty's Stationary Office.

Nyasaland, G. o. (1931). The Game Ordinance of 1930. Government Notice 13.

Nyasaland, G. o. (1932). Colonial Reports - Annual: Nyasaland. London, His Majesty's Stationary Office.

Nyasaland, G. o. (1949). Colonial Office Annual Report on the Nyasaland Protectorate for the Year 1949. London, His Majesty's Stationary Office.

Nyasulu, T., W. Namoto, et al. (2001). Analysis of Catch and Effort Data for the Fisheries of Lake Chilwa 1976-1999. Lilongwe, Malawi, Department of Fisheries: 22.

Nyirenda, K. (2001). Review of recommendations of the Lake Chilwa and Mpoto Lagoon Fisheries by-laws review meeting. Blantyre, Malawi, Compass.

Officer, L. H. (2004). "What Is Its Relative Value in UK Pounds?", Economic History Services.

Olsson, P. and C. Folke (2001). "Local Ecological Knowledge and Institutional Dynamics for Ecosystem Management: A Study of Lake Racken Watershed, Sweden." Ecosystems **4**(2): 85-104.

Olsson, P., C. Folke, et al. (2004). "Adaptive Comanagement for Building Resilience in Social–Ecological Systems." Environmental Management **34**(1): 75–90.

Ostrom, E. (1990). Governing the Commons: the Evolution of Institutions for Collective Action. Cambridge, England, Cambridge University Press.

Ostrom, E. (2005). Understanding Insititutional Diversity. Princeton, N.J., Princeton University Press.

Patterson, M. E. and D. R. Williams (1998). "Paradigms and problems: The practice of social science in natural resource management." Society & Natural Resources **11**(3): 279-295.

Patton, M. Q. (2002). Qualitative research and evaluation methods. Thousand Oaks, CA, Sage Publications.

Perry, J. (1969). "The Growth of the Transportation Network of Malawi." Society of Malawi Journal **22**(2): 23-37.

Phipps, P. (1973). The 'Big' Fishermen of Lake Chilwa: a preliminary study in entrepreneurism in rural Malawi. Land and Labour in Rural Malawi. M. E. Page. East Lansing, Michigan, Michigan State University: 39-48.

Pinkerton, E. (1989). Attaining better fisheries management through co-management - prospects, problems and propositions. Cooperative Management of Local Fisheries: New Directions for Improved Management and Community Development. E. Pinkerton. Vancouver, U. of British Columbia Press: 4-30.

Pinkerton, E. W. (1987). Intercepting the State: Dramatic processes in the Assertion of local comanagement rights. The Question of the Commons. B. McCay and J. Acheson. Tucson, AZ, U. of Arizona: 290-307.

Pinkerton, E. W. (1988). Cooperative management of local fisheries: a route to development. Production and Autonomy: Anthropological Studies and Critiques of Development. J. W. Bennet and J. R. Bowen. Lanham, MD, University Press: 257-173.

Pinkerton, E. W. (1994). "Local fisheries co-management: A review of international experiences and their implications for salmon management in British Columbia." Canadian journal of fisheries and aquatic sciences **51**: 2363–2378.

Posner, D. N. (1995). "Malawi's New Dawn." Journal of Democracy **6**(1): 131-145.

Ransford, O. (1966). Livingstone's Lake : the Drama of Nyasa. London, England, John Murray.

Rantala, S. (2004). The promise of ecotourism in Lake Malawi National Park. Non-wood News: Country Compass. T. Etherington. Rome, Italy, FAO: 3.

Rubin, H. J. and I. S. Rubin (1995). Qualitative interviewing: the art of hearing data. Thousand Oaks, CA, Sage Publications, Inc.

Sanderson, F. E. (1961). "The development of labour migration from Nyasaland, 1891-1914." Journal of African History **2**(2): 259-271.

Schaefer, M. B. (1954). "Some aspects of the dynamics of populations important to the management of the commercial marine fisheries,." Bulletin of the Inter-American Tropical Tuna Commission **1**: 27-56.

Schatzman, L. and A. L. Strauss (1973). Field Research: Strategies for a Natural Sociology. Englewood Cliffs, N.J., Prentice-Hall, Inc.

Schensul, S. L., J. J. Schensul, et al. (1999). Essential Ethnographic Methods. Walnut Creek, CA, Alta Mira Press.

Scholz, U. and S. Chimatiro (2004). "Institutionalizing Traditional Community-based Natural Resource Management." IK Notes(64): 4.

Scholz, U. F., F. J. Njaya, et al. (1998). Status and prospects of participatory fisheries management - Programs in Malawi. FAO/ODA Expert Consultation on Inland Fisheries Enhancements, Dhaka, Bangladesh, FAO.

Schusler, T. M. and D. J. Decker (2003). "Social learning for collaborative natural resource management." Society and Natural Resources **15**: 309-326.

Scudder, T. (1960). "Fishermen of the Zambezi: an appraisal of fishing practise and potential of the Valley Ethnicity-Tonga." Rhodes-Livingstone Institute Journal **27**: 41-49.

Seymour, T. (2005). Nkhotakota District:Participatory Fisheries Management and Offshore Fishery Development. Blantyre, Malawi, COMPASS II.

Singleton Jr., R. A., B. C. Straits, et al. (1993). Approaches to Social Research. Oxford, UK, Oxford University Press.

Smith, C. L. (1977). Fisheries as subsistence resources: Growth and decline of the Columbia River salmon fishery. Those Who Live from the Sea. M. E. Smith. St. Paul, MN, West Publishing: 215-234.

Spradley, J. P. (1979). The Ethnographic Interview. New York, NY, Holt, Rinehart and Winston.

Stern, P. C., T. Dietz, et al. (2001). Conclusion: Knowledge and questions after 15 years of research. The Drama of the Commons. E. Ostrom, T. Dietz, N. Dolsaket al. Washington, D.C., National Academies Press: 445-490.

Taylor, L. (1987). "The river would run red with blood": Community and common property in an Irish fishing settlement. The Question of the Commons. B. McCay and J. Acheson. Tucson, AZ, University of Arizona: 290-307.

Tedlock, B. (2000). Ethnography and Ethnographic Representation. The Handbook of Qualitative Research. N. K. Denzin and Y. S. Lincoln. Thousand Oaks, CA, Sage Publications, Inc.: 455-486.

Tew, M. (1950). Peoples of the Lake Nyasa Region. London, Oxford University Press.

Thomas, S. (1975). "Economic developments in Malawi since independence." Journal of Southern African Studies **2**(1): 30-51.

Thorold, A. (1995). "The persistence of tribe." Alternation **2**(2): 74-89.

Tweddle, D. (1980). The Importance of Long-term Data Collection on River Fisheries, with Particular Reference to the Cyprinid (Opsaridium Microlepis, Gunther, 1894) Fisheries of the Affluent Rivers of Lake Malawi. Seminar on River Basin Management and Development., Blantyre, Malawi, CIFA.

Tweddle, D. (1985). "The Importance of the National Parks, Game Reserves and Forest Reserves of Malawi to Fish Conservation and Fisheries Management." Nyala **11**(1): 5-11.

Tweddle, D., S. B. Alimoso, et al. (1990). Analysis of catch and effort data for the fisheries of the Nkhotakota area: Lake Malawi, 1976-89. Monkey Bay, Malawi, Fisheries Research Unit.

Tweddle, D., S. B. Alimoso, et al. (1994). Analysis of catch and effort data for the fisheries of Lake Malombe, 1976-1989. Lilongwe, Malawi, Government of Malawi.

Tweddle, D., A. G. Seymour, et al. (1990). A Description of the Traditional Fisheries of the Karonga Area of Lake Malawi; and Analysis of Catch and Effort Data for the Fisheries of the Karonga Area, 1980-1989. Monkey Bay, Malawi, Fisheries Research Unit.

UNAIDS (2006). Report on the global AIDS epidemic 2006. Geneva, Switzerland, Joint United Nations Programme on HIV/AIDS.

UNDP (2005). Human Development Indicators. Rome, Italy, UNDP: 113.

UNPP (2005). World Population Prospects: the 2004 Revision Population Database. Rome, Italy, United Nations Population Programme.

van Hekken, P. M. (1986). Leven en Werken in een Nyakyusa Dorp (Life and Work in a Nyakyusa village). Faculty of Social Sciences. Utrecht, Rijksuniversiteit te Utrecht: 436.

van Velsen, J. (1959). "The missionary factor among the lakeside Ethnicity-Tonga of Nyasaland." Rhodes-Livingstone Institute Journal **26**(December): 1-22.

van Velsen, J. (1964). The Politics of Kinship: A study in social manipulation among the Lakeside Ethnicity-Tonga of Nyasaland, Manchester University Press, UK.

Vaughan, M. (1982). "Food production and family labour in southern Malawi: the Shire Highlands and Upper Shire Valley in the Early Colonial Period." Journal of African History **23**(3): 351-364.

Wadel, C. (1972). Capitalization and ownership: The persistence of fishermen-ownership in the Norwegian herring fishery. North Atlantic Fishermen. R. Andersen and C. Wadel. St. John's, Newfoundland, Memorial University: 104-119.

Walker, B., C. S. Holling, et al. (2004). "Resilience, adaptability and transformability in social-ecological systems." Ecology and Society **9**(2): 5.

Walker, P. A. (2004). "Roots of Crisis: Historical Narratives of Tree Planting in Malawi." Historical Geography **32**: 89-109.

Watson, C. E. P. (1987). Malawi Fisheries Development Strategy Study - Final Report.

Weyl, O. L. F. (1999). NARMAP Research Component: End of Year Report 1999. Monkey Bay. Malawi, NARMAP: 7.

White, L. (1987). Magomero: Portrait of an African Village. Cambridge, UK, Cambridge University Press.

Whitehead, P. J. P. (1958). "Indigenous river fishing methods in Kenya." East African Agricultural Journal **14**(2): 111-120.

Williams, T. D. (1969). Commodity Distribution in Malawi: a Case Study. Economic Development and Structural Change. I. G. Stewart. Edinburgh, UK, University of Edinburgh Press: 83-103.

Willis, J. (2001). "'Beer Used to Belong to Older Men': Drink and Authority among the Nyakyusa of Tanzania." Africa **71**(3): 373-390.

Wilson, D. and S. Jentoft (1999). Structure, agency and embeddedness: Sociological approaches to fisheries management institutions. Alternative Management Systems for Fisheries. D. G. Symes. Malden, Mass., Blackwell Science: 63-72.

Wilson, G. (1938). The Land Rights of Individuals among the Nyakyusa. Livingstone, Northern Rhodesia, Rhodes-Livingstone Institute.

Wilson, G. (1939). The Constitution of Ngonde. Livingstone, Northern Rhodesia, Rhodes-Livingstone Institute.

Wilson, J. (2004). Participatory Fisheries Management: The Development of Constitutions for the Beach Village Committees and Fisheries Associations of Lakes Chilwa and Chiuta and Mpoto Lagoon. Blantyre, Malawi, COMPASS.

Wilson, J. (2006). The Role of the Chiefs in Beach Village Committees or Fishermen's Associations.

Wilson, J. G. M. (1993). "Lake Malombe and Upper Shire Community Fisheries Management Programme." SADC Natural Resources Newsletter(4): 10-11.

Wilson, M. (1951). Good Company: A study of Nyakyusa age-villages. Prospect Heights, Illinois, Waveland Press, Inc.

Wilson, M. (1977). For Men and Elders: Change in the Relations of Generations and of Men and Women among the Nyakyusa-Ngonde People 1875-1971. New York, Africana Publishing Company.

Withers, F. M. (1952). "Seine net fishing in Nyasa (from Notes supplied by John Hutchinson)." Nyasaland Journal **5**(1): 26-32.

Woods, T. (1990). "Capitaos and Chiefs: Oral Tradition and Colonial Society in Malawi." International Journal of African Historical Studies **23**(2): 259-268.

Yin, R. K. (2003). Case Study Research: Design and Methods. Thousand Oaks, CA, Sage Publications.

Young, T. C. (1970). Notes on the History of the Tumbuka-Kamanga Peoples in Northern Provice of Nyasaland. London, Frank Cass and Co. Ltd.

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