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Actor-based design of a management system for the Elephant Marsh Fishery in Malawi

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Local fishing knowledge is transferred to the youth at Chisamba Fishing Village

Abstract

In Malawi, fishing community user groups (known as beach village committees), traditional chiefs, government officers and fishers are the key players in fisheries management. Based on interviews and participant observation, this paper uses an actor-based framework (known as Action-in-Context) to unveil the issues that are crucial in devising a sustainable governance system for the Elephant Marsh Fishery in Southern Malawi. We establish and propose that the key social variables for the design of a three-pillared (locally based, weak and amorphous) resilient institution for sustainability of the Elephant Marsh Fishery are (i) the social reputation of the leaders of local fishery institutions (beach village committee leaders), and (ii) the power dynamics between traditional chiefs and these local fishery leaders. We end the paper by exploring the implications of the findings on the sustainability of the fishery under rising resource pressure.

Keywords: small-scale fisheries, governance, Malawi, local institutions, actor-based analysis, Action-in-Context, leadership, power, Elephant Marsh, sustainability.

5.1. Introduction

The Elephant Marsh, a wetland in the southern part of Malawi, is important for small-scale fisheries (SSF). The wetland is located on the East African Rift Valley floor and covers an average area of about 600 km², varying between 2700 km² in the wet season and 500 km² in the dry season. The marsh is fed by the Shire River, the only outlet of Lake Malawi, which flows through it in a southerly direction before joining the Zambezi River in Mozambique. The marsh has relatively grassy margins but the bulk of its surface is formed by a mosaic of rooted swamp vegetation (sudd), floating vegetation and open water. In the southern part, this pattern is interspersed with islands with saline soils and palm trees. The Elephant Marsh is home to several species of fish, out of which *Clarias gariepinus* (locally known as *mlamba*), *Oreochromis mossambicus* (*chambo* or *mphende*), *Oreochromis placidus* (*makumba*), and *Barbus ssp.* (*matemba*) comprise over ninety percent of the commercial catch (World Bank, 2010). The annual fish production from around the Elephant Marsh has been estimated at about 8500 tonnes. There are no recent scientific data on the trends of fisheries exploitation at the Elephant Marsh but fishers generally feel the catch per unit effort is slowly decreasing (see Chapter 4). Based on a 2014 survey by Malawi's Department of Fisheries (DoF) there are about 1500 fishers at the Elephant Marsh (DoF, 2014).

As highlighted in chapter 2 of this thesis, the Elephant Marsh Fishery is mainly guided by customary law through village chiefs who receive their mandate through inheritance, and managed by user groups called "Beach Village Committees" (BVCs) which is headed by a chairperson (BVC Chairs). The concept of BVCs was introduced in Malawi in 1991 as a government initiative under the Participatory Fisheries Management Programme (PFMP) with support from the British Overseas Development Administration (ODA), in response to declining fish catches at Lake Malombe and the Upper Shire River (Lewins et al., 2014). Since then BVCs have been adopted at the national level and supported by the National Fisheries and Aquaculture Policy (NFAP) (Government of Malawi, 2001) as an institutional interface between the Department of Fisheries (DoF) and the fishing communities.

Although the Elephant Marsh can be characterized as a single ecosystem, the mosaic landscape has led to fragmentation of the open water into several smaller "lakes" which are managed independently at the fishing village (beach) level. Currently there is no overall fisheries management association to coordinate the operations of the BVCs (Kosamu, 2014). Bavinck (2005) reported that the interactions of fishers in such small-scale fisheries undivided resource systems may "snowball into nothing less than a tragedy of the commons"; as the actions of fishers in one part of the water body can, on aggregate, affect

the performance of others in a different location of the same system. Indeed, migration is a common feature among fishers at the Elephant Marsh. Fishers periodically migrate to beaches where the catch is better than their home village, often for short stays with no intentions of permanent shift. The phenomenon has also been observed in many parts of Africa and South-East Asia (Nunan, 2010; Randal, 2005).

Studies on the Elephant Marsh fishery are limited. Evidence from a recent study (Kosamu et al., 2012) shows that the locally-based management system at Elephant Marsh is working well. These findings are consistent with Bavinck's (1996) assertion that local decision-making structures in fishing communities are capable of implementing regulatory actions towards what is perceived as a common good. However, due to background developments such as population growth, rural poverty, climate change and market forces, the exploitation pressure on the SSF is likely to increase and achieving sustainability in the near future may require stronger institutions than those that are now at work. The present study aims at unveiling a short-term management design for the Elephant Marsh Fishery specifically but also a type of thinking that maybe fruitful to institutional science in general.

Another study by Kosamu (2014) has shown that the quality of leadership of the local fisheries committee (BVC Chairs) seems to be a prime factor (key actor) for a well-managed fishery at the Elephant Marsh. A full account of Kosamu's (2014) assertions is presented in chapter 4 of this thesis. The questions this chapter addresses are: What are the key socio-causal dynamics of the management system at the Elephant Marsh Fishery? How can these socio-causal dynamics, if and insofar needed, be translated into strengthened institutions for sustainability of the Elephant Marsh Fishery in the near future? On the basis of Kosamu's (2014) assertions, our analysis in this chapter first addresses issues that relate to BVC Chairs at the Elephant Marsh Fishery and then moves on to the other key actors such as fishers, village leaders and government fisheries officers.

5.2. Methodology

5.2.1 Methodological framework

In this chapter we follow an actor-based approach (as opposed to a more systems-oriented approach) which identifies the roles of all actors connected to the fishery (e.g. fishers or government officers) and the institutions that underlie the action of the actors. This is consonant with our desire to trace the key socio-causal dynamics because actors, not systems, are the social entities that can act and thereby effect change. The approach does not deny the influence of social networks on actors' behaviour in natural resources

management (Bodin & Crona, 2009); obviously actors respond to and influence the social system characteristics in which they operate. We use the “Action-in-Context” framework (AiC) as devised by De Groot (1992) to identify all the major actors, their potential to act (comprising their active capacity and motivation to act), and their actions’ causal linkages before identifying the overall patterns of social causation that emerge in the management of Elephant Marsh Fishery. Action-in-Context (AiC) is an actor-based framework inspired by such authors as Vayda (1983), Vayda & Walters (1999) and Elster (1989) designed to facilitate the tracing of multi-actor and multi-level social causation.

AiC enables the transformation of qualitative descriptions into empirical data and interpretations. As highlighted by Overmars et al. (2007) some of the key advantages of AiC over more inductive approaches such as econometrics lie in its ability to allow explicit description of parameters and relationships among variables and the possibility to include variables which are constant throughout a study, e.g. if labour costs are constant they cannot be included in regression analysis.

The domain of AiC can be defined as “sufficiently deliberative action”. This then excludes habitual or purely emotional or physical behaviours, as well as people’s relatively deep ‘life choices’ or commitments. Thus our assumption in this study is that small-scale fisheries management is sufficiently deliberative to allow for valid description in a broad and culturally sensitive rational choice approach. This is analogous to, for instance, Ostrom’s (1990) application of broad rational choice to resource management in general.

The core element of AiC is a triangular causal structure which expresses that in order to act, the actor needs both the option (‘opportunity’, ‘autonomy’, ‘power’ etc.) and the motivation (‘desire’, ‘will’ etc.) to do so. In Figure 5.1 the triangular causal structure of the actor, action, implementable options and motivations is illustrated with terms added from our fisheries case at the Elephant Marsh. Typically for AiC, implementable options and motivations are depicted as separate from each other despite the fact that on a deeper level, they are interdependent. For instance, people do not usually continue to have desires for what they know they can never get (options), while on the other hand persistent desires can build capacity on a longer run. Thus, AiC enables clear and comprehensive causal mapping of on-going interactions, without denying that more interpretative methods might be needed to understand longer-term change.

From the causal triangle onwards, AiC proceeds in two analytical directions. The first is depicted in Figure 5.1, and called ‘deeper analysis’, connecting as it does the actor’s

implementable options and motivations to their underlying social phenomena. In Figure 5.1 for instance, the BVC Chair's motivation to maintain his social reputation embeds his actions in the BVC ('microstructure'). The 'implementable options' of the actor are built from 'autonomy' or 'capacity' composed of institutions, rules and financial or private social capital, and 'potential options'. The difference between 'potential options' and 'implementable options' lies in what the actor can really do in the active world as opposed to what the actor could do if presented with greater capacities. 'Motivations' are all aspects of the options under normative consideration by the actors in their choice of action. They can be separated analytically as 'objectified motivations' and 'interpretations'. 'Objectified motivations' are the quantifiable demerits of the action, e.g. in terms of money, or calories. Actions of decision makers in fisheries management are often influenced by such quantitative motivations but on the other hand, more culturally-embedded qualifications of costs and benefits can be important too; these are called 'interpretations' in AiC. 'Interpretations' relate to Simon et al.'s (1958) overview of human motivations which are: material inducements (money or goods); opportunities for distinction, prestige and personal power; desirable conditions of work e.g. cleanliness; pride in workmanship; service for family or others; patriotism or religious feeling; personal comfort and satisfaction in social relationships; conformity to habitual practices and attitudes; and a feeling of participation in important events. These basic individual motivations and values have also been reported by Schwartz et al. (2012) in a more detailed assessment.

The second analytical direction for tracing of causal linkages in AiC connects the action-to-be explained to actions of other actors, specifying the 'actors field' that link the actor (e.g. BVC chair) to secondary actors such as the village chief, fishers and government officers (Figure 5.2), through intermediary actions. The BVC Chair's actions are influenced by other actors that act upon the motivations or options for a particular action. When identified, these 'actors of influence' such as the village chief or government are referred to as secondary actors. (Note that what is called primary, secondary etc. here is only a matter of counting, not denoting empirical or normative importance.) From there on, it is easy to identify causal linkages with the next, tertiary layer of 'actors of influence'.

Thus, we see that the actors' field concept deeply differs from social networks that appear to be the only inter-actors concept guiding the social sciences. Broadly put, social networks are structures related to how actors shape institutions (collective action), while actors fields describe how institutions shape the actions of the actors (Hobbes et al., 2007).

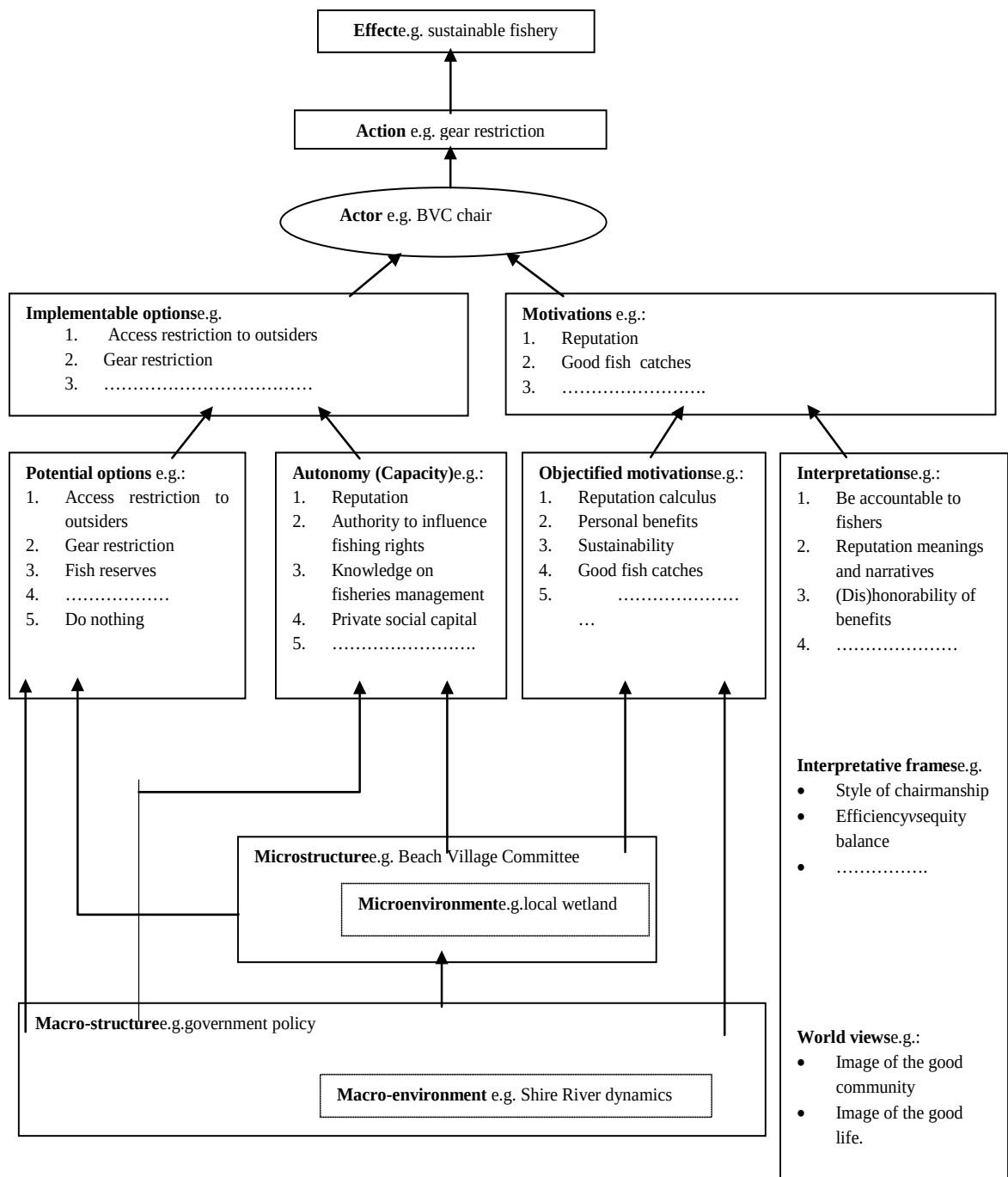


Figure 5.1 The structure of AiC ‘deeper analysis’ with a few items from the study area filled in. The BVC Chair’s action of gear restriction is the explanandum from which the analysis works its way downward. Arrows indicate the causal direction.

5.2.2 Data collection and analysis

Data collection was undertaken between March and June 2014. Interviews, focus group discussions and observations were done at twentyfour fishing villages at the Elephant Marsh with fishers ($n = 240$), BVC Chairs ($n = 24$), village leaders ($n = 24$), fisheries officers ($n = 6$) and district as well as national fisheries officials ($n = 10$). Secondary data were obtained from such sources as government databases, reports, journals and internet articles.

Some of the questions for each of the four key actors at the Elephant Marsh Fishery included: What are the actions of the key actor? What capacities and motivations (costs and benefits/incentives) explain these actions? Which institutions or structures underlie the key actor's motivations and capacities? How are the actions of the key actor influenced by the other key actors? What are the capacities and motivations of these other key actors who have an influence on the actions of the key actor in question? What are the main social causalities, dynamics and mechanisms among these key actors? A social causation map (Glaser, 2006; Gray et al., 2012; Hall et al., 1994) emerging from answers to these questions helped in tracing the key factors and actors that are essential in crafting institutions that could be central in achieving sustainability of the Elephant Marsh Fishery under increasing pressure but also help institutional designers in small-scale fisheries. This is particularly important because, as Ostrom (1992) highlights, an institution is "the set of rules-in-use by a set of individuals to self-organize repetitive activities that produce outcomes affecting those individuals and potentially affecting others".

As the answers to these questions were sought, it was also important to bear in mind that some of the pressures that exist at the Elephant Marsh may require some ecological thinking too. Our focus on socio-causal linkages had a reason; any solution (whether ecologically or socially based) requires social embedding to work at all.

The interviews were guided by AiC schemas and the concept of "sustainability", which was discussed in terms of: (i) stability of catch (abundance overfishing); (ii) quality of catch (non-juveniles for the late maturing *Oreochromis* and *Tilapia* species); (iii) trends in the catch per unit effort (CPUE); and (iv) the ability to keep non-community members (immigrants) out of the resource. Interview responses were progressively synthesised into AiC schema during field data collection. Participant observation helped verify interactions between actors, the market prices, size of catches, main fish species, and the legality of the fishing gear used, among other attributes. The resulting AiC schemas were then progressively interpreted and synthesized into a number of narratives that focused on key themes. For an example of a

characteristic AiC schema result, see Figure 5.2 that takes a BVC chair as a primary actor and shows how the motivations and options of other key actors influence the BVC Chair's actions in the management of the Elephant Marsh Fishery.

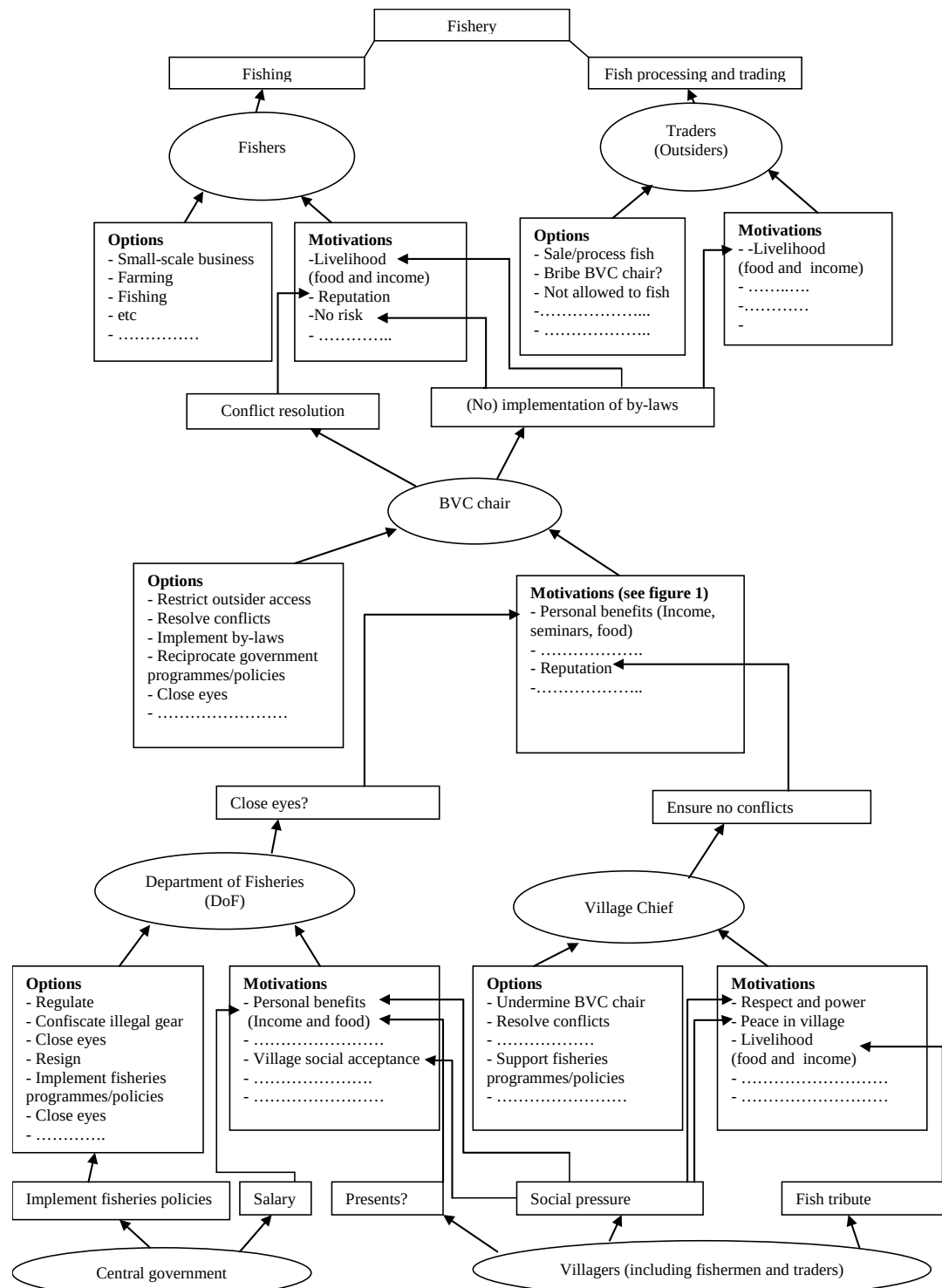


Figure 5.2 Summary of an actors' field for the Elephant Marsh Fishery. Below each actor category, the boxes indicate the options and motivations leading to the actor's actual action. Actors are linked through actions that influence options and/or motivations of other actors.

In the presentation of the study findings in the following sections, we focus on the resultant narrative themes.

5.3. Results

This section reports on the causal narratives (themes) of the key socio-causal dynamics in the management of the Elephant Marsh Fishery that emerged from the AiC analysis and starts off with the fishers.

5.3.1 Livelihood support and reputation motivate the fisher

Most of the families (>70%) at the Elephant Marsh are poor and depend on fish and subsistence wetland agriculture for their livelihood. Table 1 summarizes the basic cost and benefits at the Elephant Marsh. It is evident from the table that the returns to labour of specialized fishing are much higher (three to four times) than of specialized wetland rice farming. Moreover, rice farming is feasible only in one season. This is an important background for interpretation of our fisheries data. People do not have access to remunerative options besides fisheries, for instance, and reputation in fishing activities corresponds to a large extent to reputation at the village level. It is also interesting to note that an annual net income of roughly 3000 US\$ (Table 5.1) for an average fishing household of 5 persons (NSO, 2008), translates to 1.6 US\$ per day which is just above both the global poverty line of 1 US\$ (World Bank, 1990) and the revisited proposition of 1.25 US\$ (Ravallion et al., 2009) but slightly lower than the new recommendation of 1.9 US\$ (World Bank, 2015).

Table 5.1 Return to labour (US\$ per working day) for the two main livelihood activities at the Elephant Marsh, using estimates of the most commonly occurring cost and benefit figures. The estimates are based on assumption of eight working hours per day, 300 working days per year (i.e. no sickness or other major problems), and that there no other economic activities for the rest of the year.

Item	Wetland Rice farming	Fishing
Labour investment	70 days/ha/yr	300 days/yr.
Inputs	Rice seeds: 40kg/ha * 0.7US\$/kg = 28US\$ Fertilizer (Urea): 50kg/ha*0.8US\$/kg = 40US\$	Cost of a dugout canoe = 177 US\$ every 7 years = 25 US\$/yr. Fishing licence fee = 0.9 US\$/yr. Gill net (100metres) = 0.4US\$ *100 = 40US\$/yr.

	Total inputs = 68 US\$/yr.	Total inputs = 66 US\$/yr.
Annual Harvest/catch	1000 kg/ha/yr.	10 kg per day (11 kg is usually caught and about 1 kg is given to village chief as tribute)*300 days/yr. = 3000 kg/yr
Market price	0.3 US\$/kg	1.12 US\$/kg
Gross income	1000*0.3 US\$ = 300 US\$/yr.	3000*1.12 US\$ = 3360 US\$/yr.
Net income	238 US\$/yr.	3294 US\$/yr
Return to labour	3 US\$/working day	11 US\$/working day

Fishers indicated that being able to support a family with food and basic income brings pride and social acceptance in the village. Social reputation is also enhanced by good citizenship as displayed for instance by reciprocating trust, participating in communal work, funerals and other activities, and refraining from illegal actions such as breaking fisheries by-laws.

5.3.2 Reputation is the key for the BVC Chair

The capacity and motivation of BVC chairs to implement the local fisheries rules written in the by-laws are pivotal for the fishery at the Elephant Marsh to work. In this section, we first discuss the rules, the BVC Chair's motivations and finally their implementation capacity. According to Ostrom (1992) rules work well when "every participant knows the rules, knows that others know the rules, and knows that others also know that the participant knows the rules". The rules-in-use by the actors are therefore not always the written by-laws or indeed the legislative provisions or court regulations (Ostrom, 1992) but self-modified versions of the written rules. In the same vein some respondents lamented that social complexities at village level can make it difficult to impose sanctions against offending fishers as narrated by one BVC Chair: *"We wish we could confiscate gear but looking at our local situation [poverty in the village], we feel sorry and just forgive each other"*. In some cases implementation of the rules was lacking because of fear for cultural beliefs (witchcraft) as revealed from the following response: *"This village is not united; if you offend someone [confiscate their fishing gear] they can create crocodiles which can kill you when you go fishing"*.

When asked if BVC Chairs had the capacity to restrict the number of new (non-angoni) fishers coming to a beach, most respondents thought it is impossible to implement that provision. The BVC Chair at Mchachajemusi said *"It is possible to regulate fishing gear, regulate timing and to deny access to angoni, but new fishers from local villages are always welcome because in our culture it is a taboo to exclude own people. There is no way to keep*

these new fishers away.Not even the chief, the government, or the president can do that". The BVC chair at Chisamba which is one of the successful beaches (see section 4.4 of chapter 4 of this thesis for a detailed explanation of the meaning of success in this context) indicated the beach had many fishers and new ones kept coming; the BVC counteracts this immigration pressure by implementing an annual semi-closed season between 1 January and 31 March during which it strictly does not allow certain gear such as seine nets. The BVC Chair further suggested that in future they may have to control how much each fisher catches, so that everyone has equal access.

Besides managing their own beaches, BVC Chairs also display a degree of inter-beach coordination. With a focus on maintaining social order, BVC Chairs write transfer letters for outgoing fishers and demand the same from fishers coming to their beach. They also make phone calls to inform one another about troublesome fishers such as boat thieves. An example of sustainability-oriented coordination is that the beaches of Nsambokulira, Twaya, Bwemba, Chuluchamkango and Mchachajemusi jointly maintain a ban on *kumba* nets (under-meshed fishing nets originating from Mozambique). Indicative of the as yet relatively weak power of such agreements is that some beaches that are party to the agreement (like Bwemba and Twaya) are currently not implementing the ban.

From our analysis, at almost all successful beaches, the implementation of by-laws by the BVC Chair was adhered to. In the interviews, BVC Chairs attributed their capacity to manage beaches well mainly to personal reputation: *"When the affairs at the beach are being managed well, people give me a lot of respect"*. The fungibility of this capital was noted, for example, in that any failure of a BVC Chair to resolve conflicts or keep outsiders out, or if fishers move away from the beach due to low catches, the other villagers may consider that as a weakness and the BVC Chair may become a subject of village gossip leading to overall loss of reputation. Thus, failure to implement by-laws invokes the breakdown of reputation, which then further reduces the BVC Chair's capacity to act.

When asked about how they resolve conflicts, all respondents (BVC Chairs, village chiefs and fishers) said conflict resolution starts from the BVC Chair who may refer more serious offences to the village chief, police, or courts (in that order) depending on the gravity of an issue at hand. None of the respondents mentioned the Department of Fisheries (DoF) as a player in conflict resolution. Our analysis of conflict resolution revealed that while the BVC Chairs and village chiefs tend to be motivated to resolve the conflicts because they want to protect their reputation and possibly get some other benefits (e.g. fines), the motivation of

the police and courts is very weak because there is no direct incentive for them from the fishery.

All BVC Chairs in our sample acknowledged that the village chief is an important source of BVC Chair's power and legitimacy without whose support things fall apart. For example, we identified a case at one beach in which the chief did not want to support the BVC Chair and the tension resulted in a physical fight, finally adjudicated by court. The BVC Chair of the concerned beach had this to say: *"Some chiefs are just difficult for no reason. Our chief here was threatening me that I had no power to tell the fishers what they should be doing. He even threatened the officer from the DoF that he would ban the officer from coming to this village. I was not happy and we fought. The case was referred to police and the court. I won the case and now he [the chief] is a bit quiet..... But still I feel that if we are to implement new strategies at this beach, like the coordination with other beaches, then the chief has a bigger say. In the end, I can only implement what the chief has approved. He owns the beach; I only oversee the fisheries but this village has other issues too not just fish, so in that respect I have lesser power than him. Otherwise it may lead to a situation where the chief will say that I 'have stepped on his head'. Actually, I am sure that the situation is similar in other beaches."*

What then would the BVC Chair's motivation be to maintain these rules? This question is pertinent because the BVC chairmanship is not remunerated by salary or a regular local contribution. Consequently, he has to go fishing just like the other fishers, in addition to doing the work connected to the chairmanship. Our analysis showed that the BVC Chairs sometimes get small hand-outs or presents, and are occasionally invited for seminars by the DoF. Social reputation is the major motivation for the BVC Chair, however, as often repeated in the interviews. Capacity to do the job of the BVC Chair effectively creates reputation which in the background is backed by formal law through the FMCA. We see this backing mostly at work in conflict resolution and gear restriction.

5.3.3 Power relations between the village chief and BVC Chair are the key dynamic

The previous section has already made it clear that besides the BVC Chair, village chiefs are holding a powerful position in the Elephant Marsh Fishery; see also Lewins et al. (2014), Njaya et al. (2012), Eggen (2011), and Russell & Dobson (2011).

Our interviews with fishers, village chiefs and BVC Chairs at the Elephant Marsh revealed four roles of chiefs in the small-scale fishery namely: (i) A BVC chair cannot accept a new

fisher without first asking for consent from the village chief; (ii) The BVC chair cannot call for a meeting for fishers and other stakeholders such as fish traders without seeking approval from the village chief; (iii) The village chief has power to evict or fine (under customary law) a community member who is not abiding by village norms that there is always tranquility and peace in the village; and (iv) The chief supports the BVC for example by safeguarding confiscated gear as one chief put it: *“When BVC chairs confiscate illegal fishing gear, they pass it on to me for safe-keeping until the government officers come for handover. We work together well”*. It is therefore evident that the village chief helps to keep the membership of a fishing community in check so that fishers are easily distinguished from outsiders. We established that the main motivation for the village chief is a weekly fish tribute which he receives from fishers (channeled through the BVC Chair) as part of their catch. Usually this amounts to some 5 kg of fish per beach per week with a monetary value of about 6 US\$/week. Obviously, the tribute would decrease in value if a village chief would allow too many fishers at the beach which would, in essence, lead to localized overfishing.

Our analysis has also shown that if the village chief receives his weekly fish tribute as scheduled, he almost always supported the BVC leadership and there are usually no power struggles or conflicts with other stakeholders. In principle, this can only happen if the fish catches are good, which is probably a reason why the village chief was almost always supportive of the BVC Chair in villages that had good fish catches.

5.3.4 The Department of Fisheries (DoF) and state-based sustainability rules

A frequently voiced point by respondents was that the DoF plays a role in influencing community attitudes and behaviour towards fisheries management through information sharing on good fishing practices. It is well known in Malawi that the government officers who are entrusted with the implementation of the state's fisheries management programmes have low salaries in addition to numerous other challenges they face in getting the resources they need for their job. Our analysis therefore found it unreasonable to expect the government officers to sanction offenders of fisheries regulations or not be tempted to accept petty handouts in form of fish or money. It was not surprising consequently to observe that those government officers often take no action against fishers that are using illegal gear such as mosquito nets. For example in one case a fisheries assistant exhibited deliberate ‘closure of his eyes’ and had this to say during a walk around a beach: *“Yes indeed, we can see lots of juveniles in the catch here and on the fish drying racks, but that is OK because today is not my official visiting day for this beach”*.

Apart from the low salaries, it was also established that the extra challenges faced by DoF officers include the poor status of the roads leading to the beaches, lack of trust between governments officers and village chiefs, high rates of illiteracy among fishers making it difficult to share information, inadequate resources for operations including lack of transport, and the differences in by-laws between BVCs making it difficult to regulate because fishers move to beaches that have weaker rules which often results in localized overfishing.

5.3.5 The central government and policies for conflict resolution

The AiC analysis established no causal relationship between the central government and what actually happens in the Elephant Marsh fishery at present. We however pay some attention to the central government here however because it is responsible for formulating policies that are deemed necessary for sustainable management of fisheries resources in Malawi.

The law governing fishing matters is contained in the Fisheries Conservation and Management Act (FMCA) (Government of Malawi, 1997), the Fisheries Conservation and Management Regulations (Government of Malawi, 2000a) and the Fisheries Conservation and Management Rules (Government of Malawi 2000b). Under the FMCA, a BVC does not have power to suspend or cancel a fishing license granted by the DoF but may merely make a recommendation to the DoF to that effect. This provision reduces the *de jure* ability of the BVC chair to effectively manage fishers who are capable of paying the license fee to the DoF but fail to follow the by-laws at a fishing village. The *status quo* at the Elephant Marsh in which respected BVC chairs do have the *de facto* capacity to implement the by-laws is another proof of the disjoint between policy and localized reality.

Under section 8 of the FMCA, the DoF is given power to enter into a fisheries management agreement with an existing fisheries management authority. A fisheries management authority is defined under section 2 of the FMCA as “*any local community organization established for the purpose of promoting local participation in the conservation and management of fisheries in Malawi*”. Connected to this interesting option, the FCMA stipulates that for a fisheries association to be able to legally act, it should have legal personality. This necessitates registration under the Trustees Incorporation Act (Government of Malawi, 1968) or other law that can confer legal personality. Registration as an association provides a legal mechanism through which villagers may collectively hold legal title on the fishery, a thing that is not available in the current setup at Elephant Marsh Fishery.

5.4. Towards an empirically based management institution: weak, local and amorphous

The purpose of this section is to explore how the socio-causal dynamics which have been identified, if and insofar needed, can be translated into a strengthened institution that could help safeguard the sustainability of the Elephant Marsh Fishery. The empirical findings presented here are well-suited for the institutional design goal, since the AiC framework has a causal orientation which is paramount to the design of an effective solution.

Many institutional design theories and frameworks are available in the context of fisheries management. One is the set of based institutional design rules of Ostrom (1990) and Cox et al. (2010). Another, more normative basis is the Institutional Analysis and Development (IAD) framework (Imperial & Yandle, 2005) which has been a reference point for later propositions such as Rijke et al. (2012) who propose a 'fit-for-purpose' governance framework, Cinner et al. (2012) who propose incentives for ecosystem stewardship and Pahl-Wostl (2007) who proposes social learning for adaptive management. Our institutional design here is data-based but pays close reference to the principles of Ostrom (1990) which were reviewed by Cox et al. (2010) and, much akin to the "grounded theory" of Glaser & Strauss (2009). The grounded theory approach recognizes the need to use the data gathered in making any theoretical propositions or when linking existing (grounded) theory to new findings. Thus the grounded theory uses existing theories or allow for the generation of new ones based on the data gathered (empirical evidence). We initially put the general institutional theory and design frameworks between the brackets and let the data speak for themselves, without letting this voice be 'colonized' (Cheney & Weston, 1999) by the conceptual classifications and normative criteria of the theories and frameworks. Thereafter we relate our data-based propositions with design rules of Ostrom (1990) and Cox et al. (2010) such as 'nested enterprises' (rules at each of the fishing villages at the Elephant Marsh should be nested within the rules at the scale of the whole fishery), 'collective choice arrangements' (the majority of actors at the Elephant Marsh Fishery should have the autonomy to formulate rules), 'congruence with local conditions' (locally crafted fishing rules should be present), 'monitoring' (BVCs with support from other actors should have the responsibility to monitor the resource), 'graduated sanctions' (there should be application of varied sanctions to offenders depending on severity and frequency of violation) and 'conflict resolution mechanism' (locally acceptable adjudication should be available within the fishing community at Elephant Marsh). These attributes form the basis of the three-pillar design which I propose in the proceeding section of this thesis. By nature, theories and frameworks easily resonate with the vision of good institutions in that both aim to be coherent, strong, logical and generic. Thus, not only the state itself but also institutional frameworks tend to be

“seeing like a state”, as Scott (1998) has described eloquently. Blending the “grounded theory” way with the design principles of design rules of Ostrom (1990) and Cox et al. (2010) may not only be appropriate for the Elephant Marsh Fishery but also an experiment of more general value for institutional science; it invites us out of the box, discovering that pillars for a good institutions may sometimes also, in a way and to some extent be weak, purely locally crafted, and amorphous.

Pillar 1: A low-cost, weak institution, built for growth and adaptation

Fish catch data at the Elephant Marsh Fishery are scarce but signs are that real overfishing does take place locally in the marsh’s mosaic, as indicated by the temporary migration of fishers to beaches where they get higher catches and these beaches’ BVC Chairs taking action by crafting local fishing rules of closed seasons and regulated gear. The ‘graduated sanctions’ contained in the operational rules are now seen to slowly grow ‘upward’ as ‘collective choice arrangements’ in two senses: spatially from a local to a supra-local level through inter-beach coordination, and institutionally from informal personal rule to formal rule of (local) law. In congruence with the local conditions, virtually all of our respondents agreed that some sort of really supra-local institution, on the clearly defined boundaries of the Elephant Marsh, could be helpful. The question then becomes: helpful to do what? What should be the mandate and ‘action arena’ of such an institution that could link up with currently felt needs? From our data, four functions come to mind: (i) strengthening of the on-going process of inter-BVC coordination, (ii) implementation of a simple, people-based marsh-wide monitoring system, integrating the locally available informal data on catches and CPUE, (iii) discussing a self-organized but yet more cost-effective relationship with the government (Ostrom’s (1990) minimum recognition of rights to organize), which could for instance motivate fisheries officers to ‘open their eyes’, and (iv) informally exploring long-term management strategies using hypothetical scenarios, e.g. rising population and climate change. These four tasks would create an adaptive learning institution preparing itself for growth and action if needed, without requiring costly administrative overload. Basically, the current village-level institutions are good enough to only require a yearly marsh-wide coordination meeting of, say, two days. The necessity of such a low-cost institution does not require justification at the local level and could be locally funded. Expressing its modest mandate, it could for instance be called the Annual Elephant Marsh Fisheries Meeting – not ‘Board’ or ‘Authority’ or anything of that weight yet.

Pillar 2: A purely locally based 'nested enterprise'

As we have seen, rules that work at the Elephant Marsh fishery are both locally crafted and enforced. Consequently, the very weak presence of the state and national fisheries policies in the Elephant Marsh may be seen as a benign rather than a problematic circumstance. Indeed, the semi-quantitative analyses of Kosamu (2014; 2015) have shown that on both the level of the Elephant Marsh and of 17 other cases in developing countries, strong local institutions enhance sustainability while any state interference, whether imposing rules in state-based management or negotiating rules in co-management, result in a breakdown of sustainability-enhancing rules. The analysis of the present chapter has shown why this may be so. Reputation is both the key motivation and the key capacity (power) of the BVC Chairs and the village chiefs. Why would they continue to be motivated if they cannot be their 'own man' anymore, being degraded to an implementer of exotic conflict resolution mechanisms or policeman of external rules? Why would fishers listen to such people, given that real state power (courts, fines) is in fact far away? This approach can help in understanding how a weak supra-local institution, leaving local motivations and power intact, may create better outcomes than a strong one (even more so if state-based). This leads to a point where we can visualize a marsh-wide institution as a purely locally based 'nested enterprise' sensu Ostrom (1990), crafted and governed by the local committees. According to Kolding et al. (2014), when such self-governing systems are established, they enjoy greater local legitimacy particularly in weak political systems (as is the case in Malawi and most developing countries) and therefore stand a better chance of success.

Pillar 3: An internally amorphous institution

As discussed, the power interaction between the BVC Chairs and their village chiefs is the key dynamic determining the fate of the fishery at the local level. If they support each other's reputation, the beach will be well-managed. Reputation being a volatile capital however is vulnerable to any emergent conflicts which can easily result in breakdown of rules and subsequent overfishing. It may be noted that at the village level, the relationship between a BVC Chair and a village chief, though framed in general cultural traditions and metaphors, is primarily personal and not captured in the legal framework or administrative logic. It would appear wise to maintain this principle at the supra-local level of the marsh-wide institution. Any logical task division between the two groups (e.g. as decision-makers versus advisors, decision-makers versus implementers, politics versus administration) would frame the two roles as opposed and/or subordinate to each other, and subsequently bring disunity and tensions down to the local level. Therefore, counter-intuitive as it may seem, the marsh-wide institution should be left internally unstructured, with village chiefs and BVC Chairs included

without formal specification of their roles. This proposition counters the suggestion by Hara et al., (2015) of some independence of the BVCs from the authority of the local leaders, without, infringing on their traditional powers and privileges. In so doing, the resultant institution does not force western formats of democracy on the local system that can continue with its own style [possibly more generally African style, see Nkhata et al. (2009)] of mixing mandates (hereditary, elected and legal) with the power mechanisms of reputation. This leaves room, for instance, for lessons to be interpreted and transmitted from chiefs who successfully manage the power differential with their BVCs and therewith create well-managed beaches. In the case of the Elephant Marsh, where all of the four types of power relations distinguished by Agrawal & Ribot (1999) are centralized with the chiefs, an internally amorphous institution which reproduces the local power set-up will ensure that the chiefs' opinions will tend to prevail in the end, but not without due deliberation. This does not differ much from the principle of the final 'primacy of politics' in the western *trias politica* (Kickert, 2001).

5.5. Conclusion

As we have seen, an actor-based multi-level analysis of rules and other mechanisms prevailing in a fishery can help much in designing a cost-effective institution for the near future. For the design of longer-term institutional options, our assumptions underlying the actors-based method (Action-in-Context in our case) which presume that small-scale fisheries management is sufficiently deliberative to allow for valid description in a broad and culturally sensitive rational choice approach become weaker. This is because new types of actors may move in making the BVCs dysfunctional or because actor capacities and motivations become more intertwined. This then necessitates a stronger blend and reliance on both theoretically driven institutional frameworks and a flexible process of institutional development guided by an adaptive, learning organisation. It is our conviction that a sustainable management system for Elephant Marsh Fishery relies on three pillars namely: a low-cost, weak institution built for growth and adaptation; a purely locally based 'nested enterprise'; and an internally amorphous institution. In so doing, we hope to have unveiled a management design for the Elephant Marsh fishery specifically but also a style of thinking that may be fruitful for institutional science in general.

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