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Management of small-scale fisheries in developing countries : The case of Elephant Marsh in Malawi

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Citation

Kosamu, I. B. M. (2017, June 13). *Management of small-scale fisheries in developing countries : The case of Elephant Marsh in Malawi*. Retrieved from <https://hdl.handle.net/1887/50875>

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Cover Page



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Issue Date: 2017-06-13

6

Synthesis and Outlook

6.1. Synthesis of the preceding Chapters

The present dissertation has started out with the following research questions:

- i. What are the socio-ecological and land use setting and potentials of the Elephant Marsh wetland in Malawi?
- ii. What are the key actors and institutions in the management of small-scale inland fisheries in developing countries compared to situation at Elephant Marsh fishery?
- iii. What are the key socio-causal dynamics of the management system at the Elephant Marsh Fishery?
- iv. How can these socio-causal dynamics at the Elephant Marsh Fishery, if and insofar needed in the near future, be translated into strengthened institutions for sustainability of small-scale inland fisheries in developing countries?

These questions have been the starting points of the preceding chapters 2 to 5, respectively, and the explicit answers are found there. The present chapter gives a more synthetic and narrative overview of the findings.

The Elephant Marsh, a large riverine wetland in the southern part of Malawi, is facing many pressures driven by a changing climate, population growth, rural poverty, market forces, and agricultural conversion, all of which threaten the future of the wetland. The wetland has relatively grassy margins; a mosaic of rooted swamp vegetation (sudd), floating vegetation, and open water. The southern part of the wetland is interspersed with islands having saline soils and palm trees. The wetland is an important habitat for several species of fish and birds, Nile crocodile, and hippopotamus. The indigenous people at the Elephant Marsh are the Mang'anja but other ethnic groups, mainly the Sena, have also migrated to the area. The Sena tend to engage more in fishing and livestock keeping while the Man'ganja are usually specialised farmers. Landownership at the Elephant Marsh is based on customary tenure; a situation that has led the management of the wetland to rely on a blend of customary law and some elements of state regulation. At the same time, the Marsh holds a lot of potentials for sustainable development. Broadly put, these options can be grouped in two families of ecosystem development paradigms.

One can be called 'conversion'. The conversion idea builds on natural circumstances but only in the most basic sense; it uses the available water inputs, soils and solar inputs to construct a totally new ecosystem, usually one of intensive production (e.g. agriculture, aquaculture, and forestry). Biodiversity does not have noteworthy survival opportunities in such landscapes except possibly if nature reserves are set aside, but the system can be sustainable if properly designed and implemented. Sustainability is not deeply engrained in the style of thinking of this ecosystem development paradigm, however, tending to be seen as a costly add-on to the intensive technologies that needs to be pushed by strong government regulations.

The other family of development options can be called 'ecosystem-based' or 'working-with-nature' development. As shown in Chapter 2 of this thesis, the Elephant Marsh wetland has several ecosystem-based development potentials which mainly lie in prospects of swamp rice production, artisanal fish production using both capture or pond technologies (Denny et al., 2006), energy production from papyrus and reeds and tourism based on a rich natural and cultural heritage of the area. Because ecosystem-based options build on existing ecosystems, biodiversity and sustainability will tend to be more automatically engrained in this paradigm although of course, their actual realization will continue to need attention and be supported by adequate technologies, organizations and regulations (institutions).

Ecosystem-based and conversion options may often be combined to some extent. This thesis has an emphasis on the ecosystem-based perspective however, and focuses especially on the institutions that can support their sustainability under rising resource pressure, e.g. due to population growth. Doing so, the questions one would want to ask are: What are the existing management structures, and how do they work? Do these existing management structures need strengthening? What would be the role of the government in such an effort? Would it be important, for instance, to strengthen the role of the state somewhere along the line of resource pressure increase? What, in short, would be adequate management institutions for the Elephant Marsh?

In addressing these questions, the PhD study was cognizant of the fact that ecosystem-based management includes human values such as efficiency, equity and cultural values as well the harmony and stability of their interrelationships so that sustainable utilization of ecosystem goods and services can be achieved. In philosophical terms, ecosystem-based management expresses a vision of partnership with nature rather than the traditional attitude of mastery over nature (De Groot & van den Born, 2003). Artisanal, small-scale fisheries express this idea very well (if, again, accompanied by adequate institutions). This is one of

the reasons why this thesis has a prime focus on the Marsh fishery. One other reason is that contrary to tourism, for instance, fisheries can be studied at the Marsh in its actuality. Finally, fisheries are the major livelihood component of the people living around the Marsh; this suggests that institutions that may be discovered and discussed with respect to fisheries may be expandable over the other sectors, too. This theme will be picked up in the second, 'outlook' part of the present chapter.

There are many paradigms in the management of small-scale fisheries (SSF) globally but one of the most common approaches is co-management. In this approach, the state is seen as the natural guardian of large-scale and long-term interests (sustainability), and involved in a (transparent) process of negotiations with the local communities or user groups that bring in their own values and knowledge. The crafting of such co-management arrangements can follow institutional theories such as the populist approach (Ostrom, 1990; Olsson, 2004) the neo-liberal approach (Blaikie et al., 1997; Adger et al., 2001; Béné & Neiland, 2006) and the classical approach (Blaikie et al., 1997; Biot et al., 1995). The present thesis has departed from the co-management idea but also by a methodological intuition that not these frameworks but a more open and empirical approach should be in prime position. This has enabled the researcher to discover that the co-management idea itself needs to be questioned, as we will see. The art of designing successful governance system relies on locally crafted institutional '*bricolage*' (Russel & Dobson, 2011; Lankhorst & De Groot, 2012) in which empirical data are built into the existing local traditions and institutions. This PhD study has established that the key actors at the Elephant Marsh Fishery are fishers, village chiefs, leaders of fishing community user groups (known as Beach Village Committees), and government officers. For Elephant Marsh the findings of this study have established that the first action is to explore the need of institutional strengthening *vis-à-vis* the rising pressures of the business-as-usual scenario and a scenario of possibly successful realization of ecosystem-based development potentials. This would then form the basis for a more open-ended process of participatory institutional construction work that focuses on the points that reveal if the state should be involved and to what extent, if at all.

One of the key questions of this PhD study was: are the key actors and institutions in the management of small-scale inland fisheries in developing countries compared to situation at Elephant Marsh fishery? In order to examine the relevance and level of state presence in the management of SSF and compare with the situation at the Elephant Marsh, my research examined 17 cases of SSF in developing countries to determine which mode of institutional setup (locally controlled, state controlled or mixed in co-management) is most decisive in the sustainability of SSF. Mention has to be made that the cases were only examined as they

are reported in literature and therefore some deviation from latest developments regarding a particular fishery are to be expected.

After an extensive literature review, the most relevant factors in the success of managing SSF in developing countries such as Malawi were identified as follows: local collective social capital (CSC), supportive central states (SUP), co-management (CO-M) and imposing central states (IMP). The dependent variable represented the overall status of the fishery in terms of sustainability during the case study period (SUS). The indicators of this variable were based on (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. Crisp-set qualitative comparative analysis (csQCA) of the variables for the 17 cases studies revealed that good collective social capital and supportive governments are the two key factors in achieving sustainability of SSF in developing countries. More self-assertive roles of the state (co-management and imposition) were associated with unsustainability or even causing it.

Having identified local collective social capital and a supportive government as crucial ingredients in the sustainability of SSF in developing countries, the next step in this PhD study was to apply the findings to the Elephant Marsh, with stronger differentiation of what this local 'collective social capital' might be composed of. At the Elephant Marsh and using the same csQCA technique, four factors pertaining to collective social capital as well as the role of the state were identified and tested for their effect on the success of fisheries management at the 24 fish landing sites ('beaches'). The four factors were: collective social capital at the village level (CSC-V), collective social capital at the local fisheries committee level (CSC-C), the role of village chiefs (CHF), and the presence and influence of government agents (GOVT). The analysis revealed that a good collective social capital at fisheries committee level (CSC-C) is the key factor of success in the management of SSF at the wetland. The presence of government agents was not found to be the key factor of success in the management of the fishery. It must be borne in mind here that at the macro level, i.e. not measured in this analysis, Malawi has a fisheries law that in broad terms supports the local fisheries committees (a 'SUP' in terms of the preceding analysis), as will be discussed later.

Similar to what several scholars have observed in many parts of Africa, the field work for this study also established that there are sometimes intensive power struggles between village chiefs and the fisheries committee leadership ('Beach Village Committee chairs'). This gave

rise to the question of whether the local fisheries committee (CSC-C) is the only major factor in SSF management at Elephant Marsh: what lies behind this undifferentiated CSC-C factor? What makes success or failure of the fisheries committees? Raising the interest in this question is also that the design of any institutional change for robust sustainable management of SSF at the Elephant Marsh requires more than just satisfaction with the CSC-C factor but rather an evolutionary understanding of who are the key actors, what are their capacities and motivations for change and what are the interactions that determine the success or failure of the Beach Village Committees. This required a more causally oriented, hence more qualitative multi-actor study. One optional basis for this analysis is the “Action-in-Context” (AiC) framework as devised by de Groot (1992) which essentially recognizes that social actors respond to underlying options and motivations in collective community actions. A detailed AiC analysis was therefore done to (i) determine the key socio-causal dynamics of the management system at the Elephant Marsh Fishery and, (ii) explore how these socio-causal dynamics, if and insofar needed, be translated into strengthened institutions for sustainability of the Elephant Marsh Fishery in the near future. The analysis identified the causal linkages of the actors before identifying the overall patterns of social causation that emerge in the management of Elephant Marsh Fishery.

Based on the earlier findings, the AiC analysis started out with questions that directly related to beach village committee chairmen (BVC chairs) before moving on to the other actors. The questions asked were: What are the actions of the BVC Chair? What capacities and motivations explain these actions? Which institutions or structures underlie the BVC chair's motivations and capacities? How are the actions of the BVC chair influenced by other key players such as government officers, village chiefs and fishermen? What are the capacities and motivations of these other actors who have an influence on the actions of the BVC Chair? What are the main social causalities, dynamics and mechanisms among these key players? The findings of the AiC analysis identified several causal narratives (themes) based on the key actors namely: (i) Livelihood support and reputation motivate the fishermen; (ii) Reputation is the key factor for the BVC Chair; (iii) Power relations between the village chief and BVC Chair are the key dynamic; (iv) The Department of Fisheries (DoF) advocates for state-based sustainability rules; and (v) The central government promotes policies for conflict resolution.

These themes were seen to auger well with the institutional design goal because the AiC framework has a causal orientation which is paramount to problem solving. After critical analysis of the available theories and frameworks in SSF management, it was decided that for this PhD study a more relevant institutional design for the Elephant Marsh Fishery should

be socio-scientifically empirically based on the socio-causal dynamics that have been identified. The data-based approach was done with much akin to the “grounded theory” thinking in the social sciences which invited this PhD research out of the institutional science box to discover that adequate institutions may sometimes also, in a way and to some extent, be weak, purely locally crafted and amorphous. On this basis, this PhD study proposes that a resilient management institution for the Elephant Marsh Fishery should have three ‘pillar characteristics’. It should be: (i) a low-cost weak institution built for growth and adaptation; (ii) a purely locally based ‘nested enterprise’ and, (iii) an internally amorphous institution. It is thought that based on these three pillars, an institution can be locally crafted that will be effective to keep the Marsh fishery sustainable in the years to come.

6.2. Outlook: Towards a marsh-wide fisheries ‘Authority’?

In this section, I will bring in some theory-based reflections on how the ‘three-pillared’ design relates to some wider examples, and how the proposed weak institution might grow, if need be in the longer future, into a stronger one.

Even though the minimum threshold of fish depletion (sufficient scarcity) that will trigger the fishing communities to invest heavily in the institutional future at the Elephant Marsh Fishery has not yet been reached (Ostrom, 2009), a future with rising pressures on the resource is not hypothetical, considering Malawi’s national population growth at a rate of 2.8 per cent (NSO, 2008). Boyd & Slaymaker (2000) discussed an interesting angle on the relationship between human population growth and management of natural resources. They used six case studies from Africa to show that although human population growth is always blamed for deterioration of natural resources, over a period of time, it can actually lead to improvement rather than deterioration of natural resources, especially due to locally based institutional development. The authors stressed though that for such a local response to be rapid enough, the new resource management institutions should provide tangible direct benefits to the local community with emphasis on securing food and income rather than controlling exploitation *per se*. On the other hand, increased pressure on fish resources may also lead to complication in its management arrangements (Njiru et al., 2014). Thus for instance if we consider the establishment of a longer closed fishing season at the Elephant Marsh and bearing in mind the recent debate surrounding the effectiveness of limiting open access as a means of managing small-scale fisheries (Kolding & Van Zwieten, 2011; Garcia et al., 2012), it follows that some guarantee for the “security of institutional investment” will be needed; fishermen will expect to actually see increased catches and fairly benefit from the same later.

Therefore, much will depend on the effectiveness of institutional development process during the period between the crossing of Ostrom's (2009) scarcity threshold and the possible collapse of the management system. In the context of the present study, this amounts to the question of whether the three-pillared local institution will be able to develop rapidly enough into a fully-fledged, marsh-wide fisheries "Authority". In view of the preceding discussion on the role of the state, I envision this Authority to hold more regulatory power than the three-pillared institution but still be fully locally based, as a 'nested enterprise' *sensu* Ostrom (1990). I will say a few words about the institutional development process first and then continue with the institutional content, focusing on the legal and financial issues separately.

6.2.1 The institutional development process

First of all, any process of further institutional strengthening of the Elephant Marsh fishery should have a robust community basis while also being mindful of the evolving nature of relations between various actors and the ever-shifting motivations behind their actions. Sufficient flexibility must be retained in the design process to allow for the organic *bricolage* of the community-based institution and not force it to adopt prescribed rules and structures. Two examples that could be inspirational in that regard may be found at Lake Chilwa (Njaya, 2009) where fishing communities established a fisheries association to oversee the operations of all BVCs, and at East African lakes such as Victoria (Medard, 2002; Heck et al., 2004) where Beach Management Units (BMUs) self-organized to work together.

Hand in hand with the discussion of the possible structures, mechanisms and mandates of the to-be-formed 'Authority', capacity building should prepare envisaged key actors for their future roles. Training may focus, for instance, on fish stock assessment, administration, fish management ecology, conflict resolution and leadership. External organizations such as DoF, NGOs and religious groups may be invited in the process in order to enrich arguments and broaden the local base.

6.2.2 Legal aspects

As presented in chapter 5 of this thesis, Malawi has a number of national-level regulations that pertain to the fishery at the Elephant Marsh. The legal and policy instruments are contained in the Fisheries Conservation and Management Act (FMCA) (Government of Malawi, 1997), the Fisheries Conservation and Management Regulations (Government of Malawi, 2000a), the Fisheries Conservation and Management Rules (Government of Malawi, 2000b), and the National Fisheries and Aquaculture Policy (Government of Malawi, 2001).

The regulations are mainly aimed at gear limitations, closed seasons, closed areas and mesh size restrictions. The FMCA recognizes the formation of local institutions such as BVCs and gives them the legal mandate to formulate and enforce by-laws, regulate access as well as mobilize own financial resources, e.g. through fines paid for infraction of the by-laws.

This PhD study has shown that this legal framework *de jure* governing fisheries management in Malawi, despite its overall character of respecting local institutions, contains several weak spots which are likely to start hindering the effectiveness of the Elephant Marsh Fishery once the 'Authority' would become more formalized. Some of these weaknesses include (i) The local BVCs are made responsible to organise the fishery, but the ultimate sanction of withdrawal of a fishing licence and adjudication of local conflicts is reserved by the state through the Department of Fisheries and state courts, respectively; (ii) There is disparity between the inflexible national legal and policy provisions (especially the FCMA) and the by-laws or customary rules at the fishing villages, making it virtually impossible for DoF officers to let their actions evolve *in situ*; (iii) The DoF with support from the chiefs has the right to seize illegal gear under sections 30 and 32 of the FCMA but the mandate to destroy seized items is vested in the criminal law courts and therefore very difficult. Seizure without destruction will continue to give room for corruption as discussed earlier under the roles of the village chief.

Obviously, a first step to be made is to better align the national and local provisions. This requires a careful examination and (re)combination of the *de jure* and *de facto* rules, involving all stakeholders. The outcome will make the economic and political cost of friction between the communities, Authority and state as small as possible. This resonates well with the observation by Jentoft and Chuenpagdee (2015) that there is a growing appreciation in recent years of the need to re-embed the responsibility of fisheries governance to local institutions.

No matter how successful the alignment process will be, there will always be discrepancies between state law and local law. This does not necessarily spell disaster. After all, the currently large discrepancies do not seem to stand in the way of successful local fisheries management. Rather, they appear as incoherencies between customary and state law that local people have learned to live with, as is common in many parts of Africa. Thus, the two options with respect to the discrepancies appear to be either to leave them and hope for the best, or work towards an increased state recognition of local law. In the area of conflict resolution, for instance, the state could recognize a local fisheries conflict adjudication

institution, analogous to the fully community-based '*Tribunal de los Aguas*' (Water Tribunal) described by Ostrom (1990) in the case of irrigation systems in Spain. For the future of the Elephant Marsh fisheries, it seems wise to open up a process of clarification with respect to the domains of customary and state laws, negotiating for a good space for customary conflict adjudication along the way.

6.2.3 Financial aspects and options for multi-sectorial locally-based institutional development

Financial rules may play a pivotal role in establishing balanced relations not only locally, but also between the possible Fisheries Authority and the state. Local sentiments may for instance question any taxation of the fishery by the state, especially if all management is locally provided for. This in turn may severely damage the goodwill of the government, even to the point that the state refuses to go along with any local proposals, as has for instance been reported in Uganda where the central government blocked locally crafted wetland management plans that did not provide for money transfers beyond the local government units (Andeweg, 2006). Against that background, the current license fee to the Department of Fisheries is an institution that should be embraced rather than undermined, since it enables a peaceful relationship with the central state authorities. Its current level of about 1 US\$/year is in fact very modest compared to a fisherman's net earnings of around 10 US\$/day. Safeguarding this same relationship and its independence, the fishing 'Authority' will have to do all it can to be self-supporting and avoid financing requests to the government. The outlook in this respect is positive; many local BVCs already have well-working financial institutions at their level (managed from fines and small contributions of fishermen as BVC-membership fees), and a higher-level fishing Authority, if designed cost-consciously, does not need a degree of staffing that cannot be supported by the 1500 fishermen (DoF, 2014) of the Marsh. There even appears to be room for other financial involvements of the Authority, such as establishing a revolving fund to help fishermen and traders with micro-credits e.g. for fish processing.

On the other hand, when one realizes that apart from good fish catches, the people at the Elephant Marsh also have other needs (values, goals etc. such as good schools, good health facilities, enough food) the idea of establishing an institution to cater for *all* the development potentials which have been identified at the Elephant Marsh (fisheries, agriculture, livestock grazing, energy, and tourism) becomes exciting. The important question then would be whether a multi-sector, marsh-wide 'Multi-Sector Authority' for the Elephant Marsh would be successful. Of course, one pre-requisite for such an establishment would be to learn from the marsh-wide Fishery Authority if it would prove to be a success.

The progression from the fisheries-only 'Authority' to the multi-sectoral 'Authority' would however be difficult as it would entail formation of almost a 'new local government' comprising several state departments and other stakeholders thereby stirring decision-making competition. The other obstacles would be that there is no basis in the national legal and policy provisions for such an institution and it would require much more state involvement than with fisheries only 'Authority', thereby breaking the power of the purely locally based 'nested enterprise'. So, in a nutshell, the idea of establishing a multi-sector, marsh-wide 'Authority' for the Elephant Marsh requires a new and deeper understanding of the emergent socio-causal linkages and invites us to more research.

6.3. Lessons for small-scale fisheries management in developing countries

The findings in this thesis have several critical implications for small-scale fisheries management in developing countries. Firstly, it has been shown that before any small-scale fisheries governance system for a particular fishery is designed and operationalized, there is need to define and understand the interests and roles of each actor including the social networks that exist among them. Secondly, for common pool resources such as wetland SSF whose boundaries are well defined, it seems prudent to entrust the governance systems with the local users. The role of the state should then be to uphold the interests of the local resource users through the provision of information on fish stock assessments, legitimization of the local institutions, and protection of the resource boundaries from external intrusion. State defense of the resource boundaries might be particularly crucial when the local resource users exhibit lack of coercive power to defend the resource from external users. The state should, therefore, not allow or support outside actors from coming in and usurping the local system. In this regard, this thesis is in agreement with the framework devised by Ostrom (2009) which suggests that long-term resource sustainability is difficult to achieve when local institutions are overruled and suppressed by larger scale, state-based governance systems. Thirdly, this thesis has shown that sustainable management options for common pool wetland resources do not always require costly governance systems. Locally crafted styles of management can offer lower costs of monitoring, enforcement and defense of the resource from external intrusion. In addition, this thesis did a coarse filter examination of the various governance systems in SSF around the world and established a sustainability convergence around trust, reputation and respect of the leadership of local institutions. Lastly, institutional scientists should open up and shift their range of what may be classified as characteristics of good institutions for common pool wetland resources such as SSF. By focusing less on formal (Western-style) requirements of

institutional design, and reflecting more on what really works, institutional thinking should accept that good institutions might also be amorphous, low-cost and purely locally-based.

6.4 Conclusions

The following conclusions can be drawn from this study:

1. The socio-ecological and land use setting of the Elephant Marsh offers many ecosystem-based development potentials which include prospects of intensified small-scale rice farming, increased small-scale fish production, energy production and ecotourism.
2. The Elephant Marsh Fishery is managed by community user groups (known as beach village committees) which are supported by three other key players namely: village chiefs, fisheries officers and fishers. Based on a comparative analysis of the Elephant Marsh Fishery and 17 cases of small-scale fisheries in other developing countries, the optimal role of the government of Malawi in the management of the Elephant Marsh Fishery seems to be as intelligently absent as possible by way of (re)building, respecting, protecting and supporting local institutions, if necessary up to the full-Marsh level. In other words, co-management is not the key perspective for the Elephant Marsh Fishery.
3. The key socio-causal attributes for sustainability of the Elephant Marsh Fishery lie in the social reputation of the BVC Chair and the power dynamics between traditional chiefs and the local fishery leaders.
4. Safeguarding the sustainability of the Elephant Marsh fishery in the near future lies in the establishment of a weak, purely locally based and internally amorphous fisheries management institution, as a 'nested enterprise' on the whole-Marsh level, based on the existing local fisheries committees. Further growth of this institution into a full-fledged locally based fisheries 'Authority' is possible when the need arises, especially if Malawi's fisheries regulations would be adapted such that inconsistencies with the full acknowledgement of such an institution were removed. Such an adaptation would not be fundamental because the law already recognizes local 'Authority' in fisheries management. Expansion of a fisheries 'Authority' into a multi-sectorial authority that regulates all of the Marsh's ecosystem based potentials is theoretically attractive but may be practically undesirable, requiring more research and fundamental governance discussions.

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