



Developing locally managed marine areas: Lessons learnt from Kenya



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ABSTRACT

Coastal communities in Kenya are increasingly adopting Locally Managed Marine Areas (LMMAs) and by 2015, 24 had been established. Coastal communities perceive the objectives of these LMMAs are to primarily conserve fisheries and marine resources and secure alternative sources of income. In this study we examined if there are generic approaches in how these LMMAs were established, that can be used for developing national guidelines as well as have application to other locations in the western Indian Ocean region. The study involved a literature review of all documents available on the LMMAs and key informant interviews.

We found LMMAs in Kenya go through five phases to become fully established and operational: i) Conceptualisation, ii) Inception, iii) Implementation, iv) Monitoring and management; and v) Ongoing Adaptive Management. We defined each stage by the activities that are taking place which determine how far a LMMA has reached in its development. The final phase is when a LMMA exists sustainably in a continuous learning process. Out of 19 LMMAs assessed, four had reached the fifth stage of 'Ongoing Adaptive Management' though not all elements of this stage were fully operational.

The Kenyan model differs from the widely known Pacific model of four phases due to an additional initial 'Conceptualisation' phase. Our results illustrate the need for full acceptance of the LMMA concept by stakeholders before progressing to the 'Inception phase.' When this step was missed many LMMAs stalled due to unaddressed training needs, incomplete involvement of stakeholders and lack of financial resources, management and operational structures. These five phases provide a useful guide for communities and other stakeholders to follow when developing LMMAs, or for those that are established and need guidance on their operations.

Common factors that we found associated with the development of LMMAs were informed and committed community members, past training in community based marine resource management, a supportive legal framework, external funding and opportunities for sharing LMMA information. The occurrence of an exchange visit to an existing LMMA was invariably the trigger for a community to establish their own LMMA. Weaknesses were seen in poor enforcement on the water and inadequate ongoing education and training. Further there was very little understanding of the costs of establishing and running a LMMA, therefore long term financial sustainability was problematic. Thus, although the rapid increase in the number of LMMAs in Kenya is a conservation success, their effectiveness will be thwarted if enforcement and financial management are not addressed.

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1. Introduction

Marine conservation has moved strongly towards co-management in recent years, in contrast to the top-down approach to natural resource management applied in the past (Cinner et al., 2012; Rocliffe et al., 2014). This move was seen in marine conservation in the Pacific in the 1990s (Govan et al., 2009).

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It builds on recognition of the power and rights of local fishing communities to manage their marine resources and this is typically effected through Locally Managed Marine Areas (LMMAs) (Green et al., 2009; Roccliffe et al., 2014). As a result, the South Pacific has experienced one of the greatest increases in number of LMMAs, now involving over 500 communities in 15 countries (Govan et al., 2009). The Pacific LMMAs are characterized by strong government investment in community based fisheries management, support by non-governmental organisations, adoption of traditional forms of management, support by local social networks and positive perception by community members (Russ and Alcala, 1999; Govan et al., 2009; Mills et al., 2011).

Kenya has seen a rapid rise in the number of LMMAs since 2010. The first were mangrove board walks declared in the 1990s, in association with mangrove re-planting schemes. The first coral reef based LMMA, Kuruwitu, just north of Mombasa, was established in 2006. By 2008 a further two mangrove board walks and two coral reef based LMMAs were established and by 2011 there were 13 coral reef and five mangrove LMMAs several of which on the south coast were supported by Flora and Fauna International (FFI), with the East African Wildlife Society (EAWLS) (Abunge, 2011; Maina et al., 2011).

Coral reef based LMMAs in Kenya have been created for several reasons but the initial impetus is likely to have been a cross visit to Tanzania in 2004. During the early stages of the establishment of Kuruwitu, the East African Wildlife Society (EAWLS) arranged an exchange visit for Kuruwitu fishers to go to Tanga in Northern Tanzania, to see the Collaborative Management Areas (CMAs) that had been set up by the Tanga Coastal Zone Conservation and Development Programme (TCZCDP); (Wells et al., 2007). The objective of the visit was to give Kuruwitu fishers who had expressed interest in establishing a LMMA a first-hand experience of their operation and to discuss with the Tanzanian fishers their experiences. This exchange visit culminated in Kuruwitu's establishment. Other reasons for their uptake in Kenya span fishers' concerns over degraded fishing areas and dwindling stocks, increased involvement of communities in natural resource management by government (Cinner et al., 2012), increased use of illegal and destructive fishing methods (pers. obs.) and perception by some resource users that government marine parks provide little economic benefits to themselves or to their local communities (Malleret-King, 2001; Davies, 2002; Wanyonyi et al., 2008).

Not all LMMAs in Kenya are fully functional and others face challenges. For example, there is no clarity on the procedures to be followed in designating a LMMA (Maina et al., 2011) and some proposed LMMA sites lie within National Marine Reserves which are under the jurisdiction of the Kenya Wildlife Service (KWS) and, as yet, there is no experience in operating a LMMA within an existing government marine protected area. The current fisheries co-management structure used in Kenya is the Beach Management Unit (BMU) through which community rights over resources have been legally established (GoK, 2007). However, there are many pieces of legislation that govern the management of the coastal and marine environment in Kenya (Samoilys et al., 2011) making a legal

anchor for LMMAs complex. In response to this, a task force was established to develop legal guidelines for LMMAs (Odote et al., 2015). The lack of legal clarity and limited management and financial supporting mechanisms for LMMAs are likely to be reasons for why some LMMAs have been established only to stall within a short time. Coastal and marine stakeholders are demanding guidance on LMMAs as they see them as a viable solution to declining catch rates, to eliminating destructive fishing gears, to combat the negative effects of climate change and limited fishing controls (Samoilys et al., in press; McClanahan et al., 2016), conditions that are widespread globally (Allison et al., 2009; Gutiérrez et al., 2011; Cinner et al., 2012).

In response to this history, the objectives of this study were to examine if there are generic approaches in how LMMAs have become established in Kenya, to identify key challenges and successes and to provide information that could be useful for developing national guidelines as well as be applied more broadly to LMMAs in the western Indian Ocean (WIO) region.

2. Methods

In this study we documented all LMMAs in Kenya and, depending on the information available, assessed their stage of development and effectiveness. We use LMMA as a global generic term for community or locally managed areas in the marine environment which have some form of protection or regulation. Many names are used in Kenya to refer to these areas, including community conservation area (CCA), *tengefu* (Kiswahili for 'set aside', McClanahan et al., 2016) and community conservancies, often relating to the legislation used to declare them or to the various actors who have promoted them (Table 1; Odote et al., 2015). Govan et al. (2009) working in the Pacific defined a LMMA as "an area of nearshore waters and coastal resources that is largely or wholly managed at a local level by the coastal communities, land-owning groups, partner organisations, and/or collaborative government representatives who reside or are based in the immediate area."

We used a combination of a desk top review of published and grey literature with key stakeholders, to determine the path to establishment of LMMAs, their successes and their challenges. There was limited published information on the history of the different LMMAs in Kenya (Harrison and Laizer, 2009; Karisa et al., 2010; Kuruwitu Conservation and Welfare Association, 2011; Maina et al., 2011; Lamprey et al., 2012; Mwaura, 2013) so we also examined draft management plans that were available (Kuruwitu, Kanamai-Mradi, Kibuyuni, Vanga), proceedings of the Darwin Initiative Final workshop held by East African Wildlife Society/Flora & Fauna International (EAWLS/FFI) in 2012, student theses (Yusuf, 2011; Ogada, 2013) and government legislation, particularly the Fisheries Act (GOK, 2007) and the Environmental Management and Coordination Act (GOK, 1999).

Out of the 24 LMMAs found in Kenya, five were Mangrove Board Walks and were therefore not reviewed further. Of the 19 LMMAs that included coral reef areas, 10 were interviewed, 5 were too new (within 1 year of establishment) to fully assess their effectiveness

Table 1
Generic and legal names used for LMMAs in Kenya (after Odote et al., 2015).

Generic terms	Legal term	Legislation	Agency
Locally Managed Marine Area (LMMA)	Co-management area	Fisheries Act Cap 378; Fisheries (Beach Management Unit) regulations 2007	State Department of Fisheries (SDF)
Community Conservation Area (CCA)	Sanctuary Marine Protected Area Wildlife Conservancy	Wildlife Management and Conservation Act 2013	Kenya Wildlife Service (KWS)
Tengefu/vilindo vya wenyeji (Kiswahili)	Protected coastal zone	Environmental Management and Coordination Act 1999,	
Community reserves		National Environment Management Authority (NEMA)	
Community conservancies			
Indigenous Protected Areas			
Biocultural heritage sites			

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