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Involvement, knowledge and perception in a natural reserve under participatory management: Mida Creek, Kenya

Céline Frank [a, *], James G. Kairo [b], Jared O. Bosire [b], Mohamed O.S. Mohamed [c, d], Farid Dahdouh-Guebas [d, 1], Nico Koedam [a, 1]

[a] Laboratory for Plant Biology and Nature Management, Vrije Universiteit Brussel, Pleinlaan 2, B-1050 Brussel, Belgium
[b] Kenya Marine and Fisheries Research Institute, Headquarter and Mombasa Centre, P.O. Box 81651, Mombasa, Kenya
[c] Kenya Wildlife Service, Mombasa Field Research Station, P.O. Box 82144-80100, Mombasa, Kenya
[d] Laboratory of Systems Ecology and Resource Management, Université Libre de Bruxelles (ULB), Av. F.D. Roosevelt, CPI 264/1, B-1050 Bruxelles, Belgium

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ABSTRACT

Participatory forest management (PFM), as opposed to top down state management, is part of the decentralization process that has occurred in Africa over the past few decades. In Kenya, the process is still at its dawn with enforcing laws dating from 2005 and many pilot projects now in course. Little feedback has been given so far.

This case study evaluates, for the first time, participatory management of a Kenyan protected mangrove forest. PFM, coupled with a status of protection, is believed to be an efficient way to preserve the threatened mangrove forests.

Semi-structured interviews with local community members (people living within or next to the forest) and key-informants (people working in the forest management) were performed in order to measure three major components of participatory management: Knowledge, involvement, and perception of local communities.

Those interviews revealed a partial and overall low involvement of local communities in the formal participatory management structure. Knowledge of the policy concerning mangrove forest management was higher for the people having a job related to natural resources from the forest (e.g. fishing or tour guiding) and for people holding at least a primary level education. The former group was also more involved in the management process.

Villagers who were better informed about PFM approaches were also generally more involved in the management.

Perceptions of PFM were contrasted and many criticisms were revealed at this early stage of implementation.

These results are believed to evolve positively as the government regains trust among local communities who are given more power and wardenship on the forest.

1. Introduction

Mangroves are defined by experts as “woody plants growing normally in tropical and subtropical latitudes along the land–sea interface, bays, estuaries, lagoons, and backwaters” (Mukherjee et al., 2014).

Between 25% and 35% of the mangrove forest cover was lost during the last two decades, with higher rates occurring locally, especially in developing countries (Valiela et al., 2001; Duke et al., 2007; FAO, 2007; Bosire et al., 2014).

The recovery time of an over-exploited mangrove forest from wood extraction while left untouched should be lower than 20 years (Mukherjee et al., 2014) but in Kenya, despite the efforts of the government to protect its mangroves over the last decades, the degradation rate did not decrease. The country's mangroves have experienced a 20% loss over a period of 25 years (1985–2010), representing an annual loss of 0.74%. Extractive processes of mangrove wood was assessed to be the major cause of degradation

* Corresponding author.
E-mail address: frankceline1@gmail.com (C. Frank).
[1] Co-last author.

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(Abuodha and Kairo, 2001; Kirui et al., 2012). Land use changes due to development (roads, tourism, agriculture and aquaculture) is also a recent growing threat to the Kenyan mangrove (Rideout et al., 2013). Recently, new port development in the Lamu area which is part of Kenya's largest mangrove area, has raised international concern (UNESCO, 2015).

Traditionally, mangrove ecosystems have been sustainably managed by local populations but during the colonial and post-colonial periods, these forests came under direct control of state governments. The purpose of mangrove forests became purely commercial (wood harvesting and drainage for construction). When mangrove decline was pointed out as an important biodiversity loss, state management became mostly prohibitive and no sustainable alternatives were provided to local communities who were dependent on mangrove resources. In most cases this kind of management leads to conservation failure (Glaser and Krause, 2003; Omodei Zorini et al., 2004; Dahdouh-Guebas et al., 2006; Walters et al., 2008).

Over the last 25 years, inclusion of communities in the management of all types of forest resources has become increasingly common within a majority of African and Asian countries. In Africa, there was a clear evolution from a simple consultation of the community to a real partnership with the state in a context of devolution (Wily, 2002). Today, almost all African countries have adopted new forest laws including legal opportunity for forest-local populations to participate in forest management. Forests ownership, however, is still mostly in the hand of the state (98%) and only 0.5% is owned by local communities, against 25% both in Asia and in Latin America. Kenya, although less advanced in the participative field than other countries such as Tanzania or Uganda, has taken important steps towards the co-management process, even if the contribution of communities in decision-making power and in the access to the shared revenue accrued from the forest resources is limited (Mogoi et al., 2012).

PFM is an umbrella name for all processes and mechanisms, which enable community groups living in and around forests to take part in the management of the forest resources. It is part of a larger concept that emerged in the eighties: Community Natural Resource Management (CNRM). Community participation in forest management aims at protecting forest-based subsistence livelihoods and natural resources by incorporating the interests of resource users in a sustainable management plan. PFM is nevertheless positioning communities not only as resource users or “clients” but as populations who have rights over resources in their vicinity, and as a matter of course must have the major say in sustaining their future (Wily, 2002).

Mida Creek is located in the Kilifi county, one of the poorest counties in Kenya: In 2008, 71.4% of the population was living below the poverty level (less than US$1 a day) (Republic of Kenya, 2011).

Only a decade ago, illegal mangrove cutting was still an important source of cash for the poor and middle classes, with an estimation of around 2650 m^3 - corresponding to 37,400 US$ of building wood - harvested over a year in the Creek (Omodei Zorini et al., 2004).

The mangrove forest surrounding the Creek is partially included in the first marine protected area of Kenya, the Malindi-Watamu National Park and Reserve (MWNPR), established in 1968 (IUCN, category II). Since 1977, the mangrove forest is also part of the Arabuko-Sokoke National Park (IUCN, category II); the largest fragment of coastal forest (420 km^2) left in East Africa.

MWNPR was classified under Man and Biosphere Reserve (MAB) by the UNESCO in 1979; and as an Important Bird and Biodiversity Area (IBA) under this programme by BirdLife International's in 2001.

In the early years after the reserve gazettement, the local communities of villages around the Creek, relying strongly on mangrove resources, were excluded from management and sanctioned for resource extraction in the forest (Dahdouh-Guebas et al., 2000).

It is only in the late nineties that the Kenyan government, in collaboration with local and international environmentalist organisations started to focus on finding sustainable alternatives to mangrove use. Harvesting of mangrove resources is now allowed with a license from relevant agencies and traditional harvesting techniques only for fishery are permitted (Wildlife Conservation and Management Act, 2009).

Those initiatives emanating both from the government and communities (through the creation of conservation groups) are thought to be a major cause of mangrove regeneration. However, the effects of this new form of management on the forest and its acceptation by the whole population of the area have not been assessed yet and customary coastal management systems have been poorly described on the Kenyan coast so far (Aswani et al., 2011).

Today, many local conservation projects ally income generating activity (e.g. bee keeping and *Casuarina equisetifolia* exploitation) and mangrove trees planting, in order to sustain people's livelihood in Mida Creek (Carter and Garaway, 2014).

Tourism is often presented as an alternative to mangrove exploitation (especially eco-tourism) and even an incentive for mangrove conservation, but it is also a source of pressure on the forest, mainly for the purpose of restaurant and hotel construction (Abuodha and Kairo, 2001; Mukherjee et al., 2014). Moreover, the tourism sector in Mida Creek is highly seasonal and jobs are almost exclusively reserved to men (Carter and Garaway, 2014). It is also important to note that tourism is sensitive to severe global and local shocks. In Kenya, recent political instabilities and terrorist attacks affected seriously the positive image held by potential tourists and consequently, the flow of tourists over the last decade (Kenya National Bureau of Statistics, Republic of Kenya, 2014). Income from tourism may help to preserve the mangrove, however tourism by itself cannot be a secure alternative for local communities to excessive mangrove exploitation. It must be integrated into a global management plan.

Mida Creek, as a part of the larger Arabuko Sokoke forest, is a pilot site for participatory forest management (PFM) in Kenya (Mogoi et al., 2012). A management plan of the Mida Creek area was developed for the 2002–2027 period and funded by the Community Development Trust Fund (CDTF), a joint initiative between the EU and the Government of Kenya. In parallel, the Kenya Forest Service (KFS) wrote a participatory forest management plan for Arabuko-Sokoke and Mida Creek's forests which still has to be agreed on and signed by the local community.

The (new) Constitution of Kenya adopted in 2010 and the Forests Act (2005) emphasize the role of local communities in the management of natural resources and the importance of collaboration between state and communities.

In that framework, Mida Creek is a pilot site in Kenya for the implementation of the new participatory forest management since 2008: The principal unit of management is called a Community Forest Association (CFA) and covers a group of neighbour villages, whereas the Village Dwellers Forest Conservation Committee (VDFCC) is active at the village scale. CFA representatives communicate and exchange data with the Kenya Forest Service (KFS), the role of which is to find compromises between the community needs and the goals of the reserve.

Fig. 1 shows how the implementation of PFM coupled with the development of economic alternatives to mangrove use and income generation might lead to forest regeneration as foreseen for Mida Creek. Involvement and incentives to participate are therefore considered as crucial steps to reach conservation goals (Fig. 1). In view of the general importance for conservation of the wider