

Rethinking Joint Forest Management: The Role of Self-interest and Altruism in Shaping Environmental and Socio-economic Outcomes in Kenya



Image adapted from (Anderson et al., 2015, p. 54 fig 4.)

Candidate Number: 1023002

MSc course: Biodiversity, Conservation and Management

Word count: 14952

A dissertation submitted in partial fulfilment of the requirements for the degree of Master of Science in Biodiversity, Conservation and Management, School of Geography and the Environment, University of Oxford



ABSTRACT

Participatory approaches such as joint forest management (JFM) has been used to anchor payment for ecosystems services frameworks such as REDD+. A qualitative research conducted in Arabuko Sokoke Forest (ASF), Kenya, hopes to contribute to that discussion, by drawing on 23 key informants and participant observation. The study investigates the extent at which JFM has shaped forest conservation, benefit sharing, community empowerment and intrinsic motivation. It adds a twist – role of self-interest and altruism in shaping JFM outcomes. The results reveal that ASF is perceived to be degraded, there is no formal benefit sharing mechanism, communities haven't been fully empowered and JFM hasn't crowded out the intrinsic motivation of local communities to conserve. These environmental and socio-economic outcomes have been shaped by the nature of the symbiotic relationship in JFM, which has been plagued by self-interest being pursued by all major stakeholders at the expense of trading altruistic acts.

ACKNOWLEDGEMENTS

I would like to thank my supervisor for the immense support she gave me in terms of developing my proposal and refining my research questions, as well as feedback on my dissertation. Also, I would like to express my gratitude to the BCM course leaders for their support

I would like to appreciate members of the community forest associations in Arabuko Sokoke Forest, for allowing me to interview them as well as participate in one of the activities they carried out. My utmost gratitude goes to A Rocha Kenya, who not only gave me spacious working space but also accorded me the necessary assistance during my fieldwork. In addition, I would like to thank all the NGOs and government agencies representatives that spared their time for my interviews.

To the BCM cohort of 2017/2018 and all my Linacre college friends, I would like to say thank you for the insightful conversations, as I wrote my dissertation. In addition, I would like to pin point the efforts of my brother – Cedric who spared his precious time to teach me how to analyse data using NVIVO software.

Last but not least, I would like to extend my gratitude to my dad for his comments on the nature of the research I was undertaking, and the rest of the family for their prayers and support.

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List of Abbreviations

VDFCC- Village Development, and Forest Conservation Committee

MCCC- Mida Creek Conservation Group

NK- Nature Kenya

ARK – A Rocha Kenya

FoASF – Friends of Arabuko Sokoke Forest

ASFADA- Arabuko Sokoke Forest Adjacent Dwellers Association

CHAPTER 1: INTRODUCTION

The necessity to protect and conserve global forests more so tropical forests is urgent. This action is necessary since it might be the key to addressing two of the global challenges: development and climate change (Seymour and Busch, 2016). Development in this instance, implies conversion of tropical forests into different land uses such as agriculture and human settlement, which are the primary drivers of deforestation (Dávalos et al., 2014; Henders et al., 2018; Rudel et al., 2009). Tropical forests, have been identified to influence and regulate regional and even global climates through sequestering carbon, for instance, the Amazon forest (Malhi et al., 2008). Thus, it's imperative that these forests are protected lest the effects of climate change will be exacerbated by their clearance (IPCC, 2014; Malhi et al., 2014; Seymour and Busch, 2016).

The Global Forest Resource Assessment (FRA, 2015) puts global area covered by forests at 3,999 M ha which is a 3% decrease from 4128 M ha in 1990 (FAO, 2015; Keenan et al., 2015). Tropical forests have declined from 1,965, 542 K ha in 1990 to 1,797,757 K ha in 2015 (FAO, 2015; Keenan et al., 2015). The aforementioned region coincides with the location of developing countries, where a fifth of household incomes of the forest adjacent communities are from wild products obtained from forests (Seymour and Busch, 2016). Furthermore, forests host 80% of the terrestrial biodiversity (WWF, 2018) as well as providing goods such as timber, and services such as carbon sequestration (Bhagwat et al., 2017).

In order to ensure that the forests are conserved and protected the aspect of forest governance comes into play. Forest governance has been defined as “all formal and informal, public and private regulatory structures i.e. institutions consisting of rules, norms, principles, decision procedures, conserving forests, their utilisation and their conservation. Further it is the interactions between public and private actors therein and the effects of either on forests,” (Giessen and Buttoud, 2014, p. 1). The governance of forests can take several approaches: central regulation – governments employing top-down systems; decentralization – government regulation being transferred from a central system to a local authority; customary regulation – using local communities customary structures; collaborative – involves government and resource users managing resources jointly; participatory or community-based – initiated by the government and non-governmental organisations through different forms of community-based natural resource management (CBNRM); and market type approaches – employing mechanisms such as certification and payment for ecosystem services (Nunan et al., 2018).

Market type approaches have become popular in the global forest governance discourse (Andersson et al., 2018a; Scheba and Scheba, 2017). Payment for ecosystem services (PES) through a framework

such as REDD+¹ have been fronted as a solution in combatting deforestation and forest degradation (Bhagwat et al., 2017) as well as ensuring well-being of forest-adjacent communities (Lund et al., 2017; Scheba and Rakotonarivo, 2016). However, the piloting of the market type approaches for instance REDD+ has been done through riding on existing forest governance approaches - participatory forest management (PFM) or CBNRM (Blomley et al., 2017; Khatun et al., 2015). For instance, this has been demonstrated in Tanzania, where most of the REDD+ piloting projects were carried out in forests that were being managed through PFM (Mustalahti and Tassa, 2012), as well as through community forests in Nepal (Newton et al., 2013), India and Mexico (Kashwan, 2015).

Participatory and market type approaches have shortfalls. It has been argued, for instance, that the market approach was advanced as a ‘silver bullet’ (Scheba and Scheba, 2017) that might solve the ‘evils’ of PFM such as insufficient government incentives for local communities to conserve forests (Burgess et al., 2010) and the trade-off between conservation and sustainable use (Blomley et al., 2017). However, that hasn’t been the case since market approaches have ended-up manifesting other problems such as inequality and insecure land tenure (Andersson et al., 2018b; Lund et al., 2017) especially with regard to forest-adjacent communities. As demonstrated there seems to be a debate whether market approaches should ride on participatory approaches or which of the two is the most appropriate. Therefore, this period at which global forest governance is at has been described as a watershed moment² (Seymour and Busch, 2016). Thus, a time to learn from lessons, re-evaluate and put together existing structures before the turning point is made. That said, this research aims to contribute to the watershed period by attempting to re-evaluate those structures by looking at a form of PFM referred to as joint forest management (JFM) utilizing a case study of Arabuko Sokoke Forest in Kenya, an area where JFM was first piloted in that country. Simply JFM is the co-management of forests by governments and forest-adjacent communities (Burgess et al., 2010; Khatun et al., 2015; Sundar et al., 2001).

1.1 Aims of the research

The study is interested in finding out how JFM has shaped environmental and socio-economic outcomes in Kenya by taking the case study of Arabuko Sokoke Forest. Environmental outcomes in this context implies forest conservation, defined as the maintaining of natural resources in the forest

¹ The term has been “formally defined as reducing emissions from deforestation and forest degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries” (Visseren-Hamakers et al., 2012, p. 646)

² The watershed moment refers to the period in the global forest governance arena where ‘the pieces of the jig-saw puzzle are being brought together’ these are: “international consensus on a framework for REDD+; forest rich countries making commitments, private corporations pledging to do their part, technology to enable accountability and support of a broad base of civil society groups including indigenous groups,” (Seymour and Busch, 2016, p. 15)

which benefit humans as well as the environment (Pawar and Rothkar, 2015). On the other hand, socio-economic outcomes implies three aspects – benefit sharing mechanism, community empowerment (Patenaude and Lewis, 2014) and intrinsic motivation. In addition, the study adds a twist – self-interest and altruism. The twist is added, since it has been highlighted that self-interest and altruism play a role in the management of common pool resources (De Dominicis et al., 2017; Karapetyan and d’Adda, 2014) such as forests. Hence, the two factors tend to shape the trade-offs between short-term benefits and uncertain long-term benefits from forests, as well as individual and community-oriented benefits (Karapetyan and d’Adda, 2014). These aforementioned benefits correspond to the environmental and socio-economic outcomes that have been mentioned the research is investigating.

The impetus for undertaking this research is drawn from a study done in three countries – Nepal, Kenya and Cameroon. It looked at how environmental and community outcomes relate to the various forms of community forestry being applied in the three countries. It concludes that the communities involved in these arrangements have only been given rights to manage low value forest products, while the governments still have rights to manage exclusively high value forest products. This results to environmental, economic and community empowerment benefits not being realized. The study recommends, the need for research to look at the extent of what sort of rights have been devolved to the communities and institutional constraints to full management of forests (Anderson et al., 2015). This study rises up to the challenge posed by Anderson et al., (2015) in his recommendations. This is by looking at how the design and implementation of JFM in Kenya has shaped the extent of forest conservation, economic benefits, community empowerment and intrinsic motivation of local communities to conserve forests. It also adds a twist – the role of self-interest and altruism in JFM.

An analytical framework is designed for the research, that draws on the reciprocal altruism theory (Plummer and Fennell, 2007; Trivers, 1971) and socio-economic parameters informed by Patenaude and Lewis, (2014) natural resources governance analysis framework. The analytical framework developed, links theory with empirical data such that it can be used to analyse environmental and socio-economic outcomes relating to JFM, as well the role self-interest and altruism plays in the arrangement. Therefore, the study focuses on the various actors (stakeholders) especially Community Forest Associations (CFAs) involved with JFM with the intention of assessing the following objectives:

1. Environmental outcomes that is forest conservation based on perceived incidences of deforestation and degradation.

2. Socio-economic outcomes based on a benefit sharing mechanism, community empowerment and intrinsic motivation.

The assessment of the above objectives is geared towards answering the following overall and specific research questions:

1.2 Overall research question

How has the design and implementation of JFM in Kenya shaped forest conservation, economic benefits, community empowerment and intrinsic motivation of local communities to conserve forests?

1.3 Specific research questions

1. To what extent has JFM provided the much-expected benefits in terms of forest conservation, economic benefits and community empowerment?
2. How has JFM crowded out the intrinsic motivation of local communities to conserve the forest.

CHAPTER 2: BACKGROUND AND LITERATURE REVIEW

2.1 Participatory Forest Management

Participatory forest management (PFM) has generally implied the involvement of non-state actors especially local communities (Wily Alden, 2003) as well as state actors in managing different types of forests (Nunan et al., 2018). Participatory in this regard implies the involvement of local communities belonging to forest user groups that are part of the management and conservation of forests. This approach tends to be initiated by governments, NGOs or even projects (Nunan et al., 2018). It has been argued that it's part of a large framework referred to as CBNRM (Frank et al., 2017; Nunan et al., 2018). However, PFM has been used interchangeably with other terms depending on the context, for instance in Nepal it has been referred to as community forest management (CFM) (Newton et al., 2015; Yadav et al., 2017), as well as in India (Human and Pattanaik, 2000; Yadav et al., 2016). In other instances, it has been expressed in its subset form - Joint Forest Management especially in sub-Saharan Africa and India, for instance, in Tanzania (Blomley and Iddi, 2009; Kashwan, 2015; Katani et al., 2016), Malawi (Zulu, 2013), Kenya (Anderson et al., 2015) and India (Agarwal et al., 2016; Sundar et al., 2001). Furthermore, participatory approaches have been associated with terms such as collaboration, co-operation, co-management and community (Plummer and Fennell, 2007). Despite their varied applications and use, they enshrine perhaps the same general principle of "shared rights and responsibilities over a particular resource between governments and

private users or actors, including communities,” (Zulu, 2013, p. 1918). Thus, in this study the participatory approach going to be discussed is PFM and it’s subset form JFM.

PFM was the product of perhaps populist and/or political pressures in the 1980s to move forest management from central regulation into a more localized context where local communities and institutions could be involved (Edmunds and Wollenberg, 2013). It was also perhaps due to the rejection of the pristine nature narrative coupled with the failure of economic valuation of conservation (Brown, 2002; Hulme and Murphree, 1999 cited in Robinson and Sasu, 2013). In addition, it was perhaps because of the focus on how local communities can derive benefits from conservation (Robinson and Sasu, 2013). However, it has been argued that different forms of PFM under the umbrella term - community forestry, might have begun before the 1980s. This period mentioned is in the 1960s and 1970s through the peace corps forestry programme which promoted community woodlots (Polansky, 2003).

The paradigm shift at the time from central governance was a global phenomenon although took different forms depending on the context (Benson and Jordan, 2017). It took place in Bolivia, Zimbabwe and Tanzania through district councils. Also, it happened in Indonesia and Philippines through local governments as well as India and Nepal. Furthermore, it happened in the developed world – United States of America and Canada (Edmunds and Wollenberg, 2013).

The forces behind the push for a change were within or outside government institutions, (Edmunds and Wollenberg, 2013). These was mainly due to various reasons such as the need by governments to cut costs, advocacy for a bottom-up approach by development specialists, and political pundits advocating for decentralization as a way to better civic culture. In addition, it was promoted by environmentalists who advocated for the relationship between local communities, their culture and economic significance of natural resources (Edmunds and Wollenberg, 2013). However, in Africa (Wily Alden, 2003) and India (Sundar et al., 2001) majority of the formal policies regarding the shift took place starting from the 1990s, such that by 2002 about 35 countries in Africa had forest policies or drafts addressing this shift (Wily Alden, 2003).

PFM enshrined the aspect of decentralization³ of forest since it fostered democratization in forest management by engaging local communities as partners (Agrawal et al., 2008; Polansky, 2003). This was done through local enforcement (Chhatre and Agrawal, 2008), forest exploitation, share of revenue from the forests, and ensuring their sustainability (Polansky, 2003). PFM drew inspiration

³ Decentralization in this context implies that there is still a role that the government plays despite the involvement local communities institutions and structures.

from Hardin's (1968) work on the perils of managing commons and how the application of collective action and use of institutions in the commons (Ostrom, 1990) could lead to their successful governance. However, it was highlighted later that the use of formal institutions to govern commons such as forests doesn't necessarily ensure that there won't be over utilization of resources (Ostrom and Nagendra, 2006).

The proponents of PFM envisioned it would lead to provision of socio-economic benefits, as well as ensuring the integrity of the natural resources (McDermott and Schreckenberg, 2009; Morales and Harris, 2014; Nuesiri, 2016). It was hoped that there would be integration of scientific and technical knowledge with insights from the local communities in order to solve their problems or needs (Pagdee et al., 2006). Furthermore, it was seen as an approach that would enable governments and the local communities share responsibility when it came to regeneration of forests (Agarwal, 2001).

PFM promised environmental and socio-economic benefits but it has been noted that measuring the success of such a process is complex (Pagdee et al., 2006). However, it has been argued by Edmunds and Wollenberg (2013) that PFM has had mixed outcomes, in terms of sustaining local communities livelihoods and other material benefits. Also, PFM has been critiqued, for instance in Tanzania it didn't successfully address issues related to land tenure due to conflicting legislation. This has been manifested when forests on open access land were considered by the Tanzanian national government as being under their ownership while village forest management institutions also claimed ownership (Dokken et al., 2014). This might not be an isolated case, since many forests in Africa are perhaps suffering the same fate. This is because rural resources such as forests are under "*de facto* open access regimes" (Nelson and Agrawal, 2008, p. 557). Thus, the government has to way options between surrendering ownership of forested lands to locals or not, having the full knowledge that there's pressure on them due to population and the need for more farmland (Polansky, 2003).

In India, for instance, when it came to PFM the government didn't deliver on its promises when it came to income generating activities (Edmunds and Wollenberg, 2013). This is despite the local communities' effort in managing forests. Also, instances of smuggling of timber and fuelwood in certain areas of India such as Sambalpur has been documented (Sundar et al., 2001). In such cases it has been noted villagers have attacked forestry officials who have confronted them (Sundar et al., 2001). In addition, Human and Pattanaik (2000) argued that participatory forestry approaches in India faced a threat from global market forces since they were going to enhance exploitation of forests through liberalisation of the Indian economy.

PFM has been critiqued when it comes to equitable benefit sharing of income derived from the forests. For instance, it has been noted that communities don't benefit at the household level but at the community level, more so the elites in the community (McDermott and Schreckenberg, 2009; Yadav et al., 2017, 2016). When it comes to the aspect of exclusion, PFM has been highlighted to enhance exclusion of women for instance in South Asia due to underlying structural and cultural reasons (Agarwal, 2001). Exclusion of women is problematic, since it has been noted in India and Nepal that inclusion of women in forest management has led to improvement of forests (Agarwal, 2009). Furthermore, concerns have been raised regarding the aspect of reducing externalities when it comes to resource management of commons (Agrawal, 2001) such as forests while maintaining the interests of the neighbouring local community.

There are researchers such as Nuesiri (2016, p. 97) who have stated that PFM is idealistic - "a utopian vision," by taking the case of Cameroon, where the government deliberately maintains the status quo when it comes to forests. This he argues is to allow NGOs and commercial timber companies to come in and work so that they can continue paying the government taxes and license fees. The aforementioned argument is echoed by Anderson et al., (2015) who look at PFM in three countries - Kenya, Cameroon and Nepal. They state that the government maintains the status quo by allowing communities to access NTFPs (non-timber forest products) and not allowing them to control timber trading. This line of thought regarding NGOs and government having vested interests in such approaches has been mentioned especially with regard to wildlife conservation in sub-Saharan Africa (Brockington and Scholfield, 2010a, 2010b; Corson, 2010).

It has been said that participatory approaches are marred with patron-client systems (Nelson and Agrawal, 2008). In addition, they are guilty for the production of environmental subjects where individuals might be interested in the conservation of a forest but their thoughts and actions might not necessarily lead to the conservation of the forest (Agrawal, 2005).

However, despite the numerous criticisms, PFM still does exist in 30 countries in Africa alone (Robinson et al., 2013). It has been used to anchor nascent frameworks in the global forest governance scene such as REDD+. Thus, remains an approach that will continue to gain more academic insight, with this thesis advancing the same agenda.

2.2 Joint Forest Management in Kenya and Arabuko Sokoke Forest

2.2.1 Joint Forest Management in Kenya

In this context the term that is going to be used to connote participatory forest management is its subset form joint forest management. This is because JFM is the legally prescribed form of PFM in Kenya according to the *Forest Conservation and Management Act, 2016*. The Act states that interested parties (especially residents) near public forests can enter into agreements with the government (this is where the ‘jointness’ comes in) in order to conserve and manage forests. This is through forming community forest associations (CFAs) (Government of Kenya, 2016). The genesis of this forest management approach was through PFM piloting studies. The studies began in 1997 (Kagombe et al., 2017) in Arabuko Sokoke Forest and in Mt. Kenya’s Upper Imenti Forest (Mogoi et al., 2012).

Joint forest management of forests in Kenya through the PFM legal structure has enabled creation of CFAs (Government of Kenya, 2016). CFAs have had some autonomy when it comes to setting rules regarding harvesting, election of their leaders and conflict resolution (Mogoi et al., 2012). However, the government hasn’t allowed the CFAs to be fully autonomous. This has been done through the formalization of rights and access into the forests through agreements and management plans that still control and restrict communities (Anderson et al., 2015). In addition, NGOs have contributed to the same state of control and restriction. This has been done through funding projects that target JFM while ensuring they have control over them. This is in order for money not to be seen by donors to have been wasted (Thomas, 2013)

Musingo et al., (2015) and Matiku et al., (Matiku et al., 2013) have highlighted that this approach has enabled the livelihoods of local communities to be enhanced in Kenya. This has been achieved through seeking alternative sources of livelihood and sources of energy. The poverty status of the communities adjacent to the forests in Kenya has led them to embrace the alternative livelihoods that are provided through income generating activities (IGAs) (Ming’ate et al., 2014). This is because communities are positively and significantly influenced to participate in JFM when they perceive there are benefits they are going to derive from the forests (Musyoki et al., 2016). However, it has been contested if IGAs indeed influence participation. This is because, one, Kagombe et al., (2017) states that, IGAs need to be enhanced due to absence of clear strategies to address their sustainability. Two, there is inequality brought about by differences in community involvement and their policy knowledge thus making them not to see direct results and profit from JFM and associated IGAs (Frank et al., 2017).

2.2.2 Arabuko Sokoke Forest

Arabuko Sokoke Forest (ASF) located in the North Coast of Kenya is the largest remaining block of indigenous coastal forest in East Africa (Forest Department, 2002; Ming'ate et al., 2014; Oyugi et al., 2008) that once stretched from Southern Somalia to the Eastern Cape (Forest Department, 2002; Luvanda Makee et al., 2018; Oyugi et al., 2008). Arabuko Sokoke has been ranked second in Africa in terms of conservation of rare and threatened bird species (Bennun et al., 1999; Collar et al., 1988; Oyugi et al., 2008). In addition, It has been recognised as a repository for biodiversity containing 50 species of globally and nationally rare plants, 6 globally threatened bird species and 3 globally threatened mammal species (Oyugi et al., 2008).

Martin (1975) highlights, historically, the town of Malindi was re-established in c.1861, the local inhabitants cut trees for house building and boat making from ASF. In the c.1890s an ethnic group known as the Bajuns tapped the Indian rubber vine which was found in the forest. They sold it in large quantities to Malindi merchants. It was the most valuable export at the time (c. 1899-1900) from the town. In the early decades of the 20th century the forest was exploited for its large indigenous trees such as *Afzelia quanzensis* by European sawmillers which saw its numbers decline.

The forest was then declared a crown forest in c.1932 and became a gazetted forest reserve in c.1943. (Forest Department, 2002). This was part of the forest management strategies that were introduced in Kenya during the colonial period in c.1902 (Kagombe et al., 2017). In 1977 a nature reserve was established where no extractive activities were supposed to take place and still exists up to date. (Oyugi et al., 2008). When the coastal towns of Malindi, Kilifi and Mombasa started growing in the late c.1980s the demand for fuelwood, timber and poles increased and pressure piled on ASF such that efforts were initiated to start conserving the forest (Ming'ate et al., 2014). However, the forest was exploited commercially until c.1990s (Oyugi et al., 2008).

In 1992 the Arabuko Sokoke Forest Management Team (ASFMT) was formed comprising of the Forest Department – later became Kenya Forest Service (KFS) and Kenya Wildlife Service (KWS). Later the two were joined by Kenya Forestry Research Institute (KEFRI) and National Museums of Kenya (NMK) (Ming'ate et al., 2014). PFM was then adopted by Kenya in order to involve local communities in forest management and was piloted in ASF in c.1997 (Kagombe et al., 2017). This led to the revision of the *Forest Act Cap 385* to the *Forest Act, 2005* which facilitated the formation of Community Forest Associations (CFAs) (Kagombe et al., 2017) and enabling JFM.

The *Forest Act, 2005* was repealed as a result of the transition of the country into a devolved system of governance. This led to the enactment of the *Forest Conservation and Management Act, 2016* (Kagombe et al., 2017). Currently, the *de jure* management of the forest is the KFS. However, it's under a *de facto* forest management arrangement - Arabuko Sokoke Forest Management Team comprised of four government agencies and three NGOs.

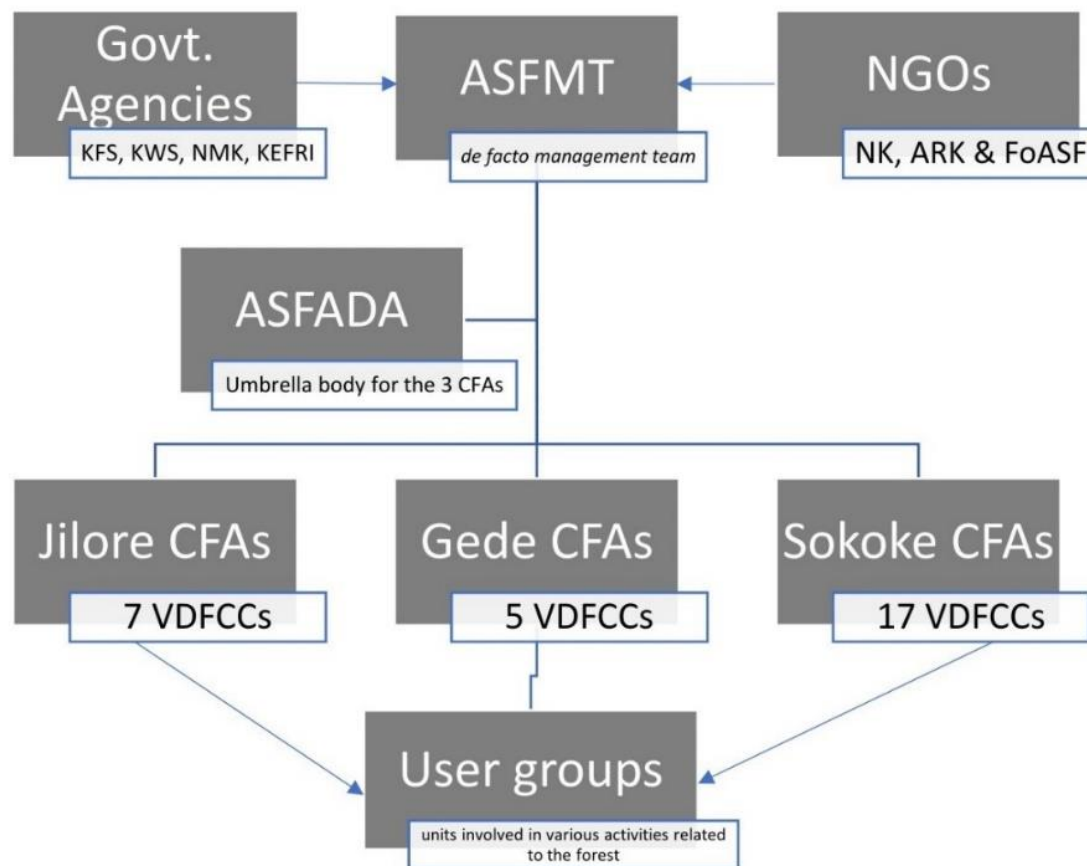


Figure 1 Normative structure of forest management in Arabuko Sokoke Forest

2.3 Self-Interest and Altruism

Nature conservation has been referred to as an altruism centred field (Chen and Lin, 2014). Also a field where debates about what motivates humans to conserve have played (Davidson, 2013). Self-interest refers to the action of humans (emphasis on modern) which are geared towards personal achievement and satisfaction (Paraskevaidis and Andriotis, 2017a). Self-interestedness perhaps makes it easier for people to be governed since their feedbacks in a given space makes them predictable and systematic, (Foucault et al., 2008; cited in Gebara and Agrawal, 2017). On the other

hand, altruism implies humans being motivated to conduct an action by a selfless behaviour geared towards benefitting the welfare of others rather than one self (Paraskevaidis and Andriotis, 2017a). Altruism tends to espouse the value of empathy (Romani et al., 2013). However, it's a multidimensional concept where a single definition might be misleading (Paraskevaidis and Andriotis, 2017a).

There are two terms of interest in this study - true altruism and reciprocal altruism (Paraskevaidis and Andriotis, 2017b). It has been debated if indeed true altruism exists. The argument fronted has been, if an individual can have genuine concern for others. Since, when individuals are keenly investigated there might be an element of self-interest (Piliavin and Charng, 1990). However, the debate whether true altruism exists or not is beyond the scope of this thesis. Thus, in this context, true altruism is taken to imply "a more pure and higher existence which we can only aspire" (Wuthnow, 1993, p. 356). On the other hand, reciprocal altruism implies doing an action that is beneficial to another party especially if both are in a symbiotic relationship (Paraskevaidis and Andriotis, 2017a). It draws its origins in socio-biology where Trivers (1971) put's forward a theory to explain how non-related individuals cooperate.

Self-interest and altruism have been the focus of fields such as social psychology, political science, economics and sociology (Piliavin and Charng, 1990). However, in this research the discussion regarding the two are used in a nuanced form. Thus, consideration is given to literature that has covered their application in environmental governance and to a small extent tourism studies.

The concept of self-interest and altruism has been applied in studies regarding community-centred conservation such as PFM. For instance, Zulu (2013) looks at how the use of monetary-incentives, as the primary motivation of conservation being instrumental in fostering self-interest in community members involved with forest management in Malawi. According to him this tends to overlook the potential of non-monetary incentives in fostering forest conservation. These arguments have been backed by Robinson and Sasu (2013) who have highlighted that non-monetary benefits have gone a long way in motivating communities to conserve in Kunlong, Ghana. Robinson and Sasu (2013) argue that this form of motivation where such values are accommodated goes a long way in legitimizing and building trust among those involved. Trust is one of the ingredients of reciprocal altruism which manifests itself in co-management approaches (Plummer and Fennell, 2007) such as JFM

It has been further highlighted that altruism and self-interest play a role when it comes to management of common pool resources (De Dominicis et al., 2017; Karapetyan and d'Adda, 2014). For instance,

De Dominics et al., (2017) highlight that self-interested individuals are bound to be environmentally conscious if their behaviour is rewarded with a personal benefit. However, their altruistic counterparts will be environmentally conscious if environmental benefits are going to be realized and to some extent their personal benefits. De Dominics et al., (2017) study resonates with the situation in most developing countries. This is because common pool resources such as forests are managed through participatory approaches where trade-offs between benefits in the short run and uncertain benefits in the long run are always in play (Karapetyan and d'Adda, 2014). Therefore, stakeholders in participatory approaches especially poor local communities struggle with whether to pursue their self-interests or be altruistic. Hence, employing approaches such as PFM may end-up assigning a “selfish nature” to the actors involved. This may lead them operating contrary to their ability to co-operate with each other and not grappling with the reality (Gebara and Agrawal, 2017, p. 19). The reality is that locals don't necessarily raise their concerns for the environment even if they have experienced a degraded environment (Kopnina, 2012). This perhaps is due to their input being undervalued in terms of coming up with solutions and filling the gaps in forest conservation where there are intricate systems such as PFM (Gebara and Agrawal, 2017).

2.4 Analytical Framework

The analytical framework is developed in order to evaluate the design and implementation of JFM in Kenya and specifically to what extent it has shaped forest conservation, benefit sharing, community empowerment and intrinsic motivation. This is done through a set of criteria defining environmental and socio-economic outcomes. The criteria is outlined in figure 2 below. The analytical framework is further developed by linking four key aspects related to the reciprocal altruism theory in order to explain self-interest and altruism dynamics related to JFM. The theory was first developed and applied in sociobiology (Fennell, 2006). It was a field that E.O. Wilson explored and defined as “the systematic study of the biological basis of all social behaviour,” (Wilson, 2000, p. 4). The theory was advanced after a model was developed to explain “cleaning symbiosis in fishes, warning cries in birds and human reciprocal altruism,” (Trivers, 1971, p. 35).

Reciprocal altruism infers the act of trading altruistic acts in a symbiotic relationship where individuals are not related and resulting to both parties benefitting (Trivers, 1971). It's based on the act of cooperation which can exist in long-term and stable relationships where reciprocity and altruism are in action (Fennell, 2006). Co-operation implies "the action or process of working together to the same end" (Oxford Living dictionaries, 2018). Reciprocal altruism as a theoretical framework has been modified by (Plummer and Fennell, 2007) in terms of its application in co-management arrangements. However, it has also been used to explain why cooperation shouldn't take place when

it comes to tourism where temporal constraints are evident in terms of the interaction periods among tourists (Fennell, 2006). Reciprocal altruism has been argued that it offers an understanding of participatory approaches as problem-solving systems (Fennell and Plummer, 2010). The theory has also been applied to examine co-management arrangements such as PFM in Malawi forests (Zulu, 2013). Thus, validating it's employability when it comes to analysing JFM in Kenya.

The analytical framework illustrated below utilizes four key aspects of reciprocal altruism theory as modified for co-management arrangements (Plummer and Fennell, 2007, p. 950). It also explains the four criteria that have been developed to evaluate environmental and socio-economic outcomes modified from Patenaude and Lewis (2014) framework on the analysis of natural resources governance.

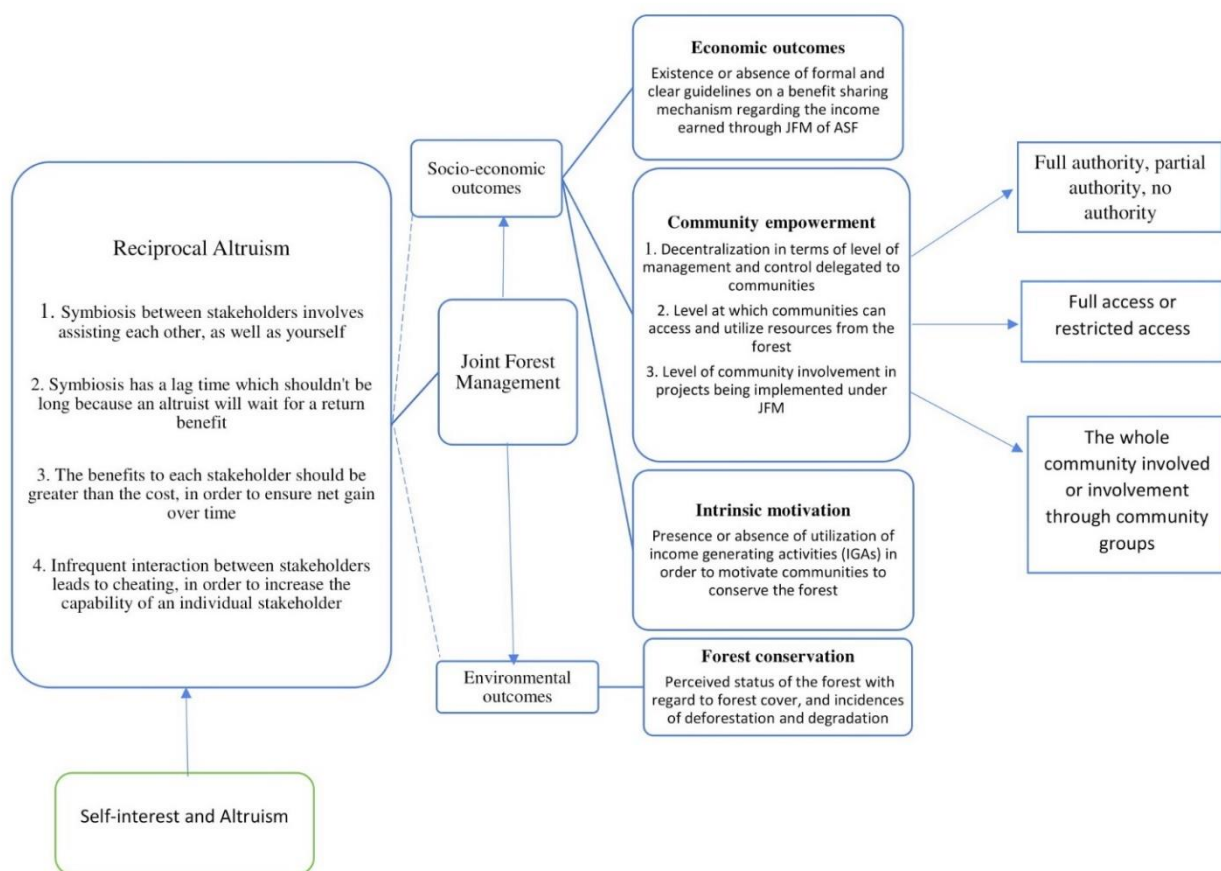


Figure 5 Analytical framework depicting the linking of reciprocal altruism theory and environmental and socio-economic outcomes

Symbiosis thus infers the beneficial interactions between cooperating individuals while cheating refers to the failure of an actor to reciprocate a beneficial act rendered to them (Plummer and Fennell, 2007).

Chapter 3: METHODS

3.1 Study Site

The study focused on Joint Forest Management in Arabuko Sokoke Forest, in North Coast Kenya. The forest covers an area of c.41,600 (about 416 km²) and it's surrounded by c.50 villages with a human population of about 104,000 people ((Forest Department, 2002; Luvanda Makee et al., 2018). There are no squatters in the forest and the forest adjacent dwellers main economic activity is small-scale farming involving cultivation of maize, cassava, coconuts etc. supplemented by forest resources (Luvanda Makee et al., 2018)

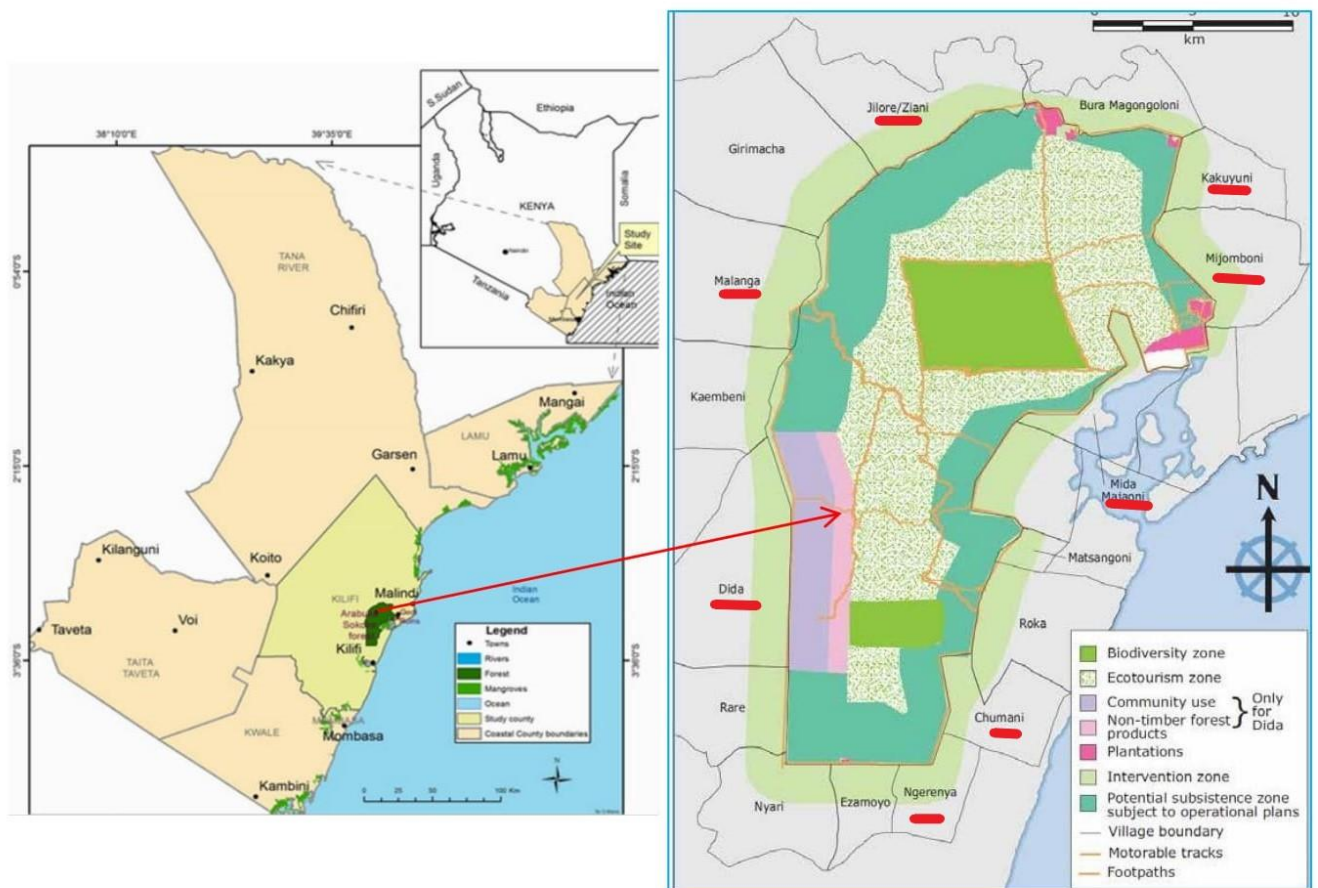


Figure 13 Map of the coast region of Kenya and indicating the location of the study site and the specific location where interviews were conducted, highlighted in red. Adapted and modified from (Luvanda Makee et al., 2018, p. 2) and (Forest Department, 2002, p. 10)

3.2 Qualitative Research Approach

The research design that I employed was a case study approach. This was ideal since the selected site - ASF was one of two sites in Kenya where JFM was piloted in 1997 (Kagombe et al., 2017; Mogoi et al., 2012). Thus, it was suitable in understanding how the design and implementation of JFM has shaped environmental and socio-economic outcomes in Kenya. This is because the piloting inspired the enactment of the *Forest Act, 2005* which legalized the approach and was replicated in other parts of the country. Thus, studying JFM in ASF can be a proxy in understanding its outcomes in Kenya. Although, there are certain limitations, since JFM is influenced by many factors which might be context specific. The study utilized qualitative data gathered by methods including semi-structured key informant interviews, participant observation and review of literature as well as policies and legislation related to JFM.

3.3 Data Collection

3.3.1 Sampling and Key informant Interviews

The study made use of non-probability sampling utilising purposive sampling and snowballing techniques as described by (Clifford and Valentine, 2003; Gomez and Jones, 2010). The purposive sampling involved re-establishing contact with the chairpersons of the 3 CFAs as I had worked with them previously. The chairpersons in turn recommended suitable individuals which could be interviewed in relation to the study. They recommended individuals who mostly had been involved with JFM since its inception in 1997. The NGOs' representatives were identified by recommendations made by the leader of a local NGO. The four government agencies were purposely identified since they all played a managerial role when it comes to JFM. Hence, contact was made through securing appointments with the relevant individuals in the institutions which entailed paying them courtsey calls.

The sample size was 23 individuals which compromised all the major stakeholders involved in the management of the forest. These are representatives of organizations that form the *de facto* ASFMT which includes: CFAs, government agencies and three NGOs. The sample size was in line with the recommended number of interviewees in a qualitative study 10-30 (Gomez and Jones, 2010). In addition, the representatives of the 3 CFAs were selected from different sides of the forest in relation to the side of the forest they were located. This was to facilitate data triangulation to enhance the validity of the study (Guion et al., 2011). The validity of the data was further bolstered by the selection of three community members playing different roles: the leader of Arabuko Sokoke Forest Adjacent Dwellers Association, a local forest tour guide and a local forest surveyor.

Type of participant	Category of participant	Number of individuals
Gede CFA	Community Forest Association comprised of ~5 villages	3
Jilore CFA	Community Forest Association comprised of villages ~11 villages	3
Sokoke CFA	Community Forest Association comprised of ~27 villages	4
ASFADA	<i>De facto</i> umbrella body of the 3 Community Forest Associations	1
Forest tour guide and forest surveyor	Members of the community	2
4 NGOs	Stakeholders in JFM of ASF	4
Other NGO	Indirect stakeholder in JFM of ASF	1
4 National government agencies	ASF management team	4
Kilifi County Government	Stakeholders in JFM of ASF	1
Total		23

Table 7 showing the categories of Key Informant Interviews

Regarding the sampling unit, an interviewee represented a single actor affiliated with a particular entity involved in JFM. However, there was one incident which was beyond my control where one interviewee was accompanied by another individual. The unit that was sampled was one rather than two. The sample sizes for the different groups varied in order to highlight the relative sizes of each group. The community groups were the main interest with regard to the research questions. Therefore, their sample size was large, that is 13, with 3 individuals from two CFAs and 4 individuals from the other CFA. Sokoke CFA had one more individual because it covers a larger area than the two CFAs. One individual from each of the four government agency was selected. Also, one individual selected

from each of the four NGOs were selected due to them having worked in collaboration with both the community and the government in JFM of ASF. The other NGO which was selected and indirectly involved with ASF, was selected since it's was a 'Supra-NGO' where several organisations and companies subscribe to it as members. This NGO pursues diverse interests involving two major ecosystems that are ecologically as well as socio-economically interlinked: ASF and Watamu-Mida Creek Marine Protected Area. Their selection was based on the perspectives they offered relevant to the research questions that were not necessarily offered by the other 4 NGOs directly involved with JFM.

Majority of the interviewees had worked in relation to JFM for more than ten years thus could be regarded as offering expert knowledge that has been gained by their experiences, practices and the positions they occupy (Gomez and Jones, 2010). The interviews were conducted based on an interview guide which began with generally an open question with regard to how they understand JFM implies. I was then able to pick on certain themes raised to explore further information relevant to the research. This facilitated reducing the impacts of already preconceived ideas regarding the study and the nature of information to expect. The semi-structured interviews were audio-recorded in the instance consent was granted by the key informants and in the instance consent was not granted notes were taken down. All members of the community interviews and NGOs' representatives were audio recorded. All except one government agency representative refused to be audio-recorded citing that forest related issues at the time were sensitive due to the then on-going moratorium. The interviews were conducted either in English or Kiswahili with both options being presented before the interview began.

3.3.2 Participant Observation

I used participant observation since it offered the opportunity to engage with the forest governance system being studied as well as the actors involved in that arrangement (Clifford and Valentine, 2003). It also complemented the data I gathered from the key informant interviews and enhanced the validity of the research data (Guion et al., 2011). I actively participated in a forest activity known as *de-snaring* which began at 0700hrs and ended at 1800hrs on 27th June 2017 where I conducted participant observation. De-snaring is an activity that tends to involve multi-stakeholder engagement that is groups and organizations involved with JFM of ASF. The main aim of the activity is to involve the CFAs in a hands-on forest management and conservation activity. It entails going into certain sections of the forest (that are selected depending with what the organisers of the exercise think is the section that might be facing destruction, probably informed by information passed on by community members). Then, following paths while surveying on both sides of the path to spot any animal snare,

tree stumps, abandoned logs or fresh footprints. The exercise involved c.36 individuals who were divided into two groups of c.18 each. I had previously participated in de-snaring activities (in 2014 and 2015) in the same forest. As a result I was not considered a ‘greenhorn’ or ‘outsider’ (Clifford and Valentine, 2003). Thus, there was trust that the researcher would actively participate in the activity with ease. I was able to experience and witness what it means to be a community member involved in a day long forest activity which is non-salaried. A commentary of the participant observation of the de-snaring activity was produced after field notes were taken during the exercise.

3.4 Positionality and Data Validity

Positionality was a key consideration - before I started conducting the research. This was because one, I was going to a familiar area where I had worked before as a staff member of a local NGO. This provided the challenge of having a potential conflict of interest since as an NGO employee I had worked with the local communities in various conservation related projects. To avoid this potential conflict, the relationship with the NGO was made explicit before the interview. In addition, my previous affiliation with the NGO and being a graduate student from the University of Oxford positioned me as someone in a position of power that influenced the way I interacted with the interviewees and the responses I got. According to Hay (2005) power cannot be absolutely eliminated from research involving social relations. Thus, I tried to minimise the impacts of the power dynamics. This was achieved through, one, asking the community members to select locations that were suitable for them to speak freely, with most of them suggesting I either visit them at their homes or meet them at community resource centres. Two, I tried to blend in with the community as much as I could by speaking flowery Kiswahili, dressing simple and decently, and using local motorcycle taxis – referred to as *boda boda*, 14 seater vans – referred to as *matatu* or walking to the locations where the interviews were to be conducted. These means of transport were utilized since they were also used by most community members. Third, before the interviews I stated explicitly that I don’t work anymore for the NGO and they should not associate my research with any positions of the organisation. Also, they should speak freely about anything even if it mentions issues regarding the NGO in a negative way.

When it came to the government employees, phone calls were not sufficient to schedule for interviews since they considered that as disrespect. Since they would assume you didn’t recognise their positions of power. Hence, I had to pay them courtesy calls first which entailed discussing briefly the nature of the research, setting a date for the interview and then signing a visitors book for the purposes of their record keeping. Regarding the NGOs, the issue of power was reflected by mentioning that I was a graduate student from Oxford, which enabled me to secure interviews with them. To reduce this

influence, I stated explicitly that I'm a local Kenyan who had only spent nine months in Oxford while studying and prior to that I had worked in the same area before leaving. Perhaps that explanation might have reduced inequalities in the power dynamics and enabled them to perceive me as being more of a local rather than a foreigner.

Regarding the participant observation, I was conscious about power dynamics thus I conducted moderate observation in accordance with Spradley (2016) typologies of participant observation. Hence, I was able to play both 'insider' and 'outsider' roles. This facilitated building of rapport and trust during the exercise. Thus, I was able to get involved as well as detach myself when I was required to in order to maintain the objectivity of the research.

Against this backdrop, the issue of objectivity arises and the nature of conclusions that can be drawn from this qualitative research. Hay (2005) mentions that objectivity is impossible to achieve when it comes to the nature of social research. Thus, to minimize its effects, I applied critical reflexivity strategies. This involved conducting self-evaluation of all situations I was immersed in as I conducted the research.

3.5 Ethics

Prior to conducting my research fieldwork, I secured the approval of the University of Oxford's Central University Research Ethics Committee (CUREC) and was issued with the Ethics Approval Reference: SOGE 18A-114. The ethics approval was achieved through discussions relating to how consent was going to be obtained and granted, how the data collected will be stored securely and anonymized. Plus, maintaining trust and confidence of the participants throughout the research process.

3.6 Data processing and Analysis

The research involved conducting interviews on a daily basis and covering about two to three interviews a day. In the evenings all the recorded interviews were transferred from the audio-recorder to a secure external hard drive and all sketch notes of the day were well written. Then an excel spreadsheet was utilized to note down the participants and anonymize their identities. This facilitated for themes to be picked up early and enabled the recruitment of more interviewees when it was noticed 'saturation' hadn't been achieved (Blaikie, 2010).

Type of participant	Anonymization Codes	Summary of details
3 Gede CFA members	CO10, CO11, CO12	They had been involved with JFM since its piloting (1997)
3 Jilore CFA members	CO14, CO15 CO17	They had been involved with JFM for more than 10 years
4 Sokoke CFA members	CO18, CO19, CO21, CO23	They all had been involved with JFM for more than 10 years except one
ASFADA	CO28	Had been involved with JFM since its piloting in 1997
Forest tour guide and forest surveyor	CO24, CO22	The former had been involved with JFM for more than 10 years while the latter for more than 20 years
4 NGOs	NG13, NG25, NG31, NG32	Three occupied senior management positions and one was a field officer. All except one had more than 15 years' experience in ASF
Other NGO	SNG20	Occupied senior management position and had 10 years' experience
4 National government agencies	GA16, GA26 GA27, GA29	Two had 10 years' experience with JFM and occupied senior management positions while two had about 5 years' experience
Kilifi County Government	CGA30	Field officer and had four years' experience
Total	23	

Table 20 Participants anonymization codes and summary of their details

The notes taken in the case, where audio-recording was not used, were transcribed the same day in order to capture the 'original' information that had been given. The audio-recorded interviews were listened to and transcribed. All the transcripts were then analysed using the NVivo version 12 Software that facilitated with ease the sorting out of major themes followed by secondary and tertiary

themes that were picked up from the data collected. This was achieved by creating categories relating to the criteria outlined in the analytical framework in figure 2 and then splitting those categories. Finally, linking them with theory (Blaikie, 2010) to facilitate the drawing of conclusions relevant to the research questions

CHAPTER 4: RESULTS

The results section is broken down into two major sections: environmental outcomes that looks into forest conservation – perceived forest cover and destructive activities; and socio-economic outcomes that is further divided into two sections - economic benefits and social outcomes.

4.1 Environmental outcomes

According to the analytical framework, forest conservation in this instance implies perceived forest cover and incidences of deforestation and degradation as highlighted in the analytical framework. In this context, deforestation implies loss of forest cover and subsequently change in land use while degradation refers to the quality decrease in the condition of the forest without impacting the area covered by the forest (Lanly, 2003). However due to the ambiguity of the latter statement the actual conditions considered with regard to degradation in the research is the perceived forest cover area and perceived occurrence of destructive activities (incidences of deforestation or degradation) in the forest such as cut tree stems or logs, charcoal burning, fuelwood collection and animal snaring which are prohibited according to the JFM policies. Therefore, the definition of degradation adopted is consistent with that implied by the forest authority.

4.1.1 Forest cover area before legalization of JFM and after legalization of JFM

From literature, the recent biodiversity status publication on ASF states that, “currently the forest covers a total area of about 41,600 ha,” (Luvanda Makee et al., 2018, p. 4). Before the legalization of JFM through the Forest Act (2005) the status of the forest with regard to the forest area was approximately 41,600 ha (Forest Department, 2002). Although in other instances others have argued the forest occupied an area of approximately 42,000ha (Gordon and Ayiemba, 2003).

4.1.2 Perceived forest cover area and destructive activities

Regarding destructive activities the biodiversity status report highlights that out of the 50 forest adjacent households sampled and 18 key informants interviewed, 74% stated that destructive activities were contributing to decrease in forest cover (Luvanda Makee et al., 2018). Those results were echoed in this research, where the majority of the respondents perceived the status of the forest

as decreasing in terms of forest cover due to occurrence of destructive activities. This is evidenced by the following statements:

“When I look at the picture clearly there has been a decline in the status of the forest,” (CO12 2018, personal communication, 12th June)

...last year we removed snares about... personally there was a time we went in and we removed about 27 snares, there is a colleague of mine who went into the forest and removed 200 snares, very far into the forest it hadn't caught anything but doesn't make much difference... (CO17 2018, personal communication, 20th June)

The destructive activities identified by the respondents included firewood collection, cutting trees for timber, carving wood and bushmeat hunting.



Figure 19 Images (from left to right), the skull of a buffalo and some bones, the carcass of a duiker or dik-dik, a cut tree. These photos were taken during the participant observation activity Photo credit: Samuel

In addition, most respondents stated that occurrence of destructive activities fluctuated that is there were periods where the frequency of destructive activities was high and there were periods when it subsided. This was mentioned during an interview on 26th June 2018 by a community member (CO) CO23,

“destruction was present especially last year – 2017.”

These sentiments were echoed by another respondent who further states that the destruction began way back before 2017.

“In 2015, 2016 until 2017 the forest was disappearing fast people were cutting way too much,” (CO22 2018, personal communication, 25th June)

This implies that **Arabuko Sokoke Forest is perceived to be a degraded forest**. This is because there are **destructive activities taking place** and not deforestation since the forest is not being converted into a different land use. However, it's perceived that forest cover is also reducing contrary to figures quoted in literature which put the area covered by the forest at a constant 41,600 ha (Luvanda Makee et al., 2018). The extent of degradation varies depending on the periods when the highest and lowest occurrences of illegal activities took place. The period between 2015 to 2017 was perceived as the time when the forest was most degraded. These results are corroborated by the recent biodiversity status report which mentions that the destructive activities in ASF are illegal firewood collection, harvesting of building materials, conversion for agriculture, charcoal production and illegal settlement, (Luvanda Makee et al., 2018).

Furthermore, the report highlights that firewood collection is the most predominant activity followed by harvesting materials for construction. Furthermore, firewood collection has increased in frequency in terms of percentage of households from about 30% in the 1990s to about 55% in 2015. On the other hand, harvesting of materials for construction such as poles and posts has decreased from about 35% in the 1990s to about 15% in 2015 whereas charcoal production has increased slightly from about 12% in the 1990s to about 14%. In addition, most of the destructive activities that have been mentioned were noted to have been present even before JFM was legalized. These destructive activities then included, collection of water, fuelwood, poles, herbs and hunting for bushmeat (Gordon and Ayiemba, 2003).

4.1.3 Reasons for perceived decreasing forest cover area and fluctuating occurrence of destructive activities

There were a myriad of reasons that were given by the respondents. Majority of the respondents blamed the lack of having an effective management team - ASFMT. This is illustrated by the statements made by a community member (CO10) and an NGO (NG32),

“The things being done, when examined closely, it’s the same managers who are supposed to be the one protecting the forest,” (CO10 2018, personal communication, 12th June).

“The management team for instance has not been functioning very well for 10 years.” (NG32 2018, personal communication, 13th August 2018)

The above statements are echoed by the ASF biodiversity status report that highlights the trends of forest management from late 1960s to 2017. The report states since 2006 - a year later after JFM was introduced to 2017, the role of ASFMT in ASF management has become weaker. This was due to lack of transparency and interests of the institutions involved, this has made the forest to be poorly conserved (Luvanda Makee et al., 2018). Although, high levels of poverty of the adjacent community might be the other problem (Luvanda Makee et al., 2018).

Also, further reasons raised by the respondents include politics, and corruption perpetrated by government officials in cahoots with CFA officials and some community members, as stated on 13th June 2018 during an interview with an NGO (NG13),

...they have gone back to destroy the forest and they don't go to report to Kenya Forest and KWS because of corruption and there are many incidences that have happened...

In addition, the participants raised reasons such as contradictory policies and mandates regarding forest management and wildlife management. This was as explained during an interview on 28th June 2018 with a government agency (GA26). Bureaucracy in government agencies was also mentioned especially in KFS. This is related to how community members forward their concerns to forest managers but they are not addressed. This is because of the hierarchical organizational structure of KFS which requires most decisions concerning the forest being sanctioned by the headquarters first before being employed. Thus, the issues might reach the headquarters or might not be forwarded there depending on the nature of the forest manager at a forest station. This makes community members to lose faith in the ability of forest managers to act when it comes to concerns they raise. This is highlighted by a community member (CO) below.

for instance, I have come to you with an issue, as a manager hoping that the issue I'm presenting will be looked into as fast as possible, but then you tell me you also have your managers who you need to consult first. And all of us can see the issue needs to be addressed

as fast as possible and then it goes just like that. (CO24 2018, personal communication, 26th June)

Lastly, other reasons raised include increasing demand for firewood and charcoal due to an increasing market demand, climate change, population increase and culture. Regarding culture, an NGO⁴ (NG31) stated,

there's also some cultural aspects when it comes to protection of the forest that the culture here family relations are so strong that if one of your own is involved in illegal activities it's almost taboo to report them so that means that they are not going to perform very well.

Hence, you might find in a family there are individuals who are for forest conservation but at the same time there are members who conduct illegal activities in the same family. Due to culture they may never report their family members.

4.2 Economic outcomes

According to the analytical framework the economic outcomes are assessed based on the existence or absence of formal and clear guidelines on a benefit sharing mechanism.

4.2.1 Economic benefits

The majority of the respondents, especially the CFAs and the county government representative, stated that there is no formal and clear benefit sharing mechanism being implemented on the ground. Some, stated they have had it being discussed in forums or they have heard it's embedded in legislation but they haven't seen it actualized. This is evidenced by the following statements:

“We came and discussed about it but the thing is it's like the constitution, this Act 2016 it's like it's still being hidden, ”(CO15 2018, personal communication, 14th June).

There is no benefit sharing of income mechanism being implemented in ASF. The plan is on paper but hasn't been actualized. It's not a unique case, most forests in Kenya also have the same issue happening, (CGA30 2018, personal communication, 2nd July)

However, - most of the government officials, NGOs representatives and a few community members stated that benefit sharing does exist, even if there are no formal guidelines, through various projects

⁴ The interview was carried out on 3rd July 2018.

targeting the community adjacent to ASF. There were three main projects that were mentioned by the respondents that were benefitting the community. These were butterfly farming, beekeeping and a guest house called Jamii villas. This is illustrated by the following sentiments from two government agencies (GA).

Hence, benefits shared dependent on various stakeholder initiated IGAs which fill the gap in the Forest Act, not being implemented. For instance, IGAs such as Jamii villas and butterfly farming are hoped will benefit the community as a whole once revenue is generated. Regarding butterfly farming, it depends on individual efforts. According to the project's statistics an average of 7 people involved in butterfly farming, the revenue earned ends up benefitting 100 individuals indirectly, (GA16 2018, personal communication, 20th June).

According to the biodiversity status report of ASF, they state that there is no “equitable sharing mechanisms for forest based benefits,” (Luvanda Makee et al., 2018, p. 53). The *Forest Management and Conservation Act, 2016*, Article 53 states:

Subject to Article 66 of the Constitution, investors in forests shall share the benefits of their investment with local communities by applying various options including but not limited to infrastructure, education, employment and social amenities and in accordance with rules made under this act or other relevant laws, (Government of Kenya, 2016, p. 714).

This is the closest the forest legislation comes to mentioning a formal benefit sharing mechanism for JFM in the country. According to the Kenya Forest Service there was a framework launched in November 2017 with regard to mobilizing resources for CFAs. The framework is titled *Community Forest Association Development and Financing Cycle Framework* which is meant to facilitate implementation of JFM (Muratha, 2017) and not necessarily the implementation of a benefit sharing mechanism.

However, some community members have taken the initiative to initiate the necessary steps in realization of a formal benefit sharing mechanism like the case of Sokoke CFA. They held a meeting and discussed what should be the contents of a guideline on a formal benefit sharing mechanism, (CO21 2018, personal communication, 23rd June). It has been argued that the lack of a formal benefit sharing mechanism which enshrines equity principles has continued to encourage communities to conduct illegal activities in the forest (Luvanda Makee et al., 2018).

The results therefore indicate that **there is no formal and clear guidelines when it comes to a benefit sharing mechanism associated with JFM**. Although there is distribution of benefits to community members involved with beekeeping, butterfly farming and Jamii villas.

4.3 Social Outcomes

4.3.1 Community Empowerment

The analytical framework establishes three parameters as informed by Patenaude and Lewis (2014) that are used to assess community empowerment.

4.3.3.1 Decentralization of authority in terms of level of management and control delegated to communities

In reference to the analytical framework this assessment of decentralization was further based on the community having full, partial or no authority to manage and control ASF's conservation. According to the *Forest Management and Conservation Act, 2016*, members of the community who are resident near public forests are allowed to participate in management and conservation of the forest through formation of Community Forest Associations. These associations have to sign an agreement with KFS and develop a management plan before being allowed to jointly manage and conserve the forest (Government of Kenya, 2016). This piece of legislation and associated guidelines are silent on what level JFM should be conducted. Thus, majority of the CFAs and NGOs representatives perceived that the level of management should be on a 50/50 basis. They stated that they haven't been given the full mandate - **partial authority**, with regard to management and control of ASF conservation and management. This is evidenced by the following arguments from the community(CO) and NGO (NG)

“There I can say we haven't been given the full authority,” (CO17 2018, personal communication, 20th June).

“You have to run everything through them. I think KFS are holding the reigns as tightly as they can,” (NG25 2018, personal communication, 28th June).

On the other hand the government agencies - more so KFS which signs the management agreements with the community, argues that it's not a 50/50 arrangement. This is because there is a hierarchy and protocol that states they are the primary custodian and manager of the forest. This is highlighted by these sentiments from a government agency (GA)

Community were to be involved but not all as they were to be involved through forming and joining CFAs...the forest is like a 'dead cow' where everyone is taking a piece. That is to say stakeholders come in with the ideas of being equal partners which isn't the case, this makes whoever is given the full mandate not free to work (KFS) ...community are not co-managers that is it's not a 50/50 arrangement, there are many articles involved... (GA27 2018, personal communication, 28th June).

4.3.3.2 Level at which communities can access and utilize resources from the forest

In reference to the analytical framework, the level of access and utilization of resources was further based on the assessment of the whole forest adjacent community having full access or restricted access to the forest. Nearly all of the participants agreed that there is restricted access and utilization of the forest resources when it came to community members. The access is restricted to those who are registered members of CFAs and have been conferred certain user rights such as firewood collection. This was highlighted on 20th June 2018 during an interview with a community member (CO) CO17,

“Not everyone is allowed to go into the forest, if it's going into the forest it's the CFA who are allowed and they must have the right approval”

However, there was a participant who believed that the whole community had full access and utilization of forest resources, (CO24 2018, personal communication, 26th June). Also, there was one who stated it's only women who had access to the forest, illustrated by the statement:

“It's women only who go into the forest for firewood collection.” (CO18 2018, personal communication, 21st June)

According to the *Forest conservation and Management Act, 2016*, only when a CFA (not the whole community) signs an agreement with KFS that a range of user rights are conferred, these include “harvesting honey, collection of medicinal herbs, development of community wood and non-wood forest based industries,” etc. (Government of Kenya, 2016, p. 712). The reason behind restricted access is to ensure sustainable utilization of the forest resources.

4.3.3.4 Level of community involvement in projects being implemented under JFM

In reference to the analytical framework, the level of community involvement in projects was further assessed based on, whether the whole community adjacent to the forest were being involved in projects or a section of the community were being involved.

Majority of the interviewees stated that indeed the forest adjacent communities are involved in projects **but only a section of the community**. This is done through involvement of various user groups especially those affiliated with CFAs. This is evidenced by the following statement from a community member (CO)

“What happened is that we involve communities by grouping them,”(CO19 2018, personal communication, 22nd June).

However, it was highlighted that there are two projects that have actually involved the whole community that is butterfly farming and beekeeping. This is illuminated below:

The community is involved as a whole for instance projects such as beekeeping, butterfly farming but whoever has the interest is the one that joins a project but when they are initiated everyone is involved but there are others who don't have interest so they don't join. (CO23 2018 personal communication, 26th June)

The reasons raised for involving specific groups, one, as stated above by a community member CO23 projects tend to target the whole community but only those who show interest are the ones involved further. Two, the lack of favourable natural conditions for a particular project to be implemented may lead to a section of the community not being involved this is revealed during an interview on 23rd June 2018 with another community member, CO21,

This side (eastern) there's a lot of rain so the activities do well compared to the western side which is dry such that when we plant casuarina at the same time, you will find in this area it grows very fast than the other side which is hit by drought and it dies.

Another reason that was raised, was that projects initiated targeted groups due to various stakeholder interests especially with regard to making work easier when it comes to securing funds and project management. It's assumed that those who are targeted will eventually influence the rest of the

community to practise the skills they have been trained on through teaching them. This is illustrated by the statement made by a community member (CO)

So when NGOs come they offer training or projects targeting certain people who have met certain criteria according to the projects. So those are the ones who have the best opportunity to sit down with the rest of the community because they know the problems of the community so they can use the teachings from the projects to pass them down to the community gradually until the community can understand, (CO24 2018, personal communication, 26th June)

Therefore, in terms of level of **community empowerment in general, JFM hasn't managed to empower the whole community fully**. This is because, one, it only involves a section of the community when it comes to projects. Two, it restricts access to the forest to community members who are only part of CFAs. Three, it has enabled partial authority when it comes to management and control of ASF.

4.3.2 Intrinsic motivation of local communities to conserve the forest

Intrinsic motivation in this context connotes doing something without expecting a personal reward or external reward. In reference to the analytical framework this is assessed on the basis of, presence or absence of income generating activities (IGAs) targeting the community in order to motivate them to conserve the forest.

Before JFM, ASF was under central government regulation. According to an interview on the 20th June 2018 with a government agency (GA) GA16, the respondents stated that during the centralized management period, the management of the forest was not all inclusive. The community were not engaged in conservation of the forest and were not necessarily motivated to conserve. This was corroborated by respondents who mentioned that traditionally the ASF adjacent dwellers hadn't been keen on conservation. This is because, one, the forest didn't have any particular sacred grove (locally referred to as *Kayas*). Two, at the time they already had enough resources they needed around them which didn't necessitate them to go into the forest. This was brought out by the statements made by community members (CO) and NGOs (NG),

But the native traditional customs in Arabuko... we don't even have the *Kayas* and we don't have those traditional areas that were being used long-time ago (CO12 2018, personal communication, 13th June)

I wouldn't say there were any traditionally there has never been any need to do that. I think it was because actually there were a lot more resources in the farms, people had trees they would get everything they wanted. They did not have to go in to the reserve. (NG31 2018, personal communication, 3rd June).

When JFM was being piloted in 1997 butterfly farming was already an income generating activity that had been introduced in order to change the communities attitudes towards forest conservation. A survey had revealed about 54% to 59% of the population wanted the forest cleared for settlement and agricultural purposes (Gordon and Ayiemba, 2003). The project had positive results with regard to livelihoods and change in attitudes and became self-sustaining in 1999, (Gordon and Ayiemba, 2003). There were other, similar projects that were implemented in ASF and had IGAs as a component, these include, ASSETS⁵, ASFMCP⁶, ASFCCI⁷, DICPFC⁸ and SIRP⁹ among others. Therefore, JFM in ASF has been implemented in tandem with IGAs as most respondents revealed and believed that it motivates the forest adjacent dwellers to conserve as illustrated by the statement below

In reality community members conserve because of the incentives, those who are passionate about intrinsic motivation to conserve are few. These incentives are important because, a) they contribute to their livelihood, b) support them in terms of monetary benefits c) in the case of a project like ASSETS (Arabuko Sokoke Schools and Eco-Tourism Scheme) the kids are able to go to school, (GA29 2018, personal communication, 2nd July).

Thus,. **in this context JFM didn't necessarily crowd out the intrinsic motivation of the locals to conserve. This is because the intrinsic motivation to conserve wasn't upheld by most of the ASF adjacent dwellers prior to JFM implementation** as the study reveals.

⁵ Arabuko Sokoke Schools' Ecotourism Scheme which had the objective to pay high school fees for bright students from poor families living adjacent to the forest in order to change the families attitude toward the forest (Sinclair et al., 2011).

⁶ Arabuko Sokoke Forest Management and Conservation Project (1997-2001) initiated beekeeping (Luvanda Makee et al., 2018)

⁷ Arabuko Sokoke Forest Community Conservation Initiatives (2003-2005) which supported eco-tourism, butterfly farming, beekeeping and mushroom farming (Ibid.)

⁸ Developing Incentives for Community Participation in Forest Conservation through the use of Commercial Insects in Kenya (2004-2008) which introduced sericulture and supported beekeeping (Ibid.)

⁹ Smallholder Innovation for Resilience Project (2012-2017) which supported nature based enterprises (Ibid.)

The use of IGAs to motivate individuals to conserve is not isolated in ASF, also in the near Watamu-Mida Creek Marine Protected Area, the same concept is being applied. As mentioned during an interview on 22nd June 2018 by SNG20,

The communities have been motivated to conserve after being involved in various income generating activities. For instance, groups such as the MCCC, Dabaso Conservation group, Sita-Umoja and Kirepwe Island self-help group

CHAPTER 5: DISCUSSION

5.1 Perceived environmental outcomes and reciprocal altruism

The results have indicated that the perceived environmental outcomes are that ASF is a degraded forest and the extent of degradation depends on the incidences of destructive activities. The period between 2015-2017 has been highlighted by the as the period when the forest experienced increased degradation. The major reason raised for degradation of the forest is lack of an effective management team which is corroborated with the findings of the ASF biodiversity status report. The report cites lack of transparency and interests of institutions involved contributing to the management being less effective (Luvanda Makee et al., 2018). This is further supported by the claims that ASF conservation is impacted by the weak governance framework and amorphous roles among stakeholders involved in JFM (Habel et al., 2017).

In reference to the analytical framework, reciprocal altruism prescribes that symbiosis between stakeholders involves assisting each other, as well as yourself. Thus, the joint management team which is comprised of government agencies, NGOs and the CFAs, are in a symbiotic relationship. They are trying to help each other conserve ASF but as they to do that they are also trying to help themselves through pursuing their own institutional self-interests which leads to lack of transparency. This leads to mistrust as mentioned by an NGO (NG31 2018, personal communication, 3rd July) and contributes to ineffective management. It has been noted that self-interest will make individuals conserve if there are personal benefits but in the case when the benefits are exclusively environmental then it doesn't work (De Dominicis et al., 2017). Thus, this explains why the joint management of the forest is less effective since the ultimate goal is conservation of the forest and not personal benefit.

5.2 Economic outcomes and reciprocal altruism

According to the results, the economic outcomes reveal that there is no formal and clear guidelines on a benefit sharing mechanism. This has been attributed to fuelling the occurrence of destructive illegal activities in ASF (Luvanda Makee et al., 2018). In reference to the analytical framework,

symbiosis has a lag time which shouldn't be long because an altruist will wait for a return benefit. The community adjacent to ASF have been waiting for a formal benefit sharing mechanism since JFM was legalized in 2005. They have been waiting for 13 years (lag time). Members of the community who are involved in JFM do it voluntarily, they are not salaried like their NGO or government agencies counterparts. Therefore, as altruists¹⁰ they have waited for a return benefit for 13 years which is a long time to wait for a return benefit. Since, similar studies have revealed that communities can have a lag time of six years (Zulu, 2013). Thus, that might explain why illegal activities are a common occurrence. However, the absence of a formal benefit sharing mechanism, doesn't necessarily mean that when one is put in place then it will all be well. Since it has been highlighted that, when it comes to such mechanisms the benefits tend not to occur at the household level but rather at the collective community level, where local elites might benefit more than the rest (McDermott and Schreckenber, 2009; Yadav et al., 2017)

In addition, according to the analytical framework, reciprocal altruism prescribes that, the benefits enjoyed by each stakeholder should be greater than the cost in order to ensure net gain over a period of time. One stakeholder – CFA bears a cost for conservation through volunteering to participate in JFM of ASF and they haven't yet seen a formal benefit sharing mechanism which is equitable put in place. Thus, they haven't realized a net gain over a period of time. This then might support why incidences of illegal activities continue to occur.

However, despite the lack of a formal benefit sharing mechanism, benefits under JFM have been distributed through various projects that target a section of the community, that is those who belong to CFAs and associated user groups. Specifically those involved with butterfly farming, beekeeping and the Jamii villas. This tends to alienate the rest of the community that is not part of the groups thus confirming PFM tends to be exclusionary (Agarwal, 2001). Hence, most community members end-up viewing the forests as the property of the government which has nothing to do with them. This is evidenced by these sentiments,

Therefore, in reference to the analytical framework infrequent interaction between stakeholders leads to cheating,¹¹ in order to increase the capability of an individual stakeholder. Since, the rest of the community, a part from the CFAs, interact infrequently with the government agencies as well as the NGOs when it comes to JFM. This has led them to cheat, in the sense that they don't feel part of the symbiotic relationship. Since, it has been argued that communities will positively participate actively

¹⁰ Altruism in this instance implies reciprocal altruism in accordance to the definition elaborated in the analytical framework, where one does an act out of his own volition but expects a return benefit over a period of time.

¹¹ Cheating implies failure of an actor to reciprocate a beneficial act rendered to them (Plummer and Fennell, 2007).

in JFM of forests when they are aware that there are going to get benefits from the forest (Musyoki et al., 2016). That not being the case, they sneak into the forest to ‘derive benefits from the forest’ as they conduct illegal activities.

Given the above discussions the government manifests itself as self-interested since it hasn’t implemented a formal benefit sharing mechanism. However, there is distribution of benefits which targets a section of the community, thus further revealing the self-interest of the government as well as the NGOs which fund and support them. The community have been altruists, voluntarily involved for 13 years in JFM and according to the reciprocal altruism theory (Plummer and Fennell, 2007) they haven’t seen return benefit in terms of a formal benefit sharing mechanism. However, a section of the community have been involved in projects which have had certain benefits. The rest, according to reciprocal altruism – they have had infrequent contact with other actors in JFM. Thus, have decided to pursue self-interest through cheating by conducting illegal activities in the forest.

5.3 Community empowerment and reciprocal altruism

Community empowerment with regards to JFM hasn’t been fully achieved. According to the results this is due to only a section of the community being involved, access to the forest being restricted to CFA members and partial authority given to CFAs, where they are not in 50/50 arrangement. In reference to the analytical framework, symbiosis between stakeholders involves assisting each other as well as helping yourself. This is demonstrated by how the government through it’s agency – KFS hasn’t facilitated the three aspects that enable the community to be empowered. One, it can be explained by the fact that JFM is a façade since the operations of KFS still remain command and control. This is because anything the community or any other actor in the JFM arrangement wants to implement related to the forest has to go through them. This is corroborated by Anderson et al., (2015) arguments that, the establishment of CFAs is structured in such a way that there are hurdles to access the forest and they are forced to seek for help from external actors such as NGOs who have their own interests. Also, their influence as community members is restrained. Further to that the structures provide opportunity for retired government foresters to come in since forest management has been made highly technical.

Since, the government agency - KFS are still operating under a command and control way institutionally, they are bound to be bureaucratic, monocentric and authoritative (Gebara and Agrawal, 2017). This means, as much as there is a symbiotic relationship, they are helping themselves the most by holding the power over forests. Thus, this leads to problems when it comes to implementation, since the rest of the other actors especially the community don’t have the same

authoritative capacity. This further hampers room for innovation (Gebara and Agrawal, 2017) and leads to lack of clear strategies when it comes to alternative livelihood projects targeting the community (Kagombe et al., 2017).

Two, the community are not fully empowered since only a section is involved in projects related to the forest. The projects which they are involved in are the less lucrative ones such as butterfly farming and beekeeping, while timber from plantations is only left for the government to exploit (Anderson et al., 2015). Therefore, the community is left to ‘manage leftovers’ - NTFPs while the government gains substantial income through licensing and taxing timber traders (Anderson et al., 2015). This income is not distributed to the community due to lack of a formal benefit sharing mechanism. This is further highlighted by the sentiments made by a government agency (GA) in ASF.

the trial plots of trees (indigenous) is an initiative involving the community (CFAs), KFS and KEFRI. The input involves establishing plots, land preparation and 30 years of maintenance. It also involves harvesting and management through rotation period (age). In the end, the revenue realized from the harvest is shared on a ratio of 70% to KEFRI and 30% to KFS. The community isn’t part of the deal, (GA29 2018, personal communication, 2nd July)

Third, community empowerment has been achieved since NGOs have vested interests. This is because in the symbiotic relationship as much as they are helping the rest to conserve they are assisting themselves. This issue was raised when respondents stated that one of the NGOs which funded a CFA to conduct elections ensured that certain individuals were selected and some were not (CO23 2018, personal communication, 26th June). In addition, another NGO also working in ASF, was mentioned on how they had introduced their own community forest scouts¹² and whereas community forest scouts have been part and parcel of the CFAs (CO15 2018, personal communication, 14th June). Furthermore, the NGO has the means to pay the community forest scouts whereas the CFAs’ community forest scouts are volunteers who are not paid. This has led to many abandoning the role. This is in line with reciprocal altruism – symbiosis has a lag time which shouldn’t be long because an altruist will wait for a return benefit. The volunteer community forest scouts worked for free for a long period without return benefits – being paid, and thus moved on to other things which was further exacerbated by seeing certain individuals being paid for doing the same job.

¹² Community Forest Scouts was a user group of the CFAs where they had a youthful team of men and women who would be involved in the daily patrolling of the forest with the two government enforcement agencies – KFS and KWS.

NGO's pursuing their own interests is a familiar story line when it comes to decentralized management of natural resources especially in Africa (Brockington and Scholfield, 2010b, 2010a; Mbaria and Ogada, 2016). In some instances, it has been stated that governments especially in developing countries like Cameroon, ensure NGOs are set up because they will end-up paying taxes to the government (Nuesiri, 2016).

5.4 Intrinsic motivation and reciprocal altruism

The results have indicated that JFM hasn't necessarily crowded out the intrinsic motivation of locals to conserve ASF. Since traditionally, most of the locals were not involved in the conservation of the forest. Thus, JFM has used IGAs to motivate the communities to conserve the forest. This is through alternative livelihoods in order to ease pressure from the forest. The use of IGAs has been noted to have helped improve the livelihoods of communities adjacent to forests in Kenya (E Musingo et al., 2015; Matiku et al., 2013; Ming'ate et al., 2014). However, the extent of IGAs motivating communities to conserve and have an impact on livelihoods has been hampered by selected community involvement and differences in policy understanding by the locals (Frank et al., 2017). In addition, the cost to establish IGAs is in the long-term borne by the community (Anderson et al., 2015).

Thus, in reference to the analytical framework the benefits to each stakeholder should be greater than the cost, in order to ensure net gain over the period. Since the cost of sustaining the IGAs is more than benefits enjoyed, this might end up demoralizing the community to conserve instead of motivating them, as no net gain would be realized. According to a systematic review of 106 projects on alternative livelihoods, where 21 of those were further analysed for conservation effectiveness. It was only 9 that indicated changes in the attitude of the community to conserve, decrease in destructive activities and "improving the status of a biodiversity target," (Roe et al., 2015, p. 19). These results reveal the limited extent at which IGAs targeting alternative livelihoods might be effective in terms of forest conservation. That said, there have been studies that have demonstrated that not using IGAs or non-material benefits can enhance forest conservation (Robinson and Sasu, 2013; Zulu, 2013) although that has been done in isolated case studies.

CONCLUSION

The study sought to investigate to what extent JFM has provided the much-expected benefits in terms of forest conservation, economic benefits, community empowerment and intrinsic motivation of communities to conserve. A twist was added, the role of self-interest and altruism in the arrangement. A qualitative research approach was utilized. The results show that ASF is perceived to be a degraded

forest despite JFM being implemented. The extent of degradation is perceived to be caused by the waves of destructive activities that have occurred over the years, with 2015-2017 being noted as the years the forest experienced notable destructive activities. There is no formal benefit sharing mechanism, but various IGAs are used to distribute benefits to a section of the community – CFA members. It was further revealed that the community involved in JFM is not fully empowered and that JFM hasn't crowded out the intrinsic motivation of the local communities to conserve. The research thus revealed that due to government pursuing its own self-interests it has supported an approach (JFM) that limits the full involvement of the altruist – community members. The NGO's are supporting the altruist as well as pursuing their own self-interests. Since JFM was legalized (2005), the altruists haven't seen a formal benefit sharing mechanism and haven't been fully empowered, they have started to cheat in the symbiotic relationship by pursuing self-interests. These are manifested by the waves of destructive activities that have led to the forest to be perceived as being degraded. Hence, all the stakeholders who are involved with JFM in ASF are pursuing self-interests more than being altruistic in the symbiotic relationship. This brings the discourse on participatory approaches in forest governance to a full circle where, JFM needs to be rethought. Thus, any other approach hoping to anchor on the JFM structures should be cautious of its 'evil' – self-interest.

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