PARTICIPATORY FOREST MANAGEMENT AND ACTOR ROLE DEPENDENCY IN ARABUKO-SOKOKE FOREST RESERVE, KENYA

by

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THESIS ABSTRACT

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Conservation management of state-controlled forests has shifted away from strict, centralized management by incorporating community-based co-management initiatives. Often termed *participatory forest management*, these initiatives include local residents in forest planning, implementation, and management. This thesis examines two case studies located at the Arabuko-Sokoke Forest Reserve, Kenya. The case studies illustrate how imbalances of power establish participant (actor) roles through policies set by governments and NGOs. Power imbalances are perpetuated through hegemonies of postcolonialism that reinforce actor role perceptions. Awareness and understanding of role perceptions is paramount in participatory conservation initiatives that benefit both the physical environment and community development. Analyzing histories of past conservation initiatives with assessments of current and perceived future issues may reduce unrealistic role expectations. Examining actor role contributions at multiple scales of power is necessary. Reflection upon how roles influence perceptions may decrease failures of conservation initiatives involving affluent global donors and marginalized local communities.

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CHAPTER I

INTRODUCTION

Human pressures on lands designated for conservation are common throughout the world, and the future management of protected lands is evolving. Globally, this evolution has seen a shift from a top-down approach to the acknowledgement of benefits deriving from community-based conservation management schemes (Berkes, 2004). Local community participation in state-protected forest management has been implemented in much of the world and is often called participatory forest management (PFM) (Schreckenberg & Luttrell, 2009). While political ecologists and state governments often acknowledge the benefits derived from PFM—and in some cases institutionalize it into state policy—top-down and/or exclusionary methods are still practiced by governments whose policies include PFM mandates. The application and enforcement of PFM can often be as haphazard or ineffective as the more exclusionary methods they are trying to replace (Koech, *et al.*, 2009; Robbins, *et al.*, 2009).

In many cases, the exclusion of communities adjacent to protected forests in favor of wildlife or vegetation habitat can lead to conflict and distrust between adjacent communities and the state. For example, the Kenya Forestry Research Institute (KEFRI) articulates this conflict:

> Communities that have heavily depended on the forest for a long time for livelihoods based on individual decision-making on the utilization of forest resources will face conflicts when it comes to implementation of corporate decisions and agreement in the [villager association] situation (Koech *et al.*, 2009, pg. 6).

On account of these changes in forest management practices, it is necessary to evaluate how these changes affect and incorporate marginalized communities that are recently included into the forest management process.

This thesis examines how relationships between actors (e.g. stakeholders such as individuals, groups, communities, and organizations) involved in conservation are dependent on the perceived or expected roles (e.g., job, objective, or responsibility) that stakeholders at multiple scales, both vertical and horizontal (Berkes, 2004) interact within. By exploring case studies highlighting these multiscalar interactions, I argue that the incongruences of perceived roles—operating within an inherent structure of interdependency—greatly affect the success or failure of conservation initiatives, such as PFM.

To accomplish this, I place the roles of various conservation initiative participants within a dependent, postcolonial milieu within which these actors interact. This context heavily influences the multiscalar interactions and roles that are perceived and/or played out by developing and solidifying interdependencies between actors. Each actor is situated within a structured, global economic hierarchy that has its roots in an economic world system established during the age of colonialism. This global world systems hierarchy has created a lasting legacy of economic dependencies that has outlasted the shackles of colonialism. Through hegemonies of Western conservation values and histories of power, combining the global world systems structure with postcolonialim is necessary to better understand the complexity of local identities and multiscalar cultural forces that shape actor roles.

In this thesis, I analyze actors who are influenced or influence conservation initiatives in and around the Arabuko-Sokoke Forest Reserve (ASF) on the Kenyan coast. In Kenya, PFM policies have been incorporated into state law, thus framing forest governance. But the implementation of PFM practices has been haphazard due to the order in which policies have been introduced. In 1997, a PFM pilot project—to gauge its general success—was conducted in ASF, and its management plan has been approved by the Kenyan government since 2002. The vision of how PFM would be incorporated into national policy is illustrated in a 2004 ASF-affiliated document from the KEFRI:

> It is envisaged that the result from [ASF] pilot project will guide the evolving forest policy not just in Arabuko-Sokoke but also for the whole forestry sector in Kenya. This is all geared towards formulating a framework for introducing local communities and other stakeholders into the operational management of forest resources (Mbuvi *et al.*, 2004, pg. 7).

The Kenya Forests Act (2005) requires community groups to register as Community Forest Associations (CFAs) to be considered stakeholders in joint-forest management. The Kenya Constitution (2010) insists on community involvement in forest and natural resource management. Therefore, community members adjacent to the forest who do not register as a CFA cannot legally participate in forest management. When implementing PFM in 1998, neither the CFA structure nor the constitutional requirements of joint-forest management had been required. These baseline policies were not in place that would increase project accountability. Taking into account the timeline reversal of PFM approval and state laws, the manner in which CFAs have been incorporated into the PFM process has been either unclear or ineffective.

According to CFA members and parastatal[1] officials I interviewed at ASF, the development of CFAs around ASF has not been a streamlined process, and many

adjacent dwellers either do not know of their existence or do not see the benefits of being a part of them. Joint-management of ASF at the only established CFA (out of the three intended CFAs around the forest) has deteriorated due—in part—to a reliance on older, exclusionary practices of forest enforcement that deny many local stakeholders access to forest resources. Therefore, villagers still harvest resources without permission to supplement their small incomes or maintain livelihoods that existed before government forest protection. Subsequently, there is little evidence that state policies, which directly impact forest access, have been implemented on the ground or have benefited the scope of villagers as implied by state documents.

The ASF is a 400 km^2 coastal forest in Kenya that provides habitat to a number of endangered and critically endangered wildlife species. The forest is also utilized by forest-adjacent villagers for non-wildlife resources, such as fuelwood, timber, woodcarvings for tourists, and medicinal plants (Muriithi & Kenyon, 2002). While the forest is under the joint authority of the parastatals Kenya Forest Service (KFS) and Kenya Wildlife Service (KWS), poaching[2] of wildlife and non-animal resources is rampant and threatens endangered species and their habitats, as well as rural livelihoods, through violation of institutionalized rules-of-use (Collins, 2008). In addition to the two parastatals and CFAs working to protect the forest, community-based organizations (CBOs) operating in tandem with or under the direction from non-governmental organizations (NGOs) also have influence on forest conservation through conservation initiatives intended to both protect the forest and improve localized economic development. Increasing community access to global and regional markets while establishing local markets and is termed income-generating activities (IGAs) helps

accomplish this. Revenue to support IGAs comes largely from foreign aid that fills financial holes created by state inefficiencies.

The Kenya Forests Act limits access to resources within protected forests and defines ownership as all non-private or local authority forests being "vested in the state" (2005). These protected forests, such as forest reserves, are the property of the state (Kenya Forests Act, 2005). The resources within state forests are defined within the Forests Act (2005):

> "Forest produce" includes bark, animal droppings, beeswax, canes, charcoal, creepers, earth, fibre, firewood, frankincense, fruit, galls, grass, gum, honey, leaves, flowers, limestone, moss, murram, myrrh, peat, plants, reeds, resin, rushes, rubber, sap, seeds, spices, stones, timber, trees, water, wax, withies, and such other things as may be declared by the Minister [of Forests and Wildlife] to be forest produce for the purpose of this Act (p. 236).

The state acting through KFS have lawful (*de jure*) control over these resources (produce), and this control extends outside forest boundaries into villages. One villager I interviewed expressed his frustration by asking "is the KFS patrolling and controlling ASF or outside [the forest] now too?" (Jilore villager, personal communication, August 23, 2011). Village elders confirmed this as a tension between villagers and the KFS when I asked them about the relationship between the forest managers and adjacent dwellers.

However, access rules governed by private or state property rights (*de jure*) are only part of the rules-of-use and access equation. Ribot and Peluso (2003) illustrate that the concept of access encompasses all possible means of benefiting from something—such as forest products—and that social, economic, and informal access rules (*de facto*) can have far greater impacts on how space is used than formal rules established by property regimes. Access to authority, economic capital, and technology by marginalized

communities can also trump legal property rights (Ribot & Peluso, 2003). At ASF, non-property access regimes manifests based a difference in proximity and the level of communication with state officials, access to capital through markets, and access to technology through training and tools needed for IGA implementation and maintenance. Since non-sanctioned resources are extracted from ASF in spite of state enforcement, the social and economic rules-of-use that regulate access plays a significant role in the management and governance of the forest. Access to such resources is governed by the relationships between actors[3], such as stakeholders and community members involved or impacted by forest conservation.

Structure of Thesis

The thesis is divided into seven chapters. Chapter I outlines the conceptual framework, the context in which this thesis focuses on, and establishes the order by which the thesis is presented. Chapter II illustrates the methodologies used both in fieldwork and research in the university setting. It also demonstrates how interviews of community members and stakeholders were achieved, including how interviews were shaped by the researchers themselves and the social environments of where the interviews took place. The methodology exhibits that while interviews with stakeholders, community members, and local ecologists were invaluable, there were drawbacks to the methods used. This chapter also illustrates how the work done in this thesis is but a snapshot of a much larger scheme in the region.

Chapter III explores the theoretical frameworks employed for the analysis of the case studies. It briefly outlines theories of political ecology, knowledge categorization and disparities of power within communities, participatory development, and access. It also

explores theories of dependency, postcolonialism, and role perceptions. The latter three theories act as the foundation for my analysis of the connectivity and interactions between actors at both horizontal and vertical scales (Berkes, 2004). The review of these theories is vital in understanding how actor roles are solidified through the interdependencies inherent in conservation initiatives.

Visualizing the connectivity and dependencies of actors who interact at multiple scales, as well as each role, affects actors at multiple scales in turn, whether directly or indirectly (Figure 1). Due to the nature of interactions within the enforcement of conservation laws or interactions in conservation initiatives, actors are dependent on one another to fulfill their perceived or expected roles that other actors anticipate. These perceived roles are not always written within law, and actors within communities often have roles that differ from those perceived by actors, such as access to forest resources through *de jure* and *de facto* rules-of-use.

For example, the state and conservation NGOs expect KFS officials to carry out *de jure* policies governing forest resource access. In spite of that, forest-adjacent communities also rely on the same officials to maintain *de facto* roles of resource access that permit some actors the access needed for income supplementation. While unsanctioned and illegal in the eyes of the state (and other actors within the parastatals), these *de jure* rules-of-use may need to be maintained for social cohesion among different actors. *De jure* rules-of-use can be common in resource management (Robbins *et al.*, 2009). The thesis will show how these theories are employed to demonstrate how perceptions of roles are constructed, maintained, and affect the success of conservation initiatives around ASF.

Chapter IV explores the study site around ASF. This chapter examines a brief history of national parks, how participatory forest management was institutionalized into state law, and how this history directly relates to Arabuko-Sokoke. It also explores the ecology of the forest, its main flora and fauna, and how communities, government agencies, and other stakeholders utilize the forest and its resources. It examines the ethnic communities around the forest, their history, social relations, and relations between conservation initiative stakeholders and forest-adjacent communities.

Chapters V and VI explore two case studies of conservation initiatives around ASF. Both case studies show how a state-mandated forest management project or a foreign-funded education scheme utilize the same sets of actors and rely on their expected roles to be filled in different ways. When one actor does not fulfill their expected roles, the web becomes weakened and the effects on forest conservation are impacted. These roles are maintained by power relations heavily influenced by history of colonial and neocolonial legacies—both economical and cultural.

The case study in Chapter V examines the PFM pilot project situated in Dida on the southwestern corner of ASF. In 1997, a large pilot project to establish PFM in Kenya was jointly funded by the United States Aid and Development (USAID) through Birdlife International, the European Union (EU), and the UK Department for International Development. The Kenya Government, on recommendation of the Arabuko-Sokoke Forest Management Team (ASFMT), approved implementation of the pilot project in 2002. Many stakeholders saw it as the model for future PFM development throughout the state and the site where it was implemented is visited frequently by groups in Kenya, Tanzania, and persons affiliated with foreign aid organizations interested in the PFM

process. At the time of field interviews in July 2011, most of the IGAs approved by the state had been implemented, but community access to timber within forest boundaries and joint forest management is stalled. This places greater pressure on foreign donors to help support IGAs while allowing consistent CFA participation in general management with local parastatal administrators to be delayed indefinitely. Community representation through CFA administrators is subject to criticism, as there appears to be a disproportionate distribution of access to IGAs that favor the administrators themselves—who are the first contact point for incoming conservation schemes (Koech *et al.*, 2009).

Chapter V concludes with analysis of how stakeholder roles (perceived by the actors themselves and by those who interact with them) affect how the PFM process stalls or moves forward. Interdependencies inherent in conservation initiatives tie these perceived roles together in a manner that, when grievances are not aired, help lead to inaction and misperceptions.

Chapter VI contains the second case study which focuses on the Ngamani anti-bushmeat project in Malanga, a German NGO-funded (NABU) and local CBO-supported community association (group) that attempts to reduce poaching in ASF by providing community members an alternative income and/or source of protein with small-scale poultry farming. Unfortunately, the project fell apart shortly after its implementation due to a number of factors that were expressed by project group members living near ASF. These factors include perceived broken promises, lack of interests, and the non-adherence to group member needs and desires. This non-adherence is due to both government wildlife policies and NABU's financial constraints. The perceived expectations and roles of different communities manifest through the dependent relationships of the horizontal

linkages—both local and regional—as well as horizontal linkages between NABU and Nature Kenya. Therefore, perceptions of actor roles play a large role in the success of these policies.

Chapter VII reveals some implications for further research in this area. There are pieces of the puzzle in the form of ecological research that has been performed on ASF—largely in the form of bird habitat—but this information combined with future faunal population surveys and the longitudinal human disturbance monitoring data still needs to be compiled and analyzed for correlations. As the resolution of orthophotos representing the forest improves, remote sensing will play a large role in forest dynamic analyses.

Chapter VIII concludes the thesis with an overview of how the two case studies reveal that perceived actor roles created through inherent interdependencies of conservation initiatives greatly contributes to the implementation, stalling, or collapse of the many conservation initiatives, following both bottom-up and top-down approaches. It is also necessary to use actor roles in congruence with other social, cultural, and political factors—at multiple scales—to understand conservation initiative dynamics. And finally, this chapter explains the purpose of this thesis is to allow stakeholders a chance to voice concerns over issues that can help create new or closed dialogues between stakeholders and their greater communities. It is through these dialogues that the renegotiation and recognition of opinions can be aired and addressed.

Notes

[1] A parastatal is a semi-autonomous state government organization. A parastatal may create some of its own laws and rules of governance, but none of those laws or actions can conflict with laws and rules of its parent government. While each parastatal may have a separate charter, a defining characteristic is the state government has final authority over the parastatal and may alter the charter when needed. Any action

performed by the parastatal that would affect the state would most likely need to be permissible by that state.

[2] The term "poaching" is used throughout this thesis and is defined as the unlawful hunting of wildlife. Although the term is not popular in most academic discourses due to the negative connotations associated with it (see Steinhart, 2006), it is necessary to contrast it with the trapping of wildlife outside (hunting) and inside (poaching) of ASF. In addition, the term "poaching" is used in English, by interviewees, parastatal officials, NGO affiliates, and my research assistant.

[3] For this thesis, actor is used in the actor-network theoretical framework as illustrated by Latour (1987) as "not the source of an action, but the moving target of a vast array of entities swarming toward it" (pg. 116).

CHAPTER II

METHODOLOGY

My methods included 15 individual interviews, 8 focus groups. These interviews were with stakeholders of conservation initiatives at multiple scales and villagers living adjacent to ASF. I also had several informal discussions with residents and villagers that allowed me better insight and context for issues involving the Kenya coast. All formal interviews were conducted with the assistance of a research assistant who was both an interpreter and forest expert. Focus group participants were diverse in composition but consisted of either members of registered associations or village elders. When possible, focus groups comprising only of women were valued due to socio-cultural norms of appropriate times of expressing opinions. I also collected and analyzed 33 secondary data texts. These documents were primarily the KEFRI library in Gede. Due to the permanency of the documents, I photographed each document with an iPad camera for later analysis.

Participant observation and personal role reflexivity were vital in my analysis and results. The goal of this fieldwork was intended (and presented as) not only for building my thesis, but also as a way to provide community members an outlet to express grievances about conservation issues and how conservation initiatives are managed around ASF. These grievances will be included in a final report submitted to all stakeholders in Kenya.

While I traveled to Kenya during the summer of 2011 for two months, there was a significant amount of preliminary research that went into the interview process before my visit. To accomplish this, I looked at primary documents relating to PFM and

conservation initiatives around the forest. These discourses included the Arabuko-Sokoke Forest Management Plan (ASFMT, 2002) that was created in response to the pilot project's numerous workshops, the Kenya Forests Act (Kenya, 2005), and the Kenya Constitution (Kenya, 2010). These documents provided me with an understanding of state policy and PFM propositions. They revealed how state and parastatals framed the issue that PFM needed to address, as well as how the legal framework would work to solve them.

Primary documents located at the Kenya Forestry Research Institute (KEFRI) library situated at the main forest entrance provided a glimpse into how the PFM process developed, yet they do not reflect the level of involvement by different participants in the process. These documents included many of the reports developed from the 1998 Dida area PRA and workshops (discussed later in this chapter) used as the foundation of the PFM pilot project. For instance, during the 2001 workshop exploring subsistence use of the forest, contributors were listed as the following:

> Participants were drawn from the local community, provincial administration, local leaders, ASFMT members, project extension officers, officers from MoU secretariat, officers from headquarters of KEFRI, FD, NMK and KWS and officials from FADA (Kagombe & Mbuvi, 2001, pg. 2).

There were 44 listed participants with 41 males and three females who were non-representatives of local women[1]. While local women were not participants here, issues that concern female communities were discussed, such as gender disparities in community development representation, educational opportunities, and male dominance in most activities (Kagombe & Mbuvi, 2001). It is possible that participants are building on previous issues discussed by rural women in past workshops, such as the Dida area

PRA conducted as part of the PFM project where women were represented as a focus sub-group along with elders, middle-aged, and youth sub-groups (ASFMT, 1998).

One possible reason for the absence of villager participation in the 2001 subsistence use workshop was its location. For the Dida area PRA, the workshop was conducted locally at Dida Primary School, a centralized location on the southeast side of the forest and close to rural villages and relatively accessible to many villagers who cannot afford (by money and/or time) to travel. In contrast, the 2001 subsistence use workshop was held at Gede Ruins, a centralized location near the northeast side of the forest and accessible to non-villager participants due to its position next to the Malindi-Mombasa highway. Gede Ruins is situated near the forest's main entrance and headquarters for KFS (then the Forest Department), KWS, and KEFRI. While some representatives from Dida attended, the majority of villagers (whether invited or not) would find it financially or timely prohibitive. In interviews with villagers on the west side of the forest, some stated that travel to the east side of the forest (and the markets available there) was too expensive and took a prohibitive amount of when traveling by public transportation to and from their west-side villages[2].

Each workshop published its own report before or after the workshop took place. And while I was unable to remove these documents from the library, 33 of the documents were photographed using an iPad. Some workshop documents described the level of community involvement, such as the Dida area PRA (ASFMT, 1998). But most provided objectives, workshop development, and workshop results that formed the foundation of the Arabuko-Sokoke Forest Management Plan (ASFMT, 2002). The findings articulated in the documents were the basis for PFM implementation throughout Kenya. The

workshops consisted of the following: Biodiversity and Conservation, Commercial Use, Eco-tourism Management, Forest Protection, Human Resource Development, Infrastructure Development, Problem Animal Management, Zonation (Research and Monitoring[3]). Additional documents included analyses of beekeeping, guidelines on PFM, aloe growing, silviculture vs. livelihoods, woodcarving, and protection of community rights over traditional knowledge.

However, it is the documents *not* located in the KEFRI library that reveal as much as the documents that *were*. The library is intended to be a repository of useful publications and reports not only by the parastatals, but also researchers and community members. Meeting minutes for the Arabuko-Sokoke Forest Management Team *were* included but were incomplete at the time of my visits to the library. In 2002, management team meetings for stakeholders were planned at one per month (A Rocha Kenya interview)[4]. According to the Arabuko-Sokoke Forest Management Team Operational Guide, meetings are to be held bi-monthly (ASFMT, 2005), yet the director of KEFRI stated that meetings were to be held every quarter and even that number has dropped to the occasional meeting (M.T.E. Mbuvi, personal communication, July 15, 2011). With a variance of interviews between two to twelve per year, this reflects the inconsistencies inherent in the *de jure* and institutionalized PFM process. The incomplete ASFMT minutes discuss ongoing issues, such as conservation initiatives, forest management, and enforcement. The contents of the available minutes correspond with interviews of adjacent dwellers on miscommunication between stakeholders and the ambiguity of both forest enforcement and stakeholder role responsibility in forest management.

In addition to meeting minutes, documents from foreign aid organizations and researchers of ecology (Oyugi *et al.*, 2008; Bruisnma, 2008), policy and development (Collins, 2008; Schreckenberg & Luttrell, 2009), geography and anthropology (Walters *et al.*, 2008), and other disciplines that frequent the forest and adjacent communities were almost entirely absent from the publicly accessible library. In contrast, these documents are readily available through academic English language journals not accessible to community members, yet KEFRI officials provided drafts of peer-reviewed journal articles that focused on the ASF and provided PFM to me.

This absence of published documents corresponds with complaints by many of the people I visited. At the end of each interview, it was customary for me to ask the interviewees what they would like to add or questions they had for me. Many of them asked if they were ever going to see my report, who it was *really* for, and what is going to separate me from the many other foreign researchers who come in and extract information then disappear and use it for their own gain, sometimes returning to the field with a new title and greater power when those interviewed remain stagnant (West, 2006). Interviewees expected me to treat them as "objects of knowledge" (Watson & Till, 2009) by taking the information collected in interviews and offering nothing tangible in return. They expressed that many researchers are never heard from again, and while I cannot be certain that many of the researchers don't submit their published papers to the library, it is apparent that some researchers fill the *taker* role implied by interviewees.

The expectations between the researcher and those whom they interview or collaborate with in their research are important in analyzing the ability for conservation efforts or initiatives to succeed. The researcher expects the local populations to provide

honest answers to questions concerning topics related to their research or to follow expected protocols in data collection. Without this honesty or adherence to protocols, the intended way in which a researcher's data is to be represented may be compromised. Local residents who participate in foreign research hold expectations that the information shared with the non-resident researcher or the data they helped collect or analyze will have a tangible effect on either conservation efforts in their area, changes in public policy, or measurable benefits to themselves or their communities. Each set of actors has a role they must fulfill, and each set of actors is dependent on the other to meet these responsibilities.

In some cases, it may be the parastatals and NGOs who do not submit published articles into local libraries or distribute them to stakeholders and community members on behalf of the researcher. After noticing the absence of peer-reviewed articles and documents, I followed up on my own published research article (Banks, *et al.*, 2010) and non-published reports in affiliation with an NGO—neither were located in the library. In the summer of 2010, I worked with A Rocha Kenya and Friends of the Arabuko-Sokoke Forest (FoASF) on a joint forest monitoring pilot project that involved using GIS and community-based organizations to monitor forest resource use and to analyze the effectiveness of the Arabuko-Sokoke Schools and Eco-Tourism Scheme (ASSETS) educational bursary project managed by the UK-based Christian NGO, A Rocha Kenya. Permission to access the forest was given by both the KFS and KWS on condition I present a report to their offices upon completion. The report was to be written by me and then reviewed and edited by both A Rocha Kenya and FoASF. While the report was written and submitted that summer to A Rocha Kenya, FoASF did not receive the

report—nor were they able to make edits (despite the fact that a forest monitor from FoASF was listed as co-author). Due to the low priority placed on the submission of my report compared to the plethora of the NGO's other tasks and responsibilities within local communities and their foreign donors, I was unable to fulfill my responsibilities to the parastatals. As A Rocha Kenya financially manages FoASF, the low priority assigned to the pilot project prevented the co-author of FoASF from providing feedback, preventing him from fulfilling his role as researcher.

This reflects not only the dependencies between NGO, researcher, and parastatal roles, but also how the responsibilities of their roles are situated within their agendas. The researcher expects the NGO to fulfill its role of localized management since access to other stakeholders can be much harder to communicate with. The NGO expects the researcher to disseminate data or information that will increase exposure to the NGO's agenda. This can bring in both much needed foreign revenue and more interest in the projects being worked on. The parastatals expect NGO and researchers alike to complete reports that the parastatals don't have the manpower or resources to perform on their own accord. If there is a breakdown of role expectation and perception in this chain, it can impact the successfulness of conservation initiatives and breed a sense of—or actual—project stagnation.

The importance of collaboration between stakeholders is expressed in a KEFRI document describing its importance at the beginning of the PFM process:

> Dida [pilot project] shows that the PFM process can be very dependent on the key individuals and institutions involved in its planning. The collaboration between the various NGO and government institutions involved in supporting the process was very important during the initial phase. This case also highlights the

> importance of having a signed contract and a sufficiently robust communication and arbitration mechanism to ensure that the community can lobby to have its rights enforced (Mbuvi, *et al.* 2010, pg. 8).

At the parastatal offices near the main gate of ASF and households in the surrounding villages, semi-structured interviews were conducted with 15 individuals, eight focus groups were completed. Interview subjects were chosen using opportunistic sampling. Where availability was the largest factor, interview subject choice was based also on several other factors. For villagers, individuals were chosen if they resided within a short distance from the forest boundary and were accessible from the road that divides the forest from farms. Farms were chosen largely by visual assessment of financial stability. As the PFM Guidelines report indicates, "the poorest will be assisted through a jointly developed system" (Mbuvi *et al.*, 2004), we approached adjacent dwellers' farms if they appeared to not have income generating activities visible from the road. Villager interview subjects were also chosen through my research assistant using criteria chosen by me, such as specific representatives of those with alternative IGAs. Interviews were conducted on the farms. For representatives of parastatals, interviews were conducted on or near the property of the respective parastatal. For representatives of NGOs or conservation initiative representatives, these interviews were done informally—often at my residence. Most interviews lasted approximately one hour.

Many of the focus group interviews relied on the snowball—or chain—sampling technique, where subjects are chosen based on network connections developed in the field (Hay, 2010). Owing to the fact that it was necessary for me to gain acceptance and approval for interviewing villagers at the local level, I visited all the area chiefs that govern the villages adjacent to the forest. These visits were unannounced and were

subject to the availability of the chief, which often required frequent contact attempts. The approval from the area chiefs is in addition to the permission granted by the Kenya Government in Nairobi, which I needed before meeting with the area chiefs. During these visits—which were not interviews—it became clear that some area chiefs were very interested in being a part of the research. Some chiefs felt it important to organize the interviews with community forest organizations (CFAs), as many chiefs stated that their access to the community organizations would streamline my research.

Whether intentional or not, the active participation of chiefs in the research subject selection allowed the chief to exemplify their role of power within the community and their ability to maintain their position of power with an outsider. Maintaining a powerful role in the relationship with a researcher is important, since area chiefs are a gateway between foreign researchers and the community. Economically, chief-mediated relations and interactions between outsiders and the community can alleviate complications experienced by non-local researchers through an increase in accessibility to multiple groups within communities and a decrease in the amount of bureaucratic red tape inherent in access at the state level. This potentially more attractive, streamlined process could increase the likelihood of future longitudinal research or aid programs that not only benefits the community by exposure to aid but would also benefit the area chiefs by linking them to the access hierarchy of aid.

In addition, several area chiefs preferred to be the mediator during the interviews with the focus groups they organized. Although I had a translator with me at all times during interviews, many group interviews were conducted with the area chief filling the role as translator and mediator. In these cases, I was instructed to sit next to the chief, and

my research assistant, David Ngala, was instructed to sit on the other side of him. This positioning of bodies illustrated the connection between the chief and me during the interview period. It isolated me from Ngala and made verbal contact with him next to impossible. If I attempted contact with Ngala during the interview, I would be insulting the chief, since it required me to look over the shoulder of the area chief and make eye contact with Ngala to confirm translations or non-verbal cues—an interview method that had become important in interviews where there was not a second mediator. Eye contact with Ngala provided me the opportunity to non-verbally communicate important strands of the interview to be either continued during the interview or to be analyzed in private afterwards.

The presence of the area chief as mediator may also have affected interviewee responses. Conservation initiative subjects may have been steered toward issues that the chief-as-mediator would favor or feel passionate about. For example, in the case of the Jilore focus group, discussions turned to land ownership as being the largest drawback to conservation initiatives that would improve economic livelihoods (Jilore focus group, personal communication, August 23, 2011). In discussions with the area chief after the focus group interview, the chief told me this was a personal goal of his to ameliorate for his village, and that he was interested in me working with him to bring this to light through my eventual report.

Yet it is impossible to know what the responses would have been without the chief's mediation during the interview. In addition, the chief is a member of the village community, and without a clear understanding of his role outside of his official office, it is logical to assume that he shares similar frustrations to those of the community group

members he invited to participate in the focus group. This, in itself, is another concern. It is difficult to know if the community members who participated in the focus group are a good representation of other CFA members or handpicked by the chief to represent his concerns. CFAs are comprised of multiple groups that represent different income generating activities, and these different groups have meetings among themselves to further improve their livelihoods outside of the greater community forest association group members. Concerns over financial reimbursement, a history of tension between researchers and local community groups, as well as the ability to set aside precious time to participate in the focus group may all have played a role in the attendance composition.

A benefit for having interviews mediated by the area chiefs manifested in the way in which questions asked were translated in a way best understood by the interviewees. According to Ngala, who was monitoring the translations and interviewee responses, the area-chiefs-as-mediators didn't "color" responses through translations or provide false statements that the interview subjects did not intend (D. Ngala, personal communication, August 23, 2011).

In addition to area chiefs influencing some focus groups, the choice of Ngala may also have played a role in responses by interviewees. Ngala has been involved in community-based conservation efforts for over twenty years. Before this, he was a driver for the Forest Department. His involvement with community-based organizations includes forest monitoring—both alone and with the KFS and KWS—which takes him all over the forest and most often through footpath entries connected to all the villages adjacent to the forest. His work with A Rocha Kenya, a Christian NGO focusing on bird conservation, has also made his name known throughout forest communities. When

talking with patrons not affiliated with conservation at a bar adjacent to the KWS and KFS headquarters, all patrons said that Ngala was associated with the government. This makes sense, as his office resides at KWS headquarters and his reports on forest activity are intended for the warden's desk for both KWS and KFS.

My connection with Ngala had its pros and cons in interviews. To interviewees with ties to conservation activity around the forest, it possibly added legitimacy for me as researcher, for he is widely respected and accomplished on conservation issues with many in those communities. His work with actors at multiple scales likely allowed interviewees a sense of trust in that my work may come back to the communities I work with and may have been more candid due to this.

In contrast, interviewees that don't have ties to conservation issues (or were antagonistic to them) may have been more reserved in their answers about daily activities that may not be sanctioned because of his perceived organization affiliations. Activities such as unsanctioned forest access, resource removal, and criticisms of A Rocha Kenya or KWS (who he is more affiliated with than KFS) may have been due to this. Interviewees who did not claim to know who he was may or may not have been influenced by his age, as he is around 65.

The language barrier is also a concern on how the information from my interviews was acquired. On account of my rudimentary working of Swahili, I was at the mercy of Ngala's translations. Before interviews were conducted, Ngala and I negotiated the method in which the interviewees' replies would be translated and repeated. This method called for the main theme of the interview to be translated. Initially, our negotiated methods called for each reply to be repeated *verbatim*, but this proved

ineffective and unrealistic due to 1) the interviewees talking amongst themselves (in the case of focus groups or two-person interviews), and 2) long explanations that Ngala did not retain during translation. This means that much of the information that was said by interviewees is lost due to the interviews not being recorded. A drawback to this method is that not only are the main themes acquired and notes taken, but the choices of what was "important" to relay back to me by Ngala was entirely subjective, for he would offer me information that *he* felt I desired most. Nuances or discussions between interviewees that might have led to very important research topics or approaches to issues will never be known.

The manner in which Ngala translated conversations was another negotiated method in the interview process. Initially, questions to the interviewees would be *verbatim* due to the need for my questions to be answered in a manner that would be best representative of what I was trying to say. But in a manner similar to how area chiefs would reframe my questions that would make the most sense to the interviewees, Ngala would also add clarifications because my questions were often very simple and needed a localized context that I could not provide.

The manner in which my interviews were conducted affects the information gathered, and a clear understanding of the needs of communities and stakeholders may be biased due to my own positionality in the interview process, as well as the positionality of my translators and mediators. Information gathered throughout the interview process may be biased towards what was perceived by what the interviewees felt I *wanted* to hear or what they *needed* me to hear to increase their access to revenue or aid streams. As I am a white foreigner, it is often anticipated that my presence can be such a conduit of aid.

Having either an official of administrative power or a representative of a parastatal may have shifted the answers to my questions in a way that would prevent me from acquiring a clearer understanding of how communities still access forest resources and the manner in which this access is prevented or allowed by other stakeholders.

Notes

[1] The three women listed as participants are Dr. H. Oyieke of the National Museums of Kenya, Nairobi; Ann Robertson; Research Associate, National Museums of Kenya; and Jacklin Kiage, National Environmental Sectariat, Kilifi/Malindi.

[2] The difficulty of travel expenditures was not shared by some villagers living on the east side of ASF. When mentioning difficulties of travel for villagers on the west side of ASF, interviewees on the east side discounted this concept as nonsense.

[3] Zonation workshop was renamed "Research and Monitoring Workshop" and Eco-tourism Development was renamed "Ecotourism and Environmental Education Workshop" in the Arabuko-Sokoke Management Plan (2002).

[4] It is possible that Mr. Jackson of A Rocha Kenya was referring to the four Working Group meetings, which were assigned to meet monthly, and consisted of Rural Livelihood, Tourism and Education, Forest Management, and Research and Monitoring (ASFMT, 2005).

CHAPTER III

LITERATURE REVIEW

> A system of conservation based solely on economic self-interest is hopelessly lopsided. It tends to ignore, and thus eventually to eliminate, many elements in the land community that lack commercial value, but that are (as far as we know) essential to its healthy functioning. It assumes, falsely, I think, that the economic parts of the biotic clock will function without the uneconomic parts. It tends to relegate to government many functions eventually too large, too complex, or too widely dispersed to be performed by government. – Aldo Leopold, *The Land Ethic*, 1949, pg. 214.

Political Ecology

Political ecology is not a new sub discipline of geography, as it has been evolving since the 1960's and is an interdisciplinary, political economic approach to human societies and environmental issues (Boag, 2007). The importance of political ecology rose out of the need to fill a large gap in the discourse of human ecology. Robbins (2007) framed human ecology by stating, "humans would be seen as part of a larger system, controlled and propelled by universal forces, energy, nutrient flows, calories, and the material struggle for subsistence" (pg. 28-29). While not completely dismissing human ecology, political ecology incorporates a less-than-universal force of a modern political economic system that greatly affects the actions and reactions of humans and their interactions with the natural environment.

Environmental debates outside of political ecology largely began after Aldo Leopold's influential late forties land ethic essay in *A Sand County Almanac.* This essay would inspire a movement of decentralized nature conservation. Rachel Carson's *Silent Spring* was also pivotal in increasing public awareness to environmental issues between the early

sixties and the late seventies after the resurgence of conservation movements in the United States and the establishment of foundational environmental laws under the Nixon Administration. While these two pivotal pieces of text were not part of the body of political ecology literature, they helped introduce issues of human-environment interactions to a large body of the population outside of academia. The quote by Aldo Leopold opening this chapter can be seen as an example of an environmental awareness and government management or control of nature legacy that political ecology helps to unpack. Leopold argued that land conservation regulated by government that treats land as a commodity—regardless of economic value—maintains and reinforces a mindset and practice of value-based interactions with the land instead of recognizing complex (and probably unknown) biotic interactions and benefits outside of a cash economy. While this view has been adopted by environmental advocates, deep ecologists, and environmental historians around the world, political ecology addresses not just the inherently complex interactions of the biosphere, but also the complex interactions between the biosphere, ethnosphere, and its complex political economic structures that influence how humans interact with the land and how "land ethics" are created, embraced, forgotten, ignored, or suppressed.

Watts and Peet (2004) state that political ecology "seeks to understand the complex relations between Nature and Society through careful analysis of social forms of access and control over resources—with all their implications for environmental health and sustainable livelihoods" (pg. 3). By looking at social forms of access, not just to biophysical resources but also access to social, political, and economic capital (Ribot & Peluso, 2003), political ecology can play a key role in bringing to light issues that affect

both the local, regional, and global which can often get buried in *politics of scale* (Peet & Watts, 2004) or through power hegemony—both implicit and explicit.

Walker (2005) argued that political ecology, as an interdisciplinary way to look at the relationships between human interactions with—and place within—the biophysical environment, has shifted more to the political side of the *political* and *ecology* spectrum. He reveals that changes in discourse within the field has identified as more environmental politics—with less of an ecological bent—and also as a field of study still firmly engaging both political and ecological disciplines which makes political ecology possibly more true to its title (Walker, 2005, pg. 73). However, this shift is perhaps more of an ebb and flow than a firm shift in political ecology's paradigm and discourse. This thesis attempts to look at the biophysical environment as well as the human political influences on that environment. In this thesis, biophysical environments include plant and animal communities, ecosystem processes, and equilibrium and disturbance events.

The following is an example of how two different geographic perspectives on space can be used in tandem with political ecology. Most forests in the world—and most ecosystems in general—are in a constant state of change that challenges the concept of a biophysical equilibrium. When referring to a hypothetical prairie in the United States, Brabbatin and Rossi (2012) illustrate the differences in how cultural geographers and biogeographers can perceive the same space in different ways. In Brabbatin and Rossi's illustration, the biogeographer might succinctly observe that the prairie is "a resilient ecosystem whose current state is a site-dependent result of frequent disturbance and the current manifestation of changes and perturbations over a long history of flux" (2012, pg. 275). As the authors intended, this resilient ecosystem perspective infers more than the

hypothetical prairie. It represents most biotic environments, regardless of their proximities to human settlement, as many human influences on the environment are now global in scale. It can infer that most ecosystems are in a perpetual state of disturbance and recovery that challenges thresholds on both micro (e.g., individual plant and animal species) and macro levels (e.g., communities, ecosystems, and biomes). This disturbance and recovery occurs whether or not humans directly influence those environments. In a utilitarian sense, this perspective indicates equilibrium that might best be described as a state of flux in which the least number of biota reaches its threshold, or the least amount of change within that current manifestation. Therefore, this would result in a state of homeostasis or balance regardless of whether or not ecologists classify equilibrium as *steady state*, *dynamic*, *disequilibrium* (Brabbatin & Rossi, 2012, pg. 278), *discordant harmonies,* or *new ecology* (Botkin, 1990; Zimmerer, 1994; Zimmerer & Young, 1998).

In contrast, the cultural geographer is stated as seeing a prairie that "embodies local discourses on ecological restoration and best-management practices, uncovers power dynamics within and between communities, and illustrates the value of the prairie landscape to livelihoods, regional identities, and people's environmental imaginaries" (Brabbatin & Rossi, 2012, pg. 276). This perception sees the same space as not how an environmental space *naturally* reacts to disturbance and recovery events, but how space is represented, perceived, and utilized by the human element that interacts with that space. These perceptions manifest through the relationships between human individuals and communities existing around and within the space, the way in which communities utilize the space, and how that space is viewed and represented—as well as how humans are represented or identified because of that space.

If this cultural geographer was a political ecologist, they might see that to adopt "environmental theories that ignore the social and power relations often prevalent in development issues pertaining to the environment" (Boag, 2007, pg. 2) would be irresponsible and exclusive to the forces that affect the biophysical landscape. The dynamism inherent in environments seen by both the biogeographer and cultural geographer is great. And it is the coming together of these two perspectives—the joining which holds both views as equally valid—which is the political ecology lens used in this thesis.

Croll and Parkin inadvertently illustrate the differences between a political ecological and cultural ecological lens in response to the publication of *Our Common Future*—also known as the Brundtland Report—by the World Commission on Environment and Development (WCED, 1987) and the absences in the discourse it represented:

> "The very linkage between development and global politics and economics is detrimental to the environment: 'the problems of initiating sustainable development alternatives are frequently undermined by the pursuit of illusory, and detrimental policies, whose origin lies in the North and in the relationship that is maintained between North and South'" (Redclift, 1987, pg. 22 as cited in Croll & Parkin, 1992, pg. 7).

This political ecological approach is followed by Croll & Parkin in a second point unaddressed in the report that reflects more of a cultural ecological approach as "the relation between person and environment which rejects the previous ways in which the 'environment' was usually regarded as located outside ourselves, as a space inhabited" (1992, pg. 7).

This thesis also addresses the issue of marginalization as an overall concept; At each scale of power in forest management, a group of actors or individuals is always marginalized. Almost as a rule, it is the marginalization of those with the least power. As the scale of power is increased, the number of groups or individuals who become marginalized increases. Therefore, the *margin* where these groups operate or exert their social or political power changes at each scale. As Robbins (2007) states, "marginal communities are those at the fringes of social power, with little bargaining strength in the market and little force in political processes" (pg. 77). Social marginalization manifests both in physical disempowerment and perceived disempowerment (Sasu, 2005), either by those who are disempowered or by those who benefit from their marginalization, which can significantly change actors' perceptions of their the roles of others. Because of this multiscalar marginalization, this thesis not only focuses on communities who are generally considered marginalized, such as women, ethnic groups, tribal groups, or socio-economic class (Robbins, 2007), but also communities who are marginalized within organizations that have more political or social capital than communities often considered marginalized.

For instance, at a micro scale, marginalized communities include younger women who are not heads of their families and may be second wives to men of any age who are known and fill a role as poachers in their communities and therefore do not have representation in conservation decision-making because of this role. At a different scale, actors who have more political and/or social capital may also be considered marginalized or disempowered. These include employees of NGOs who are not fully involved in conservation decision-making or employees of parastatals who also don't have a voice,

such as forest rangers ill equipped to monitor a forest outpost. They are on the *margins* of their organizations, and while affiliated with a more politically or socially influential organization—with perhaps direct power over resource access to more marginalized communities—they also have little bargaining strength. As one moves up the scale of power, a change in the amount of social or political capital of individuals and organization can be seen, as power hierarchies can exclude even parastatal wardens from direct political or social influences thus affecting the perceptions of their roles within communities both above and below them on the scale of power.

Knowledge Categorization and Disparities of Power within Communities

For success in community-based conservation, it is imperative that local communities are "connected to and knowledgeable about resources," and that when this is achieved, communities will be in the best position to manage them (Selfa & Endter-Wada 2008, pg. 948). At the same time, the concepts of "connection to and being knowledgeable about" the forest and its resources may be as diverse as its communities, and access to that knowledge is not linear or equitable. Therefore, it might be possible to place knowledge around Arabuko-Sokoke in a few broad categories.

In an analysis of the Kumbhalgarh Wildlife Sanctuary in Tajasthan, India, Robbins (2000) examines both state environmental knowledge and that of stakeholders around the sanctuary. By examining environmental knowledge, Robbins exposed different ways in which community members view the forest and its importance in use and conservation. Robbins found that interviewed community members fell within four "knowledge groups" (2000):

1. famine forest of medicine and fodder

    - knowledge of forest food types and medicines in time of seasonal hardship (largely women and landless community members; largest group of community members)
    - high level of distrust for authority and timber harvesters
2. fodder forest of browse and graze
    - knowledge of the land best used for grazing livestock, seasonal patterns of plants and fodder (also women and members who use the forest year round)
    - distrust of illicit timber harvesters
3. capital forest of wood and construction
    - knowledge of and access to markets and market values for forest timber species; view the forest as an outlet for capital (members with strong urban connections as well as lower-ranking foresters)
    - distrust of commons governance of the forest
4. forest as tree cover; state knowledge
    - knowledge of Western perspectives of conservation and ecological benefits of preservation (educated members, foresters, and landholders)
    - see fuelwood extraction and poachers as the greatest threat to the forest; see "fortress" conservation as most beneficial

Each knowledge group definition proposed by Robbins (2000) can also be ranked in order of magnitude to social and financial capital (4 being the highest). This ties in with decision-making power in respect to conservation and forest utilization. Therefore, it can be a useful tool to use as a scale for marginalization. This analysis can also be applied at ASF. The most marginalized community members would most likely fall within the "famine forest" and "fodder forest" categories, as their use of the forest is more dependent on the resources of the forest (including wildlife hunting) and bargaining power that Robbins (2007) includes in his definition. This bargaining power is far less than the groups placed higher on the scale. Community members who fall into the "capital forest"

or "tree cover" categories have more access to economic capital, formal education, and/or Western knowledge and use the forest much differently, as indicated in the generalized knowledge group description, and are most exposed to received wisdom—defined later in this chapter (Brockington & Homewood, 1996).

For Arabuko-Sokoke, I include a fifth category of knowledge: "intrinsic forest and social capital." The "intrinsic forest" knowledge type includes community members who have knowledge of the intrinsic ecological benefits of the forest and the location of specific flora and fauna regardless of its market or monetary value. Those who fall within this knowledge group do not necessarily have a Western-formal education, but they likely have had frequent associations with Western perceptions of ecology, conservation, and perhaps forest management. The “intrinsic forest and social capital” group can be considered local ecologists with an extensive knowledge of local use and local nomenclature of flora and fauna, but most likely also has Linnaean taxonomic knowledge of key species. Common positions held by these community members are local forest/safari guides, NGO and CBO affiliates, and education administrators with close ties to local communities. This category most likely takes third place advancing "capital forest" to number four in order of power and influence in forest conservation policy. However, it should be noted that category placement is not static and could move up or down depending on the importance of their knowledge in the communities—and their social capital—as well as an increase/decrease in the hegemony of Western knowledge (including education) in dominating both conservation discourses and proliferation of unbridled tourism (Nyamweru & Kimaru, 2008; Parkin, 1991). All three examples illustrate how postcolonialism influences representations of knowledge.

This exposes the necessity of marginalized community members to be involved in forest management and forest conservation. The five types of knowledge listed above (four categorized by Robbins and one added) are equally important, and when looking at the power dynamics within the rankings of listed knowledge types, specific types take precedence over those that are not represented. In Robbins' Kumbhalgarh case study, the environmental knowledge and forest needs of marginalized community members were taken into consideration[1] but were not taken at equal value as the knowledge and perspective of those with higher economic and social power (2000). Those with higher levels of decision-making power did not see the benefits of protecting specific types of knowledge in the same way because they themselves did not possess the perspectives that the alternative types of knowledge provided. In addition, five categories do not give full justice to the diversity of human knowledge and diversity of members within stakeholder communities. Without all types of knowledge being equally represented in the management process, outcomes in conservation benefit the agendas of stakeholders who have the most power. Additionally, those who fall within the knowledge groups is by no means fixed or negotiable—on the contrary. There are members in the higher levels of decision-making power that are knowledgeable in both Western and local environmental knowledge, value and promote alternative (e.g., local) types of forest knowledge, and attempt to influence others within their own group as well as the knowledge groups above and below them. The above knowledge structure built upon from Robbins (2000) illustrates how perspectives of environmental conservation differ within and between different scales of power. Hegemonies of postcolonialism greatly influences knowledge

production and perspectives of actor roles based on a history of received knowledge (Brockington & Homewood, 1996).

Participatory Forest Management

The concept of resource co-management in general—and forests in particular—that incorporates state and citizen participation has been around for decades and has changed in theory, practice, and terminology over the past fifteen years (Glasmeier & Farrigan, 2005). State/citizen forest co-management has fallen under many titles, including (but not limited to) community-based conservation (Berkes, 2004), community-based natural resource management (McCall & Minang, 2005), community-based ecosystem management (Gray, *et al.* 2001), social forestry (Riddle, *et al.,* 1995), sustainable forest management (Colfer, *et al.,* 2001), collective forest management (Bahuguna, Luthra, & Rathor, 1994), joint forest management (Naik, 1997), community forestry (Charnley & Poe, 2007), and participatory forest management (ASFMT, 2002). Different perspectives exist on how co-management should be implemented to ensure it is equitable, sustainable, and structured for both biophysical and socio-economic successes, and it is the flexible nature of co-management policies that help separate it from traditional exclusionary, fortress conservation policies.

Colfer, *et al.* (2001) see a sustainable forest management model that is based on the six principles laid out by the Center for International Forestry Research (CIFOR, 1999, pg.17-33):

- Principle 1: policy, planning, and institutional framework are conducive to sustainable forest management.
- Principle 2: maintenance of *ecosystem integrity*.

- Principle 3: forest management maintains or enhances fair intergenerational access to resources and economic benefits.
- Principle 4: concerned stakeholders have acknowledged rights and means to manage forests cooperatively and equitably.
- Principle 5: the health of forest actors, cultures, and the forest is acceptable to all stakeholders.
- Principle 6: yield and quality of forest goods and services are sustainable.

These principles create a generic template for co-forest management schemes that are broken down into four categories: Principle 1=Policy; Principle 2=Ecology; Principles 3-5=Social; and Principle 6=Quality of Goods and Services (CIFOR, 1999). Each of these principles has a plethora of criteria and indicators of success. The more that policy makers and community members unpack these principles, the more complex and unrealistic the package presented by CIFOR becomes to implement and monitor. This is especially relevant with initiatives operating on tight budgets with all stakeholders on board—something common in underdeveloped countries. However, the first two layers (principles and categories, respectively) are the general foundations for forest co-management objectives. With an increase of principles, categories, criteria, and indicators of success, increases in complexity developed through this convoluted environmental conservation discourse make initiatives look good in the drawing room in affluent countries, but implementation can help lead to confusion in the field as a more diverse set of actors participate.

Gray, *et al.* (2001) call it "community-based ecosystem management" and emphasize this type of management policy as inherently place based, and incorporating the communities living within that place, and that these places are

not subjected to just the biophysical but also the social and economic—both a part of this holistic ecosystem (pg. 30). As with CIFOR (1999) and Colfer, *et al.* (2001), there are principles that govern this type of co-management:

- Principle 1: the land is treated as part of the community.
- Principle 2: land decisions are made through inclusive, open, and transparent community-based processes.
- Principle 3: when benefits flow from the land to the greater community, they flow through local communities.
- Principle 4: the community is acknowledged as part of the landscape.

The principles provided by Gray, *et al.* (2001) are more generalized versions of the CIFOR (1999) principles, although this may be due to the holistic emphasis placed on the principles by Gray, *et al.* (2001). Yet CIFOR also includes similar principles with more of a focus on institutional policy (top down) and less on the community, place-based ethos (bottom up).

Charnley and Poe (2007) summarize the objectives of community forestry into three characteristics:

- Characteristic 1: some degree of responsibility and authority for forest management is formally vested by the government in the local communities.
- Characteristic 2: a central objective of forest management is to provide local communities with social and economic benefits from forests.
- Characteristic 3: ecologically sustainable forest use is a central management goal, with forest communities taking some responsibility for maintaining and restoring forest health (pg. 303).

The generality of these universal objectives seems appropriate to encompass the different approaches to co-management provided by the multitude of scholars.

In Kenya, as in other underdeveloped countries such as India, Indonesia, and Nepal (Chhatre & Agrawal, 2008; Ribot, Agrawal & Larson, 2006), forest citizen responsibility to co-manage environmental resources is institutionalized, albeit with varying results. Kenya's 2010 constitution states "every person has a duty to cooperate with state organs and other persons to protect and conserve the environment and ensure ecologically sustainable development and the use of natural resources" (Kenya 2010, 69(2)). The vagueness of which organizations each citizen is obligated to cooperate with is left open for "state organs" to be represented by Kenya's many parastatals, such as KFS, KWS, NMK, and KEFRI, which are the main stakeholders charged with implementing and enforcing state environmental policies. In addition to "state organs," "other persons" can include non-Kenyan affiliates, such as the plethora of non-governmental organizations that work with the parastatals in achieving environmental policies, as well as Kenyan and foreign researchers working in Kenya.

But while the Kenyan government considers it every citizen's duty to "protect and conserve" the environment, those who wish to co-manage forests are required to register as an association with the Kenya government as required by the Societies Act (Kenya, 2004) and Forests Act (Kenya, 2005). A CFA can work with the parastatals in a number of capacities that are spelled out in the Forests Act (2005, 47-1):

1. protect, conserve and manage such forest or part thereof pursuant to an approved management agreement entered into under this Act and the provisions of the management plan for the forest;

2. formulate and implement forest programmes consistent with the traditional forest user rights of the community concerned in accordance with sustainable use criteria;
3. protect sacred groves and protected trees;
4. assist the [Kenya Forest] Service in enforcing the provisions of this Act and any rules and regulations made pursuant thereto, in particular in relation to illegal harvesting of forest produce;
5. with the approval of the Board enter into partnerships with other persons for the purposes of ensuring the efficient and sustainable conservation and management of forests;
6. keep the [Kenya Forest] Service informed of any developments, changes, and occurrences within the forest which are critical for the conservation of biodiversity;
7. help in fire fighting; and
8. do any other act that is necessary for the efficient conservation and management of the forest.

PFM is defined by the Kenya Forest Working Group (KFWG) as "a forest management approach, which deliberately involves the forest-adjacent communities and other stakeholders in management of forests within a framework, that contributes to community's livelihoods"[2] (KFWG, 2009, pg. 6). While these capacities stated in the Kenya Forests Act reflect citizen responsibility, there are no parameters—either explicit or implicit—that account for decentralization of power to local communities.

Yet the decentralization of power is necessary for co-management to be successful (Ribot, Agrawal & Larson, 2006). The ambiguous nature of entering into *partnerships* with "other persons" stated in the fifth capacity does not reflect the decentralization of power and empowerment to the CFAs, although to maintain a CFA, there must be a constitution, management plan, and local governing body (KFWG, 2009).

It can be assumed that the formation of CFAs by forest-adjacent communities is a large part of the necessary decentralization. CFA formation is a way for communities to become organized at the local level—and financially self-sufficient—that would provide adjacent communities the empowerment needed to participate in forest co-management. But communities who organize into CFAs are not automatically provided a consistent voice or role in PFM. Decisions on how the PFM process continues after initial formation and implementation is—for CFAs—largely out of reach.

Important components of PFM are held within the power of execution by the state through firm legislation on how forests can be utilized. For instance, the PFM pilot project developed in Arabuko-Sokoke forest provides allowances for adjacent dwellers to non-commercially harvest timber in areas that are frequently monitored by CFAs for a determined quantity of desired species (ASFMT, 2002). Initial resource site surveys were conducted, and training was provided by NGO and parastatal officials on monitoring, enforcing, and timetables developed for further site surveys (DIFAAFA secretary, personal interview, August 1, 2011). But because of current state law, no timber products (esp. indigenous species) from forest reserves in Kenya can be harvested (Kenya Forests Act, 2005). Therefore, a major component of PFM in Arabuko-Sokoke is a non-starter, and while there are hopes from CFA members that a new administration in 2013 will allow sustainable harvesting of timber from forests, there is no certainty this will be addressed after a new administration takes office.

This is especially frustrating for CFA members due to the proliferation of illicit timber harvesting in Arabuko-Sokoke (DIFAAFA member, personal interview, August 1, 2011) that provides livelihood to some communities but undermines the access regimes

established through the PFM framework. Access to forest timber through illicit ways is partially controlled by agreements made by KFS rangers who allow illicit harvesting of timber that ends up on trucks destined for the market in nearby villages and towns. With these types of illicit arrangements being made and the PFM process indefinitely stalled, CFAs are disempowered by the PFM process they help establish (or *helped* establish, in the case of Dida), while the incentive to receive payment by KFS rangers to harvest timber destined for nearby markets increases. State law prevents one type of income-generating activity (institutionalized in state law), while encouraging a different type (prohibited by state law).

Another key component of co-management success is the transparency of each step in the co-management process. Valencia, Riera, and Juncà (2012) state that to achieve greater transparency is through the sharing of *learned knowledge* throughout the entire step of what they termed "reflection-research-action-reflection" (pg. 45) between participating researchers, coordinators, and local communities. This highlights the flexibility needed for co-management to adapt to local conditions (Valencia, Riera, & Juncà, 2012). Without this shared knowledge, the "action" component cannot be achieved due to an imbalance in power relations between participants, as those who decide which actions/tasks need to be performed take on the role of *manager* and those who perform those tasks in effect take on the role of *worker*, making sure the task is implemented within the parameters assigned by the *manager*. Actions or tasks on the local end—whether jointly agreed upon or not—may take much longer to implement due to the diversity of participating and non/participating communities who are affected by the tasks.

In contrast, the more structured hierarchy found in parastatal organizations or NGOs often allows for swifter decision-making and less footwork. The setting up of *barazas* in Kenya (periodic, local multi-community and multi-village gatherings) that includes diverse communities around large forests takes time to organize and perform. In locations where roads are poor and funds are short, the cost of attending frequent *barazas* may be unrealistic, and it can be easy to fall into manager/worker roles, especially since there are already unbalanced power relations between researcher, NGOs, and parastatals in connection with members of local communities who are not directly affiliated with actors with higher social, political, or economic capital.

Access

One of the key factors of participatory resource management, including forest co-management, is the issue of access. The control of access is important in addressing how successful resource management will be through the actions of all stakeholders involved in the process of both forest conservation and the flow of benefits received from IGAs. When historically looking at Common Pool Resources (CPR) in the core states, it was often considered important to privatize or centralize government control of a CPR. This is largely due to the perceived threat that the anonymity of individuals in an open-access space reduces the perceived moral obligation of each individual to refrain from taking only what was needed in relation to all other individuals who have (or potentially have) access to that CPR. This prevents each individual from monitoring their own access to the CPR and removes any *de facto* rules-of-use that regulates resource access—such as extraction—thus leading to resource depletion. In other words, without privatized or government control, each individual would maximize their CPR use in the belief that

others will do the same, i.e., no individual wishes to be taken for a "sucker" (Ostrom, Gardiner, & Walker, 1994, pg. 295). The former develops strict rules of access, thereby monitoring the quantity of the CPR and better avoids this situation and allows for a more sustainable output of the resource, (in)famously coined "The Tragedy of the Commons" by Garrett Hardin (1968). However, scholars have shown that user-controlled and regulated resources in a commons does not always lead to tragedy but instead can sustain the resource as long as the users of that resource have control of access through both *de jure* and *de facto* institutions in forest, water, and fisheries (Ostrom, 1990; St. Martin, 2001).

Although literature and case studies show CPRs can be regulated and sustained without state control or privatization, it is significantly more difficult to achieve or switch over from previous forms of institutional structures. State-controlled resources are often considered "fortress conservation" (Berkes, 2004) regimes, where resources are owned by the state and monitored, regulated, and policed by parastatals under policies implemented by the state. Fortress conservation severely restricts access and often displaces indigenous people in order to maintain an imagined, Western ideal of an ecosystem through "received wisdom" (Brockington & Homewood, 1996). A famous example is the indigenous Maasai being removed from traditional grazing lands—a CPR through kinship access—and placed on group ranches that altered their pastoralist lifestyle to a lifestyle far more sedentary (Fratkin, 2001).

Received wisdom is defined as wisdom with "roots deep in the experience, economic policies, and political interests of governments and pressure groups and ultimately, in values strong in Western culture and collective consciousness"

(Brockington & Homewood, 1996, pg. 92) that highly influences environmental policy in developed countries. This shouldn't necessarily be contrasted with *traditional ecological knowledge*, as this term is difficult to define and is not a static knowledge but a changing form of knowledge based on localized wisdom (Berkes, 1999). It can also be said that received wisdom is not static but is rather knowledge that influences traditional environmental knowledge more than the reverse. Environmental policies have been especially influenced in sub-Saharan Africa where colonial environmental policies were put in place before independence and maintained after independence due to received wisdom, the logic it provided, and the benefits that states could reap through tourism or other forms of core-affiliated economic benefits. These "nature *without* people" policies (Selfa & Endter-Wada, 2008, emphasis in original) are not only limited to sub-Saharan Africa, but are also in both the global north and elsewhere in the global south, such as the United States, Philippines, and India (Selfa & Endter-Wada, 2008; Robbins, *et al.,* 2009). Yet displacement of indigenous peoples inherent in fortress conservation is an extreme form of restricted access. In many cases, access is negotiated in both *de jure* and *de facto* ways and include not only physically restricted access to a space, but also through social and economic access to spaces that are connected to space that is physically restricted (Ribot & Peluso, 2003).

Dependency, Postcolonialism, and Perception of Roles

Dependency theory started to shift the discourse in world economic development theory in the 1970s. Dependency was largely seen as a structuralist model that Arghiri (1972), Frank (1972), and Wallerstein (1974) explored and combined with world systems theory championed by Wallerstein (Friedman & Wayne, 1977). World systems theory

showed a three-tiered (initially two-tiered) geographic model of economic exploitation and dependence through the core (metropolis or center), semi-periphery, and periphery (satellite) lens. This puts dependency on the global scale of state-state economies, trade agreements, and development strategies—including aid (Bhagwati, 1985). Scaling it down, Galtung (1971) incorporates the core-periphery dichotomy (or centre-periphery) spatial representation of world systems theory *within* states, thus hoping to address the plurality of socio-economic communities and places within state territorial boundaries. In addition to applying systems theory within states, Galtung also discusses a harmony that this relationship creates due to its economic benefits to each state, but that because of this relationship, imperialism is entrenched and inequalities increase *between* states and *within* states (Lewellen, 1995).

Dependency theory often focuses on international economic interrelatedness of political geography and political economic theory. Bringing dependency to a scale that incorporates the micro as well as the macro—and having economics be one facet instead of the driving force of dependency—is far less explored through dependency theory. Galtung (1971) addressed the interactions between core and periphery states beyond global economics by exploring communication, knowledge, social structures, and a small bit of the psychological effects in terms of dependence (pg. 87). As the number of states considered to move from the periphery to semi-periphery has increased since the framework was created, it is important to not adhere to a strict structuralist framework where states are immovable within the three-tiered structure. The totality of dependency theory is misleading in understanding global and local complexities, and using it to predict future economic outcomes or development is not useful. But including

dependency theory is necessary in understanding development between the three tiered economic and development brackets that world systems theory provides. It is also important to incorporate the agency of individual states and to incorporate the influence of actors—and sets of actors—at different scales.

Postcolonial theory allows for exploration of actor influences and can more fully explore the interdependencies on less of a global political economy scale. Kapoor (2002) states that "dependency [theory] chooses a structuralist and socioeconomic perspective, seeing imperialism as tied to the unfolding of capitalism, whereas postcolonial theory favours a poststructuralist and cultural perspective, linking imperialism and agency to discourse and the politics of representation" (pg. 647). Kapoor (2002) also states that it is beneficial to look at both dependency and postcolonial perspectives to see their relatedness and differences. Peet and Hartwick (2009) explain it very well:

> Whereas structuralism saw transcendent systems lending significance to the individual (event or person), many poststructuralists wanted to return significance to the singular (event or person)—that is, something is not important because of its role in the larger scheme of things…it is just important in and of itself (pg. 198).

Combining components of structuralist and poststructuralist frameworks can accentuate each other and avoid moving to opposite extremes of global world systems—disregarding the importance of the local—or where the local becomes centralized and the importance of the national or global is disregarded (Hart, 2001).

Postcolonialism is more of a poststructuralist theory seen through the lens of Orientalism (Said, 1978). While still critical of imperialism and Western economic

hegemony (as a force, not a theory), Orientalism focuses more on the representations and cultural reinforcement or maintenance of Western superiority through hegemonic discourses presented in media, social relations, government decisions, donor aid, etc., and maintained through power relations of Western (core) and peripheral and semi-peripheral states. Received wisdom is a manifestation of postcolonialism, especially in Kenya, where legacies of institutional conservation schemes are rooted in the colonial-era manufacturing of *wildness* landscapes by the British Empire to represent an idealistic gaze of what should be preserved—or conserved—for the posterity of an affluent British citizenry beginning in the 1930s and peaking between the Fifties and Seventies (Beinhart & McKeown, 2009; Urry, 1990[3]). Birch (1990) explores the concept of wildness through this imperialistic framework by presenting wildness as a *simulation* of wilderness that can be boxed, contained, and controlled through the perceptions of those within core states. By representing wildness in this fashion, Birch (1990) reveals that protected wilderness areas maintain an illusion of wildness through the formation of a much-desired otherness that needs to be controlled. By controlling Kenyan wilderness through the formation of parks and reserves, postcolonial hegemony maintains control over a former colony, and through tourism and the concept of wildness by a Western affluent citizenry, the importance of wilderness and in what manner it should be managed, represented, and conserved, is manifested through received wisdom.

The importance of territoriality of states is not the focus in postcolonialism[4], and for dependency theory "culture is not a factor" outside of political economy (Kapoor, 2002). Instead, postcolonialism would most likely consider that state structures help reinforce hegemonic discourses by maintaining power dominance of states that were once

empires and held multiple colonies. It would also better address the expected roles that different stakeholders represent in relationships of power and identity—in their historical place within that colonial system—in addition to economic power. Postcolonialism also allows for a more localized analysis of how communities interact between each other and different scales of power. Therefore, when using both dependency and postcolonialism, it is helpful to think of it as a network of interdependencies.

Interdependency draws on both dependency theory and postcolonialism theory, but also draws upon vertical and horizontal linkages presented by Berkes (2004). Vertical linkages are relationships between local communities and the multiple stakeholders that influence actions in conservation initiatives, such as PFM, whereas horizontal linkages are relationships between local communities (Berkes, 2004). Vertical and horizontal dynamics can be seen as power tensions through differences in economic, social, political, and cultural capital. Interdependencies are an inevitable result of multiple actors with multiple agendas working toward a common goal or goals.

Many conservation initiatives share common traits with commerce, trade, and the many forms of development. This is, in large part, due the interconnectedness that modern globalization proliferates. Because of this, interdependence incorporates the local scale as well as regional, state, and multi-state or non-state organizations, such as multinational organizations and non-governmental organizations. The relationships between actors who operate within these interdependencies each has a role that the actor is defined (or assigned) to perform. Yet it is the perceived roles and identities of other actors who also operate within the interdependencies that can cause tension.

Actors who are interdependent upon one another for the accomplishment of a specific conservation goal most likely have different agendas, and hence different reasons for involvement in each initiative. Every actor has a level of power as well as a level of perceived power within the initiatives. Most of this perceived power comes from the roles that are perceived by other actors who are involved in the same initiative—or are within the network of interdependencies.

The discrepancies between actor roles at multiple scales affects the development or conservation projects by looking at the perceived roles that actors are expected to perform, and without an understanding of the multiple roles actors often play within local development or conservation schemes, these programs can increase the likelihood of projects stalling or collapsing. In addition, the discrepancy between roles and perceptions of power cannot be a panacea that will sufficiently explain why specific conservation initiatives succeed or fail, as there are multiple causal influences that should be assessed, such as biophysical, demographic, economic, institutional, and other socio-political influences (Agrawal, 2006). Therefore, this thesis will illustrate through case studies how the interdependency web has a large influence on participatory forest management and conservation schemes around Arabuko-Sokoke Forest Reserve.

Notes

[1] Most likely due to the large numbers of community members who have that knowledge and how marginalized perspectives on conservation and land use has been the spark of conflicts surrounding conservation planning (Robbins, 2000).

[2] The official nature of this document is somewhat ambiguous. There is a disclaimer on the title page that states "the views expressed in this publication are those of the Kenya Forest Working Group (KFWG) and contributors and do not necessarily reflect or represent the views of our donors or any governments." The main non-financial contributor is the KFS, which is a parastatal of the Kenya government. D.K. Mbugua,

then director of the KFS, included a forward that states the "manual is prescriptive and adaptive. It should be used together with other legal documents and the PFM guidelines. It will be reviewed periodically as more experiences come in from the field" and states the objective of the CFA formation manual is to "provide PFM facilitators with required information for forming effective CFAs [and]…provide a national standard for CFA formation" (KFWS, 2009, pg. 3). The main financial supporters of the document were—in order of acknowledged financial support—the Ford Foundation and USAID/Pact Kenya (pg. 4). The document's legitimacy would appear to be non-binding yet prescriptive in CFA formation. Therefore, the government and KFS have given themselves a loophole in accountability for its contents' adherence by local communities. It is also unclear if financial support by the Ford Foundation and USAID is longitudinal or if—like many other aid projects—the stated periodical review will be too far apart to be affective in adapting to stakeholder needs and concerns.

[3] Urry's 1990 introduction of *tourist gaze* fits well here, although the use of "tourist" in this context encompasses the citizenry of the British Empire who experienced Kenya not only on pampered safaris, but also distantly in the form of postcards and posters advertising the colony and its industrial accomplishments, such as the Uganda Railway. It should be noted that *gaze* is limited in a non-physical way as Perkins & Thorns (2001) discuss the differences between gazing (e.g. advertisements and pampered safaris) and performing (e.g. hunting)—both were forms of tourism in Kenya.

[4] While postcolonialism doesn't explore territoriality and sovereignty, dependency theory has analyzed how sovereignty has been used as a challenge to the imperialistic economic hierarchy that the core-periphery structure maintains (Blaney, 1996).

CHAPTER IV

STUDY SITE

National Parks in Kenya

The sizes of the national parks in Kenya vary greatly. National parks with large populations of wildlife are situated throughout Kenya, particularly Aberdare (715 km^2), Meru (870 $km^{2)}$, Maasai Mara (1,510 km^2), Sibiloi (1,570 km^2), Tsavo East (11,747 km^2), and Tsavo West (9,056 km^2). These larger terrestrial parks are mainly in the west and central portion of Kenya and draw the majority of the over one million tourists each year (Kenya Ministry of Tourism, 2010). Each park draws in foreign visitors for different reasons and often has its own type of ecology and unique wildlife characteristic. For example, Meru contains less human traffic and more forest cover, whereas Tsavo East and Tsavo West savannahs host the "big five[1]" animals most desired—and perhaps best known—by safari tourists. Tourism in Kenya has become one of the most dominant forms of revenue in the country and accounted for 11 percent of the nation's GDP in 2009 and was projected to bring in nearly ksh.100 billion (~$1.2 billion[2]) that same year (Kenya Ministry of Tourism, 2010). However, there are numerous smaller national parks, national reserves, forest reserves, sacred groves (*kayas*), and sanctuaries throughout the state that are not as well known or frequented by the safari package tourists. On the coast, there is an absence of large parks and reserves, but two smaller terrestrial reserves, Arabuko-Sokoke (400 km^2) and Shimba Hills (253 km^2)[3], are of significant importance due to their small size, ecological value, and home to a large number of endemic and threatened plant and wildlife species—especially birds (Muriithi & Kenyon, 2002; Luke & Maunder, 2007).

Kenya Forest Policy and Parastatal Restructuring

The restructuring of how national parks and reserves are managed has been an ongoing process in Kenya. In 1984 and 1988, then president Daniel Arap Moi issued two directives that banned conversion of indigenous forests to plantations and banned the cutting of indigenous trees, respectively (Rodgers, 1993). During this period, the Wildlife Fund Trustees became a parastatal, and was branded the Kenya Wildlife Service (KWS) in 1985 with encouragement from the World Bank that would restructure the ministry—a frequent World Bank requirement of civil service reforms attached to structural adjustment funds (Seymour & Mugabe, 2000). In 1991, a memorandum of understanding (MoU) was established that brought the KWS and Forest Department into a joint-management scheme intended to streamline management and monitoring of protected lands (Rogers, 1993). While this MoU coincided with an initial restructuring of Forest Department and forest policy under direction of the World Bank, restructuring focused more on plantation production than conservation (Seymour & Mugabe, 2000).

In 1996 and 1997, the last structural adjustment scheme proposed for Kenya by the World Bank[4] included possible implementation of an environmental-specific structural adjustment scheme that would support and improve on environmental policies laid out in the Policy Framework Paper released by the Kenya government:

> The World Bank presented the adjustment loan, the first and so far only one of its kind, as an instrument to leverage implementation of the environmental policy reform commitments articulated in the [National Environment Action Plan] and the [Policy Framework Papers]. The adjustment operation would target reforms in such key sectors as forestry, wildlife, and land management, and would address various fiscal and economic policies that generate incentives for environmental destruction (Seymour & Mugabe, 2000, pg. 118).

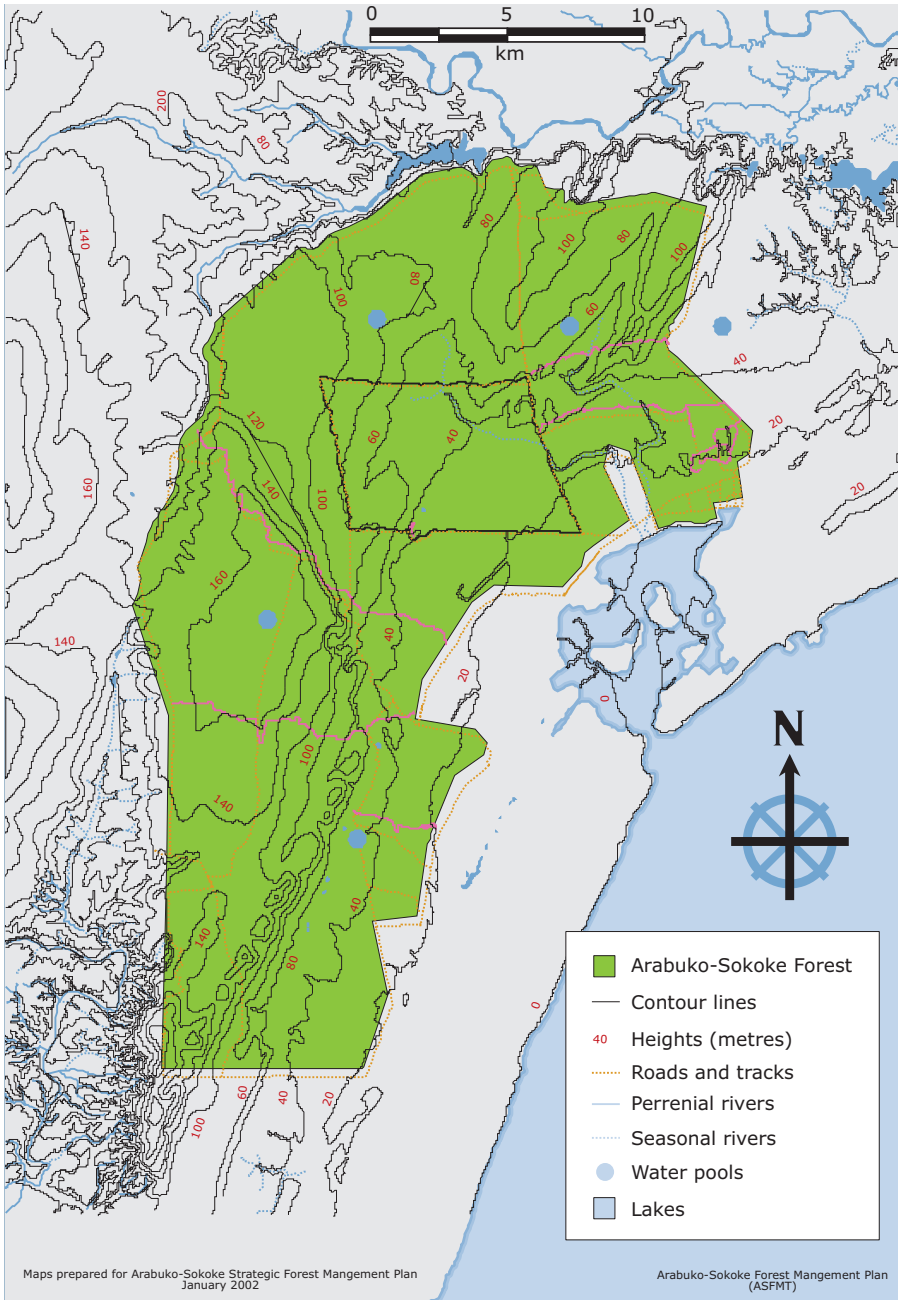
According to Seymour & Mugabe (2000), this proposal failed to be implemented due to NGO distrust of World Bank meddling, government employees concerned for what the adjustment would mean for their jobs, and an international reshuffling of World Bank employees.

During the same period as the World Bank's environmental structural adjustment proposal, the government and the KWS, Forest Department, KEFRI, and NMK parastatals were working with NGOs with funding from USAID and the EU to develop a pilot project for participatory forest management at the Arabuko-Sokoke Forest Reserve. If successful, the parastatals were hoping that the project would be a model for other forest co-management projects in the state, as well as be a model for East Africa. The pilot project was approved in 2002 after a four-year assessment period. The project's go-ahead by the Kenya government was three years before the Forests Act (2005) and eight years before the Kenya Constitution (2010) that institutionalized forest community co-management policies. The Kenya government, its affiliates, and international conservation donors were attempting to create a model of co-management that would help define future state forest management policies without the help of World Bank loans riddled with strings attached.

Arabuko-Sokoke Forest Reserve

The Arabuko-Sokoke Forest Reserve (ASF) is a 416 km^2 (41,600 ha) indigenous coastal forest in Kenya's Coast province. It is approximately 110 km north of Mombasa and is in both the Kilifi and Malindi districts. The northernmost point of the forest is 3°12'11.19" S; 39°54'19.10" E. The southernmost point being 3°9'59.28" S; 39°50'38.42 E, westernmost point being 3°20'00.62" S; 39°47'58.94 E, and the

easternmost point being 3°17’07.10 S; 39°59’38.90 E. Its highest elevation is Nyari Point at ~177 m. with the lowest point at ~15 m near the Indian Ocean[5] (Map 1).



Map 1. Arabuko-Sokoke Forest Reserve Topography (ASFMT, 2002).

ASF is the largest indigenous coastal forest remaining in East Africa (ASFMT, 2002) and was once a portion of a large indigenous forest that spread along the coast of

East Africa including Kenya, Tanzania, and northern Mozambique (Burgess, FitzGibbon & Clarke, 1996). Forest portions smaller than ASF still remain, such as Shimba Hills near the Tanzania-Kenya border, and are protected by the Kenya state. Prior to European colonialism, the ASF was divided into two forests: *Arabuko* to the north and *Sokoke* to the south. It is unclear when the forest was consolidated and renamed *Arabuko-Sokoke*. Historically, the forest was used by local populations—including Swahili and Mijikenda—for rubber, timber, meat, and foraged material prior to the migration of the Giriama from their *kayas* south of their current location and north/northwest of Mombasa (Brantley, 1982).

Resource extraction continued as the Giriama settled around the forest, especially in Dida (Brantley, 1982), but their settlements extended up to Malindi (and at one time near the Sabaki River) and to the coast (McIntosh, 2011). Due to the migration of Giriama from their *kayas*, the ASF lacks sacred groves (or *kayas)* that are a traditional part of the Mijikenda conglomerate coastal ethnic group, although many *kayas* are still located to the south near Shimba Hills, and protected under state law. ASF was initially a location of timber extraction by adjacent forest dwellers, coastal Swahili merchants, and British colonial companies (Masese, 2001). In 1932, ASF was designated as a crown forest and later became a forest reserve in 1943, with additional forest being incorporated in 1968 and 1979 (ASFMT, 2002). ASF has a long history of being used for hardwood timber desirable for its resilience to insects, and was harvested for boatbuilding by the Swahili, as well as for its timber for homes, furniture, and building poles for the houses of local residents (Maundu & Tengnäs, 2005). These desired hardwood species were mainly *Afzelia quanzensis*, *Brachyleana huillensis*, and *Manilkara zanzibarica*, and

legally sanctioned sawmills bordering the villages of Dida to the southwest, Karacha to the east, and Arabuko to the northeast were established for their extraction and were active in the late 19th and early 20th centuries (Masese, 2001). The presence of sawmills resulted in the near extinction of these hardwood species (Masese, 2001) and their subsequent lack of natural replenishment through unassisted propagation.

The three above-mentioned species can still be found within ASF, yet *A. quanzensis* has been harvested to the point of near extinction (Masese, 2001), and if any are found by adjacent dwellers interested in timber removal, they will be marked and quickly harvested for both local use and for sale to local timber markets in the neighboring towns of Malindi, Watamu, and Kilifi (Ngala, personal interview, July 22, 2010). On the other hand, *B. huillensis* appears to be far more plentiful than *A. quanzensis* and *M. zanzibarica*, but timber from *B. huillensis* found within ASF are usually smaller than the timber historically extracted by timber companies due to their continued desirability and extraction by adjacent dwellers before full maturity (Ngala, personal communication, July 16, 2011). Because of the scarcity of these three species, local villagers harvest other hardwood species that are more prevalent, although slightly less desirable. These include *Manilkara sulcata* (poles), *Manilkara sansibarensis* (timber and carvings), Mmahi (poles), Mfudzo (poles), Msokoke[6] (poles), and *Cynometra webberi* (wood carvings[7]).

The growth rates of these species is medium to slow, but there is no concentrated effort on the part of KFS or KEFRI to encourage villager-assisted propagation of these species (Chumani CFA member, interview, August 24, 2011); instead there is a strong push for the propagation of *Casuarina equisetifolia*—also financially supported by

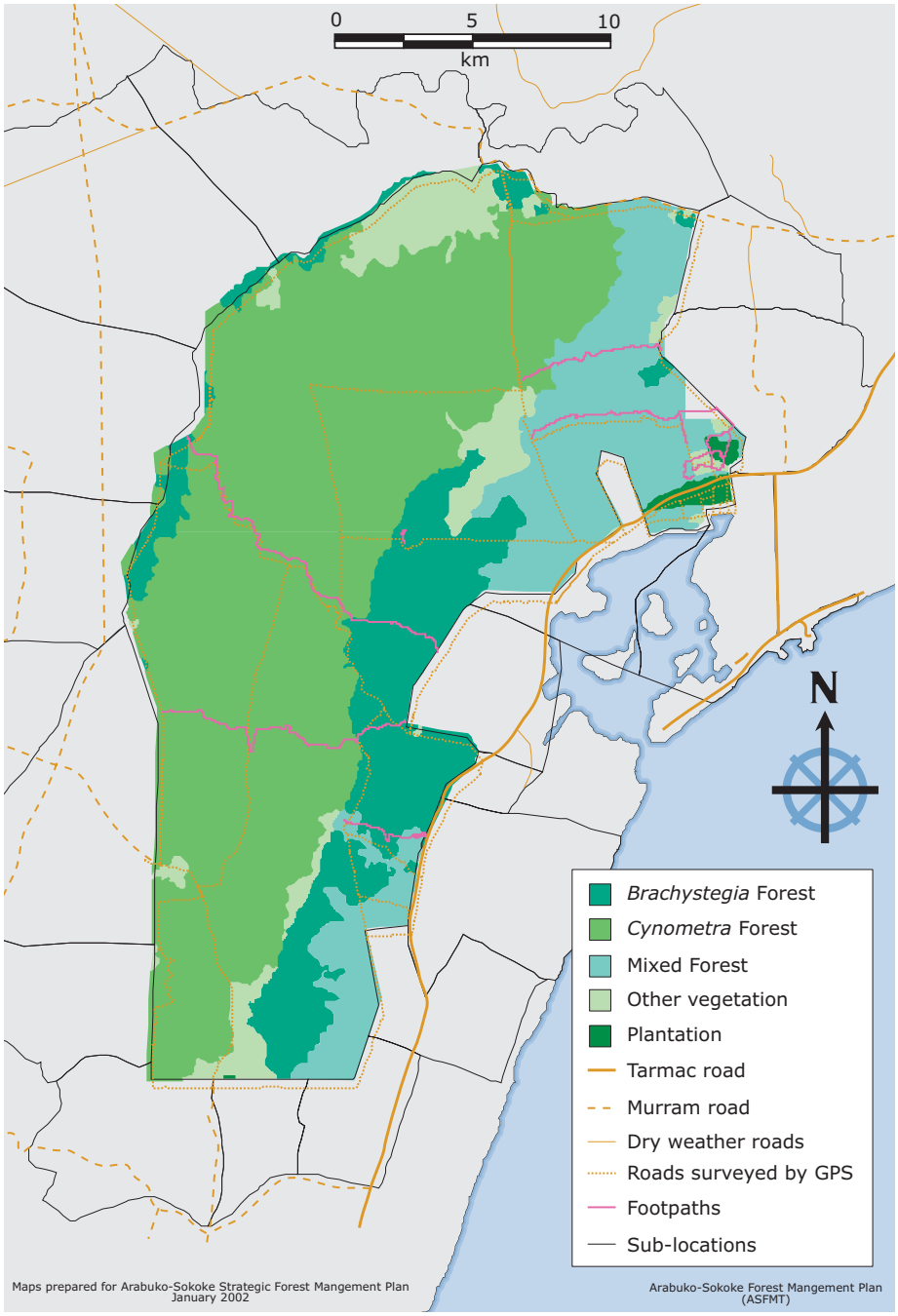
Nature Kenya and other NGOs as an IGA, as it can reach maturity quickly (Maundu & Tengnäs, 2005). *C. equisetifolia* is a long-established species on the coast and is desirable for building poles in both local and regional markets (Maundu & Tengnäs, 2005).

According to Maundu & Tengnäs (2005), *C. equisetifolia* also fixes nitrogen (thus be used for soil conservation and degraded land reclamation), is used for building posts (as opposed to roof poles), and is one of the world's best species for fuelwood. None of these benefits or uses were mentioned by villagers with whom I interviewed and even ran contradictory to their views, as they professed *C. equisetifolia* could not be used as building posts due to the species being prone to termite damage (Girimacha tree planting group, personal interview, August 25, 2011; Ngala, personal interview, August 25, 2011). While it may be one of the best species for fuelwood, the market value of mature poles for building purposes may preclude its use as fuelwood where the legitimate licensing of one head load of fuelwood retrieved from native species within the forest may be more cost effective. The neighborhood residential market demand for fuelwood may be low due to the availability of forest-provided fuelwood.

While the sawmills have long been removed, the footprints of their locations and the dirt roads used to extract the timber from the forest can still be seen. Overgrown with other indigenous trees and understory (i.e., below tree canopy), long-term soil compaction has prevented the unused roads from fully recovering. Fortunately, portions of these scars have been put to other uses. The old timber roads adjacent to Dida have taken on new use in forest conservation as sector boundaries in the PFM scheme implemented in 2001 (DIFAAFA secretary, personal interview, August 1, 2011). Other

overgrown roads are often used by the KFS and KWS for patrols and forest/wildlife maintenance, as well as by local guides who lead birdwatchers inside the forest.
In 1977, ~43 km^2 (~4,300 ha) became designated as a strict nature reserve and is situated in the north-central portion of ASF (ASFMT, 2002). ASF, as a whole, has four vegetation types: *Brachystegia* woodland, *Cynometra* woodland, *Cynometra* thicket, and mixed forest (Map 2).

These vegetation types are named for overstory (tree canopy) influence over the understory habitat, although the difference between *Cynometra* woodland and *Cynometra* thicket is defined by the understory and water content. *Cynometra* woodland has an understory with a higher species richness and higher water content than the *Cynometra* thicket on the west side of ASF, and the *Cynometra* thicket is the only forest type that appears to extend into the adjacent farms outside of the elephant fence that sharply marks the forest's boundary. Mixed forest is categorized as such due to its interface of habitat that includes both *Cynometra* and *Brachystegia* overstory. Soil types differ within the forest boundary, with the two main soil types being white sandy soils that drain easily and red lateritic soil (Burgess, FitzGibbon & Clarke, 1996). *Brachystegia* grows on the red lateritic soil while *Cynometra* grows on the white, sandy soil (Burgess, FitzGibbon & Clarke, 1996). Timber plantations including *Eucalyptus* spp. are also situated within the forest boundary, but exist on the outer parameter of the forest—predominantly in the northwest portion which are either adjacent to or near the Mombasa-Malindi highway. The plantations being near or easily accessible to the highway allow for reliable access to the timber contained within. Extraction is less affected by road destruction caused by rains and also benefits from the cost effectiveness of the plantations' proximity to timber



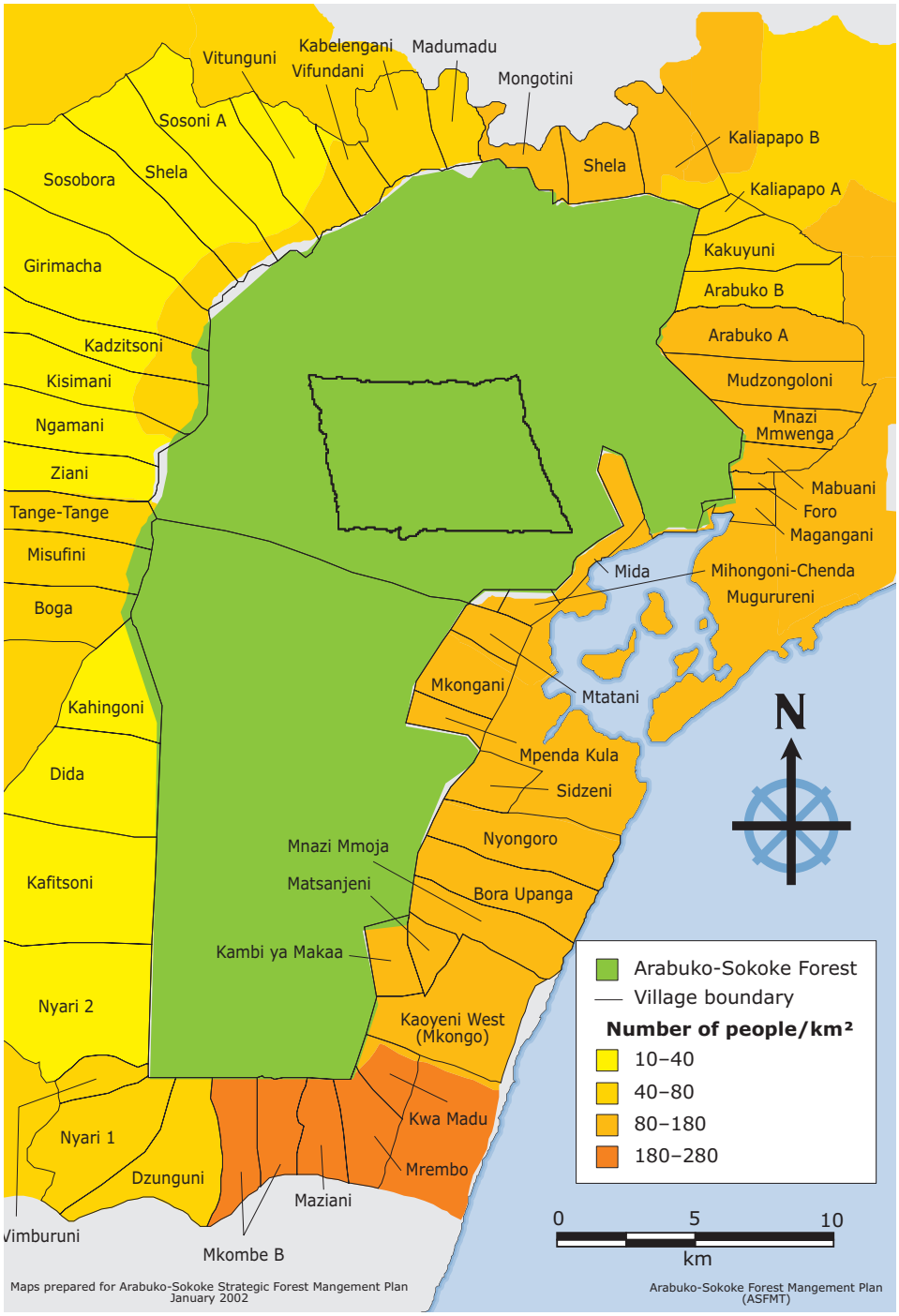
Map 2. Arabuko-Sokoke Forest Reserve Vegetation (ASFMT, 2002).

markets which extend from northern Lamu near the Kenya-Somalia border to Mombasa in the south.

Most of ASF is surrounded by a wide road passable by two vehicles side-by-side that hugs the elephant fence, but a northeast portion—between the road and forest boundary—has a buffer of adjacent dweller homes. While this portion of larger road is separated from the forest, a small, single lane road runs along the fence boundary. On the east side of the forest, the road is an asphalt-paved highway (the only paved stretch of road that runs next to the forest) that runs along the coast from Lamu to Mombasa.

There are 53 villages surrounding the forest, which are comprised mainly of subsistence farmers who reside adjacent to the forest, although only a few adjacent dwellers live immediately next to the elephant fence (Map 3).

Subsistence farming constitutes a large number of crops and increasingly incorporate IGAs that have been introduced by NGOs and the Kenya state. These IGAs include beekeeping, butterfly farming (from butterflies retrieved from ASF[8]), chicken rearing, aloe farming, and small-scale agroforestry of exotic species—mainly *Casuarina equisetifolia*, but also including *Eucalyptus camaldulensis* (*E. rostrata*)—intended to reduce pressures from overharvest of indigenous trees within the forest. Not all village residents are farmers. Some villagers travel to the larger populated towns of Gede, Kilifi, Malindi, Timboni, and Watamu to work as wage laborers for Swahili, Arab, and European business owners, as well as ethnic Africans who come from upcountry and have more economic mobility than local residents (e.g., Kikuyu and Luo) (McIntosh, 2009) but at a much smaller scale. The main ethnic group around ASF is Giriama. The Giriama are the largest ethnic group within the larger Mijikenda group. Mijikenda is comprised of seven ethnic groups that also live on the Kenyan coast and share similar language characteristics: Duruma, Giriama, Jibama, Kambe, Kauma, Rabai, and Ribe. In



Map 3. Arabuko-Sokoke Forest Reserve Village Population Density, 2007 (ASFMT, 2002).

addition to the Mijikenda, there is a large resident population of Swahili and Banjuni in the neighboring towns of Malindi, Gede, and Watamu (ASFMT, 2002; Martin, 1973),

with Gede and Timboni having a smaller Swahili population as these towns are not directly on the coast and make up more of a periphery to Watamu: a beach tourist destination since the late sixties (Martin, 1973). According to McIntosh (2009), the spatial separation between the Swahili and Giriama communities is common throughout the Kenya coast, with urban centers containing a relatively strong economic base populated by more prosperous Swahili (living in stone houses) and neighborhoods which skirt these centers being populated by Giriama (living in coral brick and mud thatch huts) who are often excluded from Swahili society due to religious and economic capital (McIntosh, 2009; Beckerleg, 1995).

The forest is home to many endemic bird species as well as rare and endangered birds that draw in ecotourism revenue. These birds are sensitive to habitat disturbance including human and elephant disturbances (ASFMT, 2002). Some of the most famous of these endangered species (and those that draw many European tourists) are the birds Sokoke Scops Owl (*Otus ireneae*) and East Coast Akalat (*Sheppardia gunning sokokensis*); and the mammals Golden Rumped Elephant Shrew (*Rhynchocyon chrysopygus*) and Aders' Duiker (*Cephalophus adersi*). The forest is also home to the Gambian Pouched Rat (*Cricetomys gambianus*). The latter three mammals are frequently trapped for meat, and their abundance is unknown[9]. When casually discussing this issue with both KWS officials and local naturalists, I learned that the numbers of the Aders' Duiker and Gambian Rat may have been poached to the extent that their numbers may be below a reasonable recovery rate. There is no known study on the population of these three mammals in ASF, although the Gede station warden for KWS anticipates a population count on these and other species during the 2012/13 year.

Giriama and Swahili

Prejudices and stereotyping is quite common between the two groups as well as upcountry ethnic groups. In casual conversations with Muslim Giriama and upcountry Kikuyu who work on the coast in Gede and Malindi, the Giriama were perceived as lazy, jealous, and spiteful who use hurtful magic to get revenge on those who are more successful than them—both Giriama and non-Giriama—thus leveling the social playing field. McIntosh (2009) documents the animosity between the two groups by highlighting a long history of income disparity and historical right to land on the coast. As the Giriama have fewer avenues of economic mobility and animosity of outside ethnic groups, in part due to a history of subjugation through slavery and wage labor (McIntosh, 2009; Beckerleg, 1995). A common stereotype of Swahili is that they are selfish and don't share their wealth and successes with those who are not their immediate family or within their religious social group. The Swahili (and related Arabs in Malindi) were seen as "blood sucking" and consumers of the labor of those around them.

The animosity between Giriama and Swahili is also evident in the perceptions of wealth and economic mobility that manifest in magic. When I was having a difficult time sleeping in my residence near the east side of the forest, I consulted a few Giriama about my dreams, which consisted of feelings of being watched and the privacy invasion of my hut. I was informed that it was most likely neighboring Giriama residents who were jealous not only of my social and economic mobility, but that of the owner of the land on which my hut was situated. The owner of the land, my host, was an economically successful Christian Giriama who worked all over Kenya in forest conservation and youth educational schemes aimed at alleviating pressures on forest resources. His land,

surrounded by a fence, had three huts (two coral brick huts and one mud thatch) in addition to his two-storey stone house lived in by his wife and children and cared for by wage-earning residents. This plot was in sharp contrast to the surrounding mud huts occupied by his neighbors. Non-neighboring Giriama who I consulted about my dreams informed me that these neighbors had most likely sent a *jini* to pester me when I resided on my hosts' land because of envy (*wivu*). It has been documented that hurtful magic influenced by *wivu* "is directed primarily toward relatives, neighbors, coworkers, and friends with whom the [person who pays to have the magic performed] has ongoing face-to-face encounters" with and "creates the most harm" (pg. 171). They also said that because the *jini* was of Muslim magic, it was necessary to place pig bones (provided to me by a Giriama in Gede) in each glassless window to prevent the *jini* from being able to enter my hut and disturbing my sleep. It is interesting to note the *jini* magic is not exclusive to Islam. Ciekawy (2001) explores the relationship between healing magic (*uganga*) and hurtful magic (*ustai*), with *jini* (or *majini* pl.) and states the most dangerous uses of *utsai* involve *majini* spirits.

This story is used to illustrate perceived stereotypes between ethno-religious groups because the witchcraft identified as causing my sleeping issues was attributed to Muslim magic and not Giriama magic. Although it is unclear if the Giriama neighboring my hut were Muslim, I did note that the radio broadcasts played by my neighbors from their transistor radios each night during the month of Ramadan included the break of fast at dusk. According to McIntosh (2009), the *jini* narrative reveals "tensions between accumulation and reciprocity, and mobility and rootedness in land" (pg. 91). McIntosh (2009) goes on to explain that "*jini* narratives bespeak a complex separatism, reifying the

notion that Swahili and Arab privilege is not so much the result of effort as it is a windfall conferred by money gathering supernatural forces that are accessible only to Swahili and Arab Muslims (pg. 91).

This explanation of the *jini* narrative by McIntosh (2009) would indicate that it is not only jealousy which my Giriama consultants indicated as the reason for my hut's invasion of privacy (and loss of sleep), but also of the desire of those responsible of implementing the magic to take some of the social and economic mobility of the space occupied by my hosts and myself and redistribute it to those outside of that space. According to Ciekawy (2001), the definition of "those" differs, as McIntosh (2009) attributes it to people whom have influence or control of spaces restricted to Swahili and Arab ethnicities whereas my Giriama consultants attribute the Muslim magic to those who are Giriama and have *less* economic capital and mobility than neighboring Giriama who are more economically successful and with greater social mobility. This theme of animosity of "accumulation and reciprocity" is one that runs through the Dida area PFM case study in relation to access to economic and social capital and mobility, but instances of witchcraft (i.e., hurtful magic) influences have not been correlated to the case study's animosity between communities (Schreckenberg & Luttrell, 2009; Dida resident, personal interview, August 26, 2011) nor explored by me in my interviews. The reason it was not explored may be due to the secretive nature of Giriama witchcraft and the illegal nature of its use.

The Witchcraft Act (Laws of Kenya Cap. 67) that was established in 1925 and revised in 1962 is one of the earliest laws prohibiting traditional religious practices (Ciekawy, 1998), The Act proclaims the use of "harmful magic" illegal and gives local

chiefs the authority to discover and prosecute individuals accused of harmful witchcraft. This Act has resulted in an uneven manner to which individuals are discovered and prosecuted by local chiefs, as those who are investigated are more often in conflict with the interests of the chiefs and their friends (Ciekawy, 1998). This plays into the complex local *de facto* political structures that make up forest community relations.

Forest Access

After ASF became a forest reserve, forest access by adjacent communities was curbed. Until 2005, permits were issued for adjacent communities to non-commercially harvest timber. While permit issuance ended with the establishment of the Forests Act under the Kibaki administration, fuelwood permits are still allowed. Adjacent community members (mainly women) can travel to a KFS station to receive the monthly permit once ksh. 50 is paid upon issuance. The permit allows the bearer to retrieve one head load of fuelwood (i.e. non-living wood found among the leaf litter) per day from within the ASF boundary. While timber permits have been discontinued since 2005, one adjacent dweller claimed that permits were still issued in a *de facto* manner by the KFS station in Jilore if the adjacent dweller paid ksh.100 per bundle. This would highlight the complexity of access that goes beyond *de jure* law KFS rangers are paid to enforce. If it is suspected that timber has been illegally harvested from ASF, the Forests Act (2005) authorizes KFS officials to confiscate that timber, even if it means pulling built structures down to do so:

> 50. (1) A forest officer may –
>
> a) demand from any person the production of an authority or license for any act done or committed by that person in a state, local authority or provisional forest, or in relation to any forest produce for which a license required under this Act or under any rules made thereunder;

b) require any person found within or without a state local authority or provisional forest who has in his possession any forest produce suspected to have come from such forests, to give an account of the manner in which he became possessed thereof, and, where the account given is not satisfactory, arrest and take such person before a magistrate;
c) search any person suspected of having committed an offence under this Act or of being in possession of any forest produce in respect of which an offence has been committed, and arrest the person, seize and detain any baggage, package, parcel, conveyance, tent, hut or building under the control of that person or his agent or servant (Forests Act, 2005, 50(1)).

This process of confiscation happens frequently around ASF, and it is one of many tensions between KFS officials and adjacent communities (Sokoke elders, personal interview, August 25, 2011). While perpetrators are caught and product confiscated in the forest, all adjacent community members I spoke with claimed that those who were caught were also beaten before being brought before a magistrate.

These fortress conservation practices are written in tandem with PFM practices in the Forests Act (2005). Because fortress conservation is still enforced around the forest, adjacent dwellers are less likely to work with KFS officials in co-management strategies, as relations between the communities remain strained. When asked to which parties ASF belonged to, interviewed villagers unanimously said it belonged to KFS—not adjacent communities. This also maintains state control over possible PFM processes, where KFS and the state can *recentralize* a decentralized process that both the Kenya Constitution (2010) and Forests Act (2005) promote (Ribot, Agrawal, & Larson, 2006).

Tensions between adjacent communities and the KFS also manifest in other ways. An adjacent dweller in Jilore expressed his frustration that charcoal produced from wood outside of the forest boundary was confiscated by KFS rangers who claimed the charcoal

was produced from wood illicitly harvested from within the ASF boundary. Despite that, the type of wood on both sides of the boundary was identical and could not be absolutely identified as illicitly harvested[10]. This has led to adjacent dwellers being frustrated at the level of enforcement by KFS and the confiscation of their own, legally acquired property (Jilore villager, personal interview, August 23, 2011).

Timber is often illicitly harvested from ASF. While performing forest resource monitoring in July 2010, multiple bundles of harvested poles (*Manilkara sulcata,* Mfudzo, Mmahi, and Msokoke) were found by myself and my research assistant along trails on the east side of ASF within 3 km of the forest boundary. We saw approximately two-dozen individuals hauling bundles out of ASF within a four-hour period. There are also *de facto* rules of access between harvesters, as indicated by warnings scrawled in the trail's bare soil at crossroads indicating an encroachment of territory through threats and name calling.

Illicit Harvesting and Hunting

Parastatals such as KFS operate on small budgets that affect the compliance level of forest rangers. When discussing this topic with a few KFS forest rangers working in ASF, they expressed grievances of budgetary constraints that increase their inability to effectively perform their jobs. For instance, on the east side of the forest, the Jilore ranger outpost does not have a vehicle necessary to effectively monitor forest use as part of their job description. The interviewed rangers also expressed frustration on the low amount of money they were paid to perform their jobs, and claimed it as insufficient. As a result of these constraints, the resources available to rangers at forest stations around the forest operate on their own, illicit terms to compensate for the resources not given to them due

to these constrained KFS budgets. This compensation includes offering unsanctioned licenses for small timber harvesting (Jilore villager, personal interview, August 23, 2011) or providing villagers money to harvest timber to be sold to commercial timber markets in larger towns, such as Kilifi, Malindi, or Gede (Ngala & Chumani CFA member, personal interviews, August 24, 2011). This commercial timber is most often used for woodcarving and building materials. During a visit to the bazaar in Malindi, which specializes in woodcarvings for tourists, I asked a Swahili fisherman and city guide where the wood for the carvings originated. Without him knowing my role as researcher (vs. leisure tourist), the fisherman quickly responded "Arabuko-Sokoke forest" (Malindi fisherman, personal communication, July 30, 2010).

While none of the rangers interviewed confessed to know of any rangers who supplement their incomes with this illicit activity, one interviewed stated that "when a ranger goes home, they take off the uniform and become their own person. What they do on their own time is up to them" (KFS ranger, personal interview, August 17, 2011).

Illicit Harvesting Chain

The system for the illicit removal of timber from ASF is a *de facto* rules-of-use protocol involving a chain of merchants, foresters, and villagers and essentially following this pattern:

1. The merchant places an order with a third party that is close to the forest rangers.
2. The merchant and forest rangers agree upon the price.
3. The forest rangers hire villagers to cut the number of timber and species desired by the merchants. A price is agreed on by the forest rangers and the villagers hired to cut the wood.

4. While the villagers are cutting the forest, the forest guards abstain from patrolling the area where they know the villagers are harvesting the timber.
5. If the timber is cut and placed in bundles, the bundles are either set upright along the side of well-worn paths for easy removal or hidden in the brush a few meters off the trail. If they are posts, the posts are not bundled but are still propped upright against living trees.
6. During an agreed upon date and time between the forest guard and harvester, a lorry is brought in to remove the timber. This is often done under the supervision of a forest guard and often at night.
7. The harvested timber is then delivered to the merchant.

In addition to this process, timber harvesters will sometimes set up camp within the forest where they will cut the timber into commercial lengths before it is hauled out. Harvesters will do this deep within the forest, including the nature reserve.

This type of corruption has been documented in other sub-Saharan forest communities such as Cameroon (Topa, *et al.,* 2009). After government cuts in forest sector salaries—due to cuts in sector expenditures—resource use was altered in protected forests by rangers who controlled forest resource access:

> Declining salaries, poor working conditions, and the offer of very large sums of money provided a strong incentive for corruption. The average MINEF official earned CFAF 60,000 [$100] per month and had no means of transport or communication, but could gain millions of CFAF by not reporting logging in areas for which a company had no right (WRI 2000, pgs. 64-5 from Topa, *et al.,* 2009, pg. 19).

The Cameroon case, while not entirely equivalent to the rangers' predicament at ASF, does correspond with the complaints expressed by KFS rangers at ASF.

Corruption does not operate in a vacuum, where the forest rangers are the only ones who benefit. While the level of risk incurred by forest rangers is higher than the risk incurred by villagers harvesting from the forest but lower than the merchants who are purchasing the timber, all three sets of actors benefit from this scheme. Because of the *de facto* agreement with KFS rangers in charge of patrolling that specific area, harvesters have a reduced risk of their illicit activity in the forest. During these harvesting events, villagers can "safely" remove timber for either their personal use or for market within the villages in addition to the quota requested by the merchant. Although the sum is undoubtedly small, harvesters get financially reimbursed for the wood that is cut and prepared for forest removal. This money can directly benefit their families, unlike the removal of timber for personal use.

One drawback to the harvester is the level of risk they face. Having KFS rangers look the other way while harvesting does not fully remove them from danger. Oft-armed KWS guards, tour guides, and CBO representatives frequently make unannounced tours of the forest. This most often takes the form of patrols, guiding bird watchers, or conducting snare and cut timber surveys, respectively. The time spent in front of a magistrate or any jail time could jeopardize positions of employment or informal economic arrangements.

Notes

[1] The "Big Five" was coined by European hunters and includes game considered to be the most difficult and hazardous to hunt on foot: African elephant (*Loxodonta spp.*), black rhinoceros (*Diceros bicornis*), Cape buffalo (*Syncerus caffer*), leopard (*Panthera pardus*), and lion (*Panthera leo*).

[2] These numbers should be taken with some apprehension. Sindiga (1999) claims that tourism revenue indicators and statistics are fluid and "notoriously inaccurate" (pg. 60).

[3] Although the size of each forest is not uniformly documented, there are explanations for this. For Shimba Hills, Sindiga (1999) states it is 192 km^2 whereas Knickerbocker & Waithaka (2005) put the size at 253 km^2 due to the inclusion of conjoining lands that include the Mwalunganje Elephant Sanctuary and Shimba Hills National Reserve. For Arabuko-Sokoke, the size is vastly different. Sindiga (1999) states it as 6 km^2, which is in sharp contrast to most documented accounts of Arabuko-Sokoke being between 400 km^2 and 420 km^2 (KWS, 2012). Sindiga (1999) is likely only including the nature reserve, established in 1977, and situated inside the northern portion of Arabuko-Sokoke forest. However, Sindiga assigns the year of gazettement of 1991—this date falls as the same year the Memorandum of Understanding was created bringing both the KWS and Forest Department under a national management role of protected lands (Oyugi, *et al.,* 2008).

[4] According to Seymour & Mugabe (2000), Kenya was also the *first* sub-Saharan African state to receive a structural adjustment loan.

[5] Coordinates and elevation were estimated using Google Earth software. Oyugi (2008) puts the elevation between 60-135m but does not reveal how this was determined.

[6] The three species listed here: *Mmahi*; *Mfudzo*; and *Msokoke*, are local names for species where Ngala did not know the Linnaean name for them, and cross references in the exhaustive text by Maundu & Tengnäs (2005) likewise did not list these names. This may indicate their endemism to ASF.

[7] While the main use for *C. webberi* is woodcarvings, Ngala stated that this hardwood's use as fuel was incredible. Interestingly, there were no signs of any remains from previously cut *C. webberi* being used for this purpose, as the only portion hauled away were those best for carving; The branches, shavings, and other portions of the tree were left at the cutting site. This was prevalent for all ages of the initial cut—from recent cuts to trees harvested months before.

[8] For a comprehensive description of this well-established project, see Gordon and Ayiemba (2003). Although still relatively successful compared with many other IGAs, a decrease in demand of ASF-available pupae has reduced the economic prosperity once held by the project's participants. According to some project participants, a change in management has also reduced the project's effectiveness as an IGA.

[9] As of June 2012, there had not been a comprehensive wildlife inventory conducted, although the current warden for KFS seemed optimistic about this survey being conducted in the near future (Makosi, personal correspondence, June 5, 2012).

[10] When observing the property on which the adjacent dwellers *shamba* was situated, there were many locales where wood was being harvested for charcoal production. There was no indication that the wood was removed from within the ASF boundary, and due to the abundance of timber outside of the forest boundary suitable for charcoal, there is little reason to indicate the woodpiles were harvested illicitly.

CHAPTER V

CASE STUDY 1: DIDA PFM

The first case study examines the PFM pilot project situated in Dida on the southwestern corner of ASF. With a long history of conservation management and its fundamental role in the establishment of citizen-based associations around ASF, the dynamics surrounding this case study were foundational to this project. Large amounts of resources have been applied to PFM at Dida, and actors from all scales—from USAID to local Dida village officers—have been involved in making this project a success.

While some aspects of the PFM project have been successful, the inability for movement on its completion is representative of how the project's importance is perceived by different stakeholders and the power each stakeholder holds and chooses to use in this area of the Kenya coast.

According to David Ngala (personal interview, July 11, 2011), village elders in Dida were among the first adjacent dwellers to call for the protection of ASF from farm encroachment through degazetted portions. How exactly the degazettement process was initiated is uncertain, but there are two perspectives. According to David Ngala, (personal interview, July 11, 2012), the process began with a 1993 degazettement proclamation by then president Daniel Arap Moi which would clear southeastern portions for new farms for squatters, as the land is owned by the Kenya government. With political influences in the region favoring such degazettement, an additional northeast portion was added to the proclamation. These two areas consisted of the original, large southeastern portion that bordered four sublocations: Chumani, Roka, Matsangoni, and Mkongani. The other addition bordered Mijomboni and Kakuyuni sublocations. This differs slightly with

Burgess, FitzGibbon, & Clarke (2000), who state the process started with a local MP proposing degazettment of 10 percent *Brachystegia* forest on the east side of the forest with the appearance of President Moi being an oppositional voice of degazettement. Regardless of how it was proposed, there was initial support from the elders.

Degazettement was a desirable solution by many neighboring residents to alleviate pressures on existing farms from overpopulation that bordered ASF. The main pressure from overpopulation was due to an increase of family size on adjacent farms where traditional partible inheritance practices prevented current farms from sustaining those families. As with many partible inheritance practices around the world, male children would receive a parcel of land on the existent plot once that male married and began to have children. The oldest male would then take over the original plot once the father died. With multiple male children reaching adulthood, the portions of land that were allowed to be allotted would eventually become too small to support their growing families, and movement to other plots outside of plots controlled by the family would have to substitute.

Yet there was opposition to degazettement. Ian Gordon, former director of Kipepeo Butterfly Farm and affiliate of Birdlife International; Barbara Simpson, a conservationist and owner of a beach guest house (later Mwamba Field Study Center operated by A Rocha Kenya); and Ann Robertson, a botanist from the National Museums of Kenya, encouraged local naturalists and tour guides to speak with villagers about the importance of preserving ASF for biodiversity and as a water source for both animals within the forest and the villages adjacent to it. The forest provides water to adjacent communities in two ways. One way is as water catchment basins within the forest that

wildlife, including elephants, use throughout the year. The other way is though evapotranspiration, as the presence of large amounts of vegetation releases water vapor into the atmosphere allowing for more precipitation. This is particularly important around the western and northern sides of ASF where water is far scarcer than around the eastern and southern sides.

Because the electric fence intended to keep elephants from destroying crops and injuring residents had not yet been erected, this would have been a strong argument for the conservation of water sources within the forest. According to Jonathan Baya, a former A Rocha affiliate, and David Ngala, a local naturalist, tour guide, and conservationist, as well as my research assistant and translator, their efforts were successful in convincing the elders of the threats to the forest from farm encroachment as well as bringing the issue to light in the local newspaper (A Rocha Kenya, 2008; Ngala, personal interview, July 11, 2011; Ngala, 2009).

While the portion of the forest under threat was on its eastern side and not bordering Dida, the village where the elders resided, Ngala believed that it was due to the media attention villagers received and the subsequent survey of threats to the forest that pressured president Moi to retract his proclamation of farm encroachment (personal interview, July 11, 2011). The success of local villagers led to the development of the Arabuko-Sokoke Forest Adjacent Dwellers Association (ASFADA) in 1996—that included Dida elder participation. ASFADA became an umbrella group to the many different registered associations around the forest. These associations include a diverse set of interests, and all are connected with IGAs for communities. This would later include the newly established CFAs that were part of the PFM pilot project and

subsequent management plan. This provided the parastatals access to different community groups without the high cost of traveling to their locations, which surrounded the entire forest boundary.

The influence of ASFADA and role as a collective voice for the various associations adjacent to ASF has diminished over time. None of the Village Forest Development and Conservation Committees or community members asked about ASFADA could remember a time when the association made a visit to hear their concerns or represent them in any capacity—with the Dida Forest Adjacent Area Forest Association (DIFAAFA) representatives being the exception. It should be noted that DIFAAFA may have the greatest presence—and therefore ear—with the parastatals around ASF, and therefore would be the least vulnerable group that would need their voices represented. Consequent to the retraction of the degazzettement proposal, a more complete survey of threats to the forest and ways to alleviate these threats was undertaken.

In 1997, the biodiversity and forest threats survey was jointly funded by USAID (through Birdlife International), the EU, and the UK Department for International Development. The aim of the project was to develop a strategic management plan that would accomplish the following:

- assess the threats on forest resources, such as trees and wildlife
- address the needs and concerns of forest adjacent dwellers who depend on the forest for many resources
- assess the ability to incorporate a participatory management framework that allows villagers to co-manage the forest

- develop a strategy that allows the forest to be sustainably used by a diverse set of stakeholders.

The group of individuals who were to organize and implement the survey and management plan became the Arabuko-Sokoke Forest Management Team [1] (ASFMT). This group consisted of members of parastatal and government entities, such as KWS, the Forest Department (which became the KFS in 2005), NMK, and KEFRI. It also included individuals who were outside of these organizations but worked closely with the government representatives on conservation issues including Ian Gordon (project coordinator), Tsofa Mweni (education officer), and UK NGOs, including Birdlife International, and LTS International.

The process of developing the management plan began with a set of 15 workshops that addressed the diversity of issues the forest and adjacent communities faced. These workshops were divided by "thematic areas"[2]:

1. Biodiversity Conservation
2. Commercial Use
3. Ecotourism and Environmental Education
4. Forest Protection
5. Human Resource Development
6. Infrastructure Development
7. Problem Animal Management
8. Subsistence Use
9. Research and Monitoring (Zonation)

One additional workshop was monumental in the conservation schemes of ASF. In 1998, a participatory rural appraisal (PRA) was conducted in Dida, a southwestern sublocation that includes three larger villages: Dida, Kafistoni, and Kahingoni. The reason why the Dida sublocation was chosen differs depending on whom you talk to. One perspective came from a person who had a long connection to the PFM project, Washington Ayiemba. During the project's initial development, Ayiemba was manager of Kipepeo (with affiliation to NMK) in Gede, but as of this writing works as a site support specialist at Nature Kenya in Nairobi. According to Ayiemba, the Dida location was chosen because of its diverse ethnic makeup, as it included not only Giriama (the largest ethnic group around ASF), but also Kamba and Luo ethnic groups. The presence of Kamba was also listed as a small population in the 1998 PRA report, yet the report also mentions a small group of Kikuyu but no Luo. These three ethnic groups are not part of the coastal Mijikenda—like the Giriama—and are considered "upcountry" ethnic groups that share a similar language (kigikuyu) that is different from the language spoken by Giriama (kigiriama) and are concentrated near Nairobi (area accredited to the Kikuyu ethnic group) and the shores of Lake Victoria (Luo ethnic group), although Kamba are also located south of Mombasa (Lewis, 2009). When I asked David Ngala, a Dida resident, he claimed the location was chosen because the Dida elders' active involvement in defeating the degazettement initiative increased their level of participation in ASFADA and they were able to argue for that area's inclusion (personal interview, July 11, 2011).

For the PRA, the ASFMNT met with Dida communities about issues they faced in relation to the forest. These communities were divided into subgroups based on four "socio-cultural norms": elders, middle aged, youth, and women[3] (ASFMT, 1998, pg. 6).

It should be noted that addressing all inherent diversity within communities for the PRA would have been both temporally inefficient and impractical. For example, the PRA report identifies eleven Giriama clans in the Dida area. Because of diverse *de facto* intermarriage rules and identities that may form communities (Parkin, 1991) as well as the different socio-economic communities within the area, attempting to identify and address the plethora of communities in the Dida area would probably have delayed the completion of the PRA, therefore limiting its effectiveness in the eyes of the government and NGOs who were paying for the project.

Yet the subgroups chosen had different perceptions on what issues were the most important. These different issues were "prioritized and ranked according to the social and economic effects they had on the community" (ASFMT, 1998 pg. 14). Although there were marked differences of perceptions between the communities, the top two were almost unanimous. For instance, the elders considered inadequate clean water (for both humans and wildlife) as the most important issue, as villagers weren't able to get enough water from their wells, and wild animals were venturing outside the forest looking for water (an earlier argument by the elders for forest conservation). The middle-aged men chose an inadequate water supply as being the most important due to shallow wells and attempts to dig new wells were destroyed by animals. The women felt human/wildlife conflict was most important, and this was tied to water issues. For the youth subgroup, it was low income that topped their list with water being second. When ranked, the two most important issues were water and the human/wildlife conflicts resulted when animals from the forest (predominantly elephants) ventured into farms looking for water (Table 1).

Before the elephant fence surrounded most of the forest boundary, there were frequent farm invasions by elephants, which are the most destructive non-human force in the forest. Most of ASF is accessible to the elephants, and as water became scarce, there was little villagers could do to prevent elephant invasions. One preventive measure of using chili peppers (*Capsicum spp.*) as a deterrent has been well documented (Parker & Osborn, 2006; Sitati & Walpole, 2006; Tennesen, 2006), but the practice is not widely known by villagers adjacent to ASF and certainly was not practiced before the fence.

Yet there is some knowledge of using chili peppers as a deterrent. In 2004, a Kenya/Tanzania cross-border study involved 13 members of DIFAAFA, as well as representatives from the Forest Department, KEFRI, KWS, and Nature Kenya (Gichuki, Mbuvi, & Ayiemba, 2004). According to this study, there was a significant problem with elephant damage to crops in Garash village, Monduli District during the Tanzania visit, but the use of chili peppers as a deterrent was, at that time, "being developed" (Gichuki, Mbuvi, & Ayeimba, 2004, pg. 24). When I talked with members of DIFAAFA, one woman, who was part of the 2004 cross-border trip, stated that chili peppers eventually proved ineffective in Garash village (DIFAAFA member, personal interview August 1, 2011).

One of the biggest accomplishments from both the PRA and subsequent ASF master plan was the establishment of the electric fence in 2006. Consisting of three strands of wire—with only the top two strands electrified—the fence prevents elephants from venturing outside of the forest boundary in search of water. This was a very welcome accomplishment, as Dida wasn't the only area where elephant damage was a big concern. As of October 2012, the village of Malanga, located at the Northeast corner of

ASF, is the only location where the fence has not been completed, and wildlife/human conflicts along the ~5 km stretch of unfenced interface are still a concern for adjacent residents (Ngala, 2012). Although maintenance of the fence is ongoing and funds appear to be invested in its maintenance, a letter was sent by the CBO Friends of the Arabuko-Sokoke Forest (FoASF) to the director of KFS in Nairobi on behalf of Malanga residents to press this issue (Ngala, 2012).

Wildlife/human conflict is prevalent at many locations of forest/village interfaces. Further south along the coast, wildlife/human conflict is a major concern at the Shimba Hills ecosystem—the second largest protected coastal forest in Kenya. Shimba Hills is situated in Kwale District and is part of a larger network of land set aside for conservation: Shimba Hills National Park, Mwaluganje Forest Reserve and Elephant Sanctuary, Mkongani North and West Forest Reserves, and the Golini and Mwaluganje Sanctuary—a 10 km corridor running through Shimba Hills and Mwaluganje Forest Reserve (Waiyaki & Bennun, 2000; Mburu *et al.*, 2003). This conglomeration of protected areas is considered to be the Shimba Hills ecosystem and is jointly managed by KWS, KFS, and the Mwaluganje Elephant Sanctuary Committee (Knickerbocker & Waithaka, 2005).

Shimba Hills differs from ASF in a few ways. The forests in and around Shimba Hills are highly fragmented into small patches surrounded by small farms. Threats to these fragments may be due to their size. With a higher boundary-to-area ratio, pressure on the forest edges would likely be higher compared to the larger protected areas of the Shimba Hills. Like the forest fragments, small farms surround the larger portion of the national park, and pressure from human development continues to erode forest

boundaries and the neighboring patchwork forests in large part due to farm expansion. There is evidence to show, however, that the forest may have been fragmented and dynamic before significant human population pressures due to their associations with *kaya* use (Nyamweru, *et al.*, 2008).

In addition to the forest's fragmentation, the elephant population within the park is dangerously high. While many authorities feel that Shimba Hills can handle an elephant population count of ~200, periodic elephant counts have resulted in a population count ranging from 400 to 700 (Knickerbocker & Waithaka, 2005). This is in sharp contrast to the elephant population of ASF. According to a speculated population number provided by the warden of KWS in the summer of 2012, the elephant population of ASF was ~120. Comparing the population per km^2, ASF has approximately 0.03 elephants per km^2. At the Shimba Hills ecosystem, it would be a conservative 1.3 elephants per km^2—much higher than the carrying capacity of ~0.8 elephants per km^2, according to authorities (Knickerbocker & Waithaka, 2005).

Like villager concerns at ASF, elephant damage to crops and human lives had been a major issue. In 1994, a project funded by the World Bank (Knickerbocker & Waithaka, 2005) and overseen by KWS (Ombuor, 2009) began to erect a solar powered electric fence to keep elephants out of neighboring farmland and contain them within the boundaries of the forest reserve. By 1999, the fence almost completely circled the Shimba Hills National Reserve, and human fatalities and crop damage from elephants dropped considerably from 18 human deaths between 1984 and 1999 to 2 deaths between 1999 and 2005 (Knickerbocker & Waithaka, 2005).

Yet the fence was not a panacea to wildlife/human conflict[4]. For example, in both Shimba Hills and ASF, there has been a increase of crop-raiding monkeys who use the fence as a retreating point that placed them out of harms way of angry farmers, as well as pigs and baboons, as the size of the fence is not intended to prevent these smaller animals from venturing in and out of the forest boundaries (Knickerbocker & Waithaka, 2005; Sokoke elders, 2011 August 25).

This is especially frustrating to villagers, as government compensation for wildlife damage is limited to death or dismemberment (Knickerbocker & Waithaka, 2005), and does not cover direct costs of crop destruction, non-dismemberment from animal attacks, nor indirect costs such as fodder collection or time lost guarding crops. When an elephant invades a farm, the farmers and their families may have a chance to escape physically unharmed, but their crops and homes are stationary, so the chance of crop/home destruction doesn't make the interactions between elephants and humans less conflicting. This reflects policies in other protected area interface boundaries in Uganda and India (Ogra, 2008; Adams & Infield, 2003). In addition, this adds to the animosity farmers have towards the parastatals (KWS) in charge of managing the wildlife.

While the elephant fence—albeit incomplete—was a huge milestone in addressing concerns of the area, it was but one component of a much larger scheme. The main objective of the ASFMT was to develop a more complete forest management framework. This framework was outlined in the "Vision of Arabuko-Sokoke Forest in 2025":

> 'An intact and fully functioning forest ecosystem with no reduction in the existing forest area'
> where…

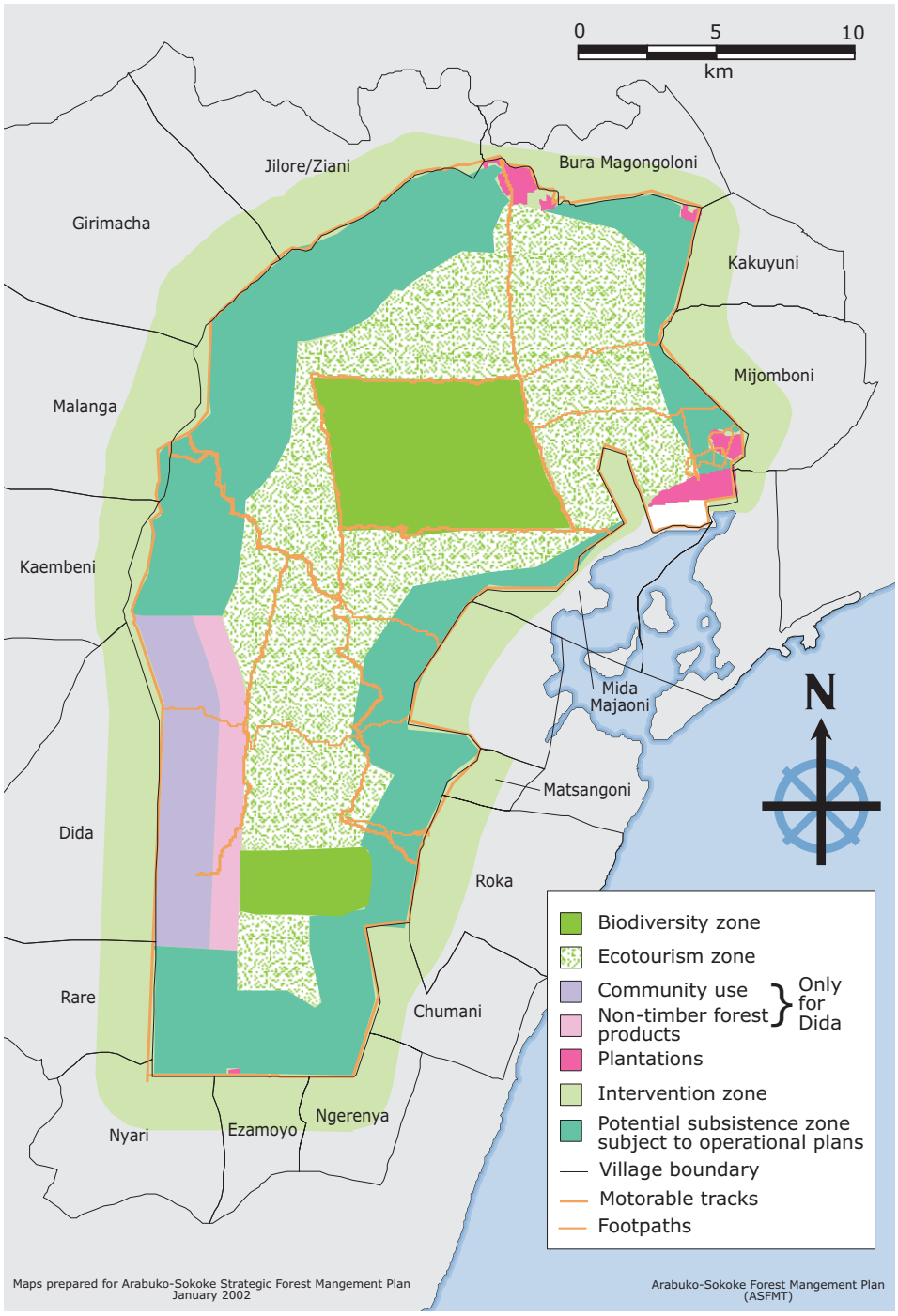
- Local forest adjacent communities have opportunities to participate in meaningful way in the management of the forest, and as primary beneficiaries of its products and services.
- The unique biodiversity of the forest is expressly conserved and enhanced through forest management interventions and actions.
- Forest resource condition is developed and improved through management actions emphasizing the use of best practice and the best available information.
- Environmental education and eco-tourism opportunities are enhanced for linking wider society with management of the forest.
- Sufficient resources are made available to support an effective and motivated forest management team, enabling them to meet the challenge of this vision. (ASFMT 2002).

In a nutshell, this vision looks to include adjacent communities in forest management, but at the same time acknowledges that adjacent communities may not necessarily see some of the benefits that international communities see: conservation of the forest for ecology's or biodiversity's sake. To achieve this—according to the ASFMT's vision—adjacent communities would need to be educated on holistic conservation and its benefits whilst also allowing communities the opportunity to work in the eco-tourism service industry. The financial payback would include sustainable access to forest products, increased job opportunities, and a strongly supported parastatal base to implement and maintain the vision's objectives—instead of becoming disgruntled by the paralysis of forest management that could otherwise lead to corruption.

The largest component in achieving this somewhat vague and lofty vision is arguably the implementation of a PFM framework which allows adjacent communities the opportunity to participate in forest management along with the stakeholders put in

place to monitor and govern the process: KFS, KWS, and KEFRI (ASFMT, 2002). According to the management plan, the implementation of PFM around ASF would be accomplished by first establishing *forest zones* which would not only partition the entire forest into *de jure* use and access divisions, but would also incorporate an *intervention zone* that is comprised of an approximate 2.5 m buffer into adjacent community lands where IGAs, education, and participation would be focused. According to the zones, community participation (outside of eco-tourism employment) would not take place beyond 3 km from the forest/village boundary (considered *subsistence zones* or a *non-timber forest products zone*). Plantations controlled by KEFRI would be limited to currently established plots on the north and east side. Past 3 km, the zones would only be comprised of eco-tourism and biodiversity zones. Revenue from eco-tourism would largely come by way of forest guides, which is governed by the Forest Guides Association and consists of local ecologists from surrounding villages. In the latter two zones, monitoring and enforcement would be conducted by KFS and KWS without direct, institutionalized community participation (Map 4).

The participation zones would be considered the PFM areas, but PFM would be implemented in stages. The first stage would consist of a pilot project area located on the southeastern portion where the Dida sublocation borders the forest. This sublocation includes three villages: Kafitsoni, Dida, and Kahingoni[5]. A large portion of money was concentrated at this location. If successful, the second stage would include two other locations slated for PFM implementation: Kararacha and Kakuyuni-Mabuani sublocations. The Kararacha sublocation is located in the southeastern portion of ASF includes eight villages: Bora Upanga, Kambi ya Makaa, Kaoyeni West (Mkongo),



Map 4. Arabuko-Sokoke Forest Reserve Approved PFM Land Use Scheme (ASFMT, 2002).

Matsanjeni, Mnazi Mmoja, Mpenda Kula, Nyongoro, and Sidzeni. The Kakuyuni-Mabuani sublocation is located in the northeastern portion and also includes nine

villages: Magangani, Foro[6], Mabuani, Mnazi Mmwenga, Mudzongoloni, Arabuko A, Arabuko B, Kakuyuni, and Kaliapapo A. In accordance with the Societies Act (2004), each of these groups would have their own constitution and management plan approved by the ASFMT and government in Nairobi (Kenya, 2004). While ASFADA remains an umbrella organization allowing for CFAs to have a single voice, the constitution and management plans of the three CFAs would be independent from ASFADA's. Yet the three CFAs slated for PFM would most likely have very similar constitutions and management plans between them.

CFAs are required in the Forests Act (2005) to adhere to the Societies Act (2004) in structure and governance instead of falling firmly within the Forests Act where the CFAs would be entirely under KFS control. This allows the CFAs to grow their membership base as they see fit, elect their own representatives/officers, and govern themselves up to the level where it interacts or conflicts with KFS, KWS, or KEFRI jurisdictions. The benefits to adhering to the Societies Act allow the CFAs the autonomy in developing their individual constitutions and managing their own treasuries[7].

It is important to note that while the CFAs would fall under the framework laid out in the Societies Act, ASFADA (also currently under the Societies Act) is attempting to switch gears and become a business. By becoming a business, ASFADA would then fall under the Companies Act (1978). The benefits to this, as told to me by the head of ASFADA, is that they would be allowed to control more ecotourism revenue through the renting/purchasing of land, as well as running bed and breakfasts adjacent to the forest.

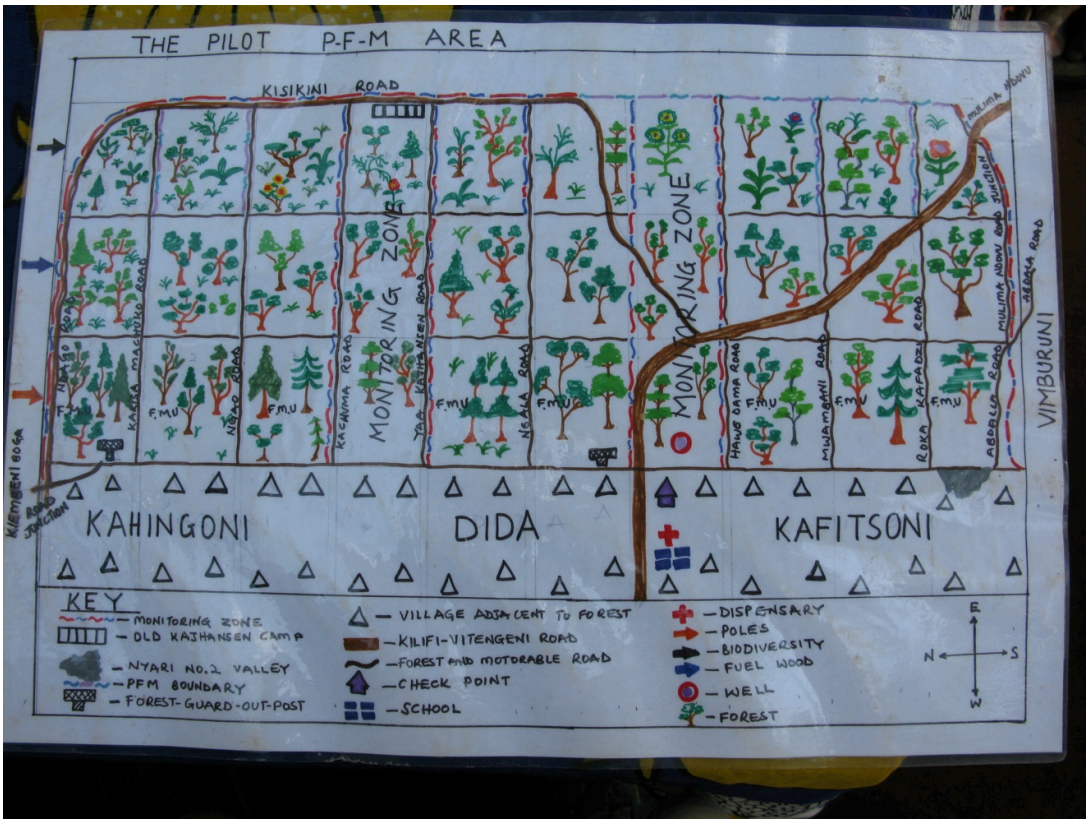
The setup of the pilot PFM zone at Dida was successful. This includes a site survey of tree resource availability, the establishment of forest management units (FMUs)

based on that site survey, and training villagers for joint patrols with KFS rangers to the whole PFM pilot project area. The establishment of the PFM zone was explained to me in 2011 by DIFAAFA members and follows the subsequent procedures:

The management team developed the zones with the participation of DIFAAFA. It was then revised with two men from the U.K., as well as representatives from KEFRI who examined the forest survey[8]. After the revision period, eight FMUs were established that are zoned to allow for non-commercial tree harvesting for poles. These management units break up the PFM zone into manageable partitions. While some of the FMUs are identical in intended use, such as which species are abundant enough to be harvested sustainably, their division is based on existing road infrastructure. The PFM zone spans the entire length of the three villages of the Dida sublocation: Kafitzoni, Dida, and Kahingoni (Map 5). The zone is 42 km^2 and encompasses all eight FMUs. The boundary is 14 km long and extends 3 km into the forest from the forest/village boundary (elephant fence).

The PFM zones are as follows:

- Biodiversity zone
- Subsistence zone – fuel wood
- Subsistence zone - poles
- Monitoring zone



Map 5. Dida Area PFM Land Use Implementation. Map Created by Dida Community Members.

Corridors that are considered monitoring zones divide the subsistence zones, and all resource use within the monitoring zones is prohibited. The monitoring zones are intended to act as a control to the adjacent subsistence zones. The intention of having two controls is for periodic resource surveys that may adjust the number of target species to be harvested in a negatively impacted FMU.

The east-west partitions of the FMUs were chosen to follow preexisting roads that run perpendicular to each other and were originally used to haul *brachylaena* timber from the sawmills located within the forest in the 1940s. The roads are currently unused by automobiles, and are instead used by adjacent communities to travel into the PFM zone. They are considered paths more than roads, but the width of the old roads still remains

due to soil compaction. Along these roads, trees painted with painted stripes to indicate the resources permitted for use within the different FMUs. The controls are marked with red for monitoring zones, yellow for usage clearance, and blue for the biodiversity zone. The end of the PFM zone 3 km inside the forest is marked with three colors: green, blue, and red. To divide the two usage zones of poles and fuelwood, yellow, blue, and red are used. The yellow indicates that the separation is between two usage zones. Colors are used because the majority of the adjacent residents are illiterate, although the letters "P.F.M." can be seen along the Sokoke road to indicate its location.

A resource survey, or forest assessment, was conducted within the subsistence zone over a three-month period between February and April in 1997. The purpose of this initial forest assessment was to identify specific tree species that were desirable by adjacent communities yet plentiful enough to be harvested in a sustainable way[9]. The identification of tree species was conducted using ten members of adjacent communities, including local tree experts, who did a sweep of the zones with a 2m buffer between each member. The forest assessment showed that healthy, desirable trees were too few for sustainable harvesting, yet there was an exception made for ceremonial cutting, such as burials.

The management of the PFM framework is a joint venture that includes the members of DIFAAFA, KFS and KEFRI. Those who are allowed to participate in PFM and benefit from forest resources are residents who reside 5 km from the forest boundary (Mbuvi, *et al.*, 2004). The parastatals consulted ASFADA as a representative of the many communities surrounding the forest. The Kenya Government, on recommendation of the ASFMT, approved implementation of the pilot project in 2002. Many stakeholders saw it

as the model for future PFM development throughout the state and the location where it was implemented is a site visited frequently by groups in Kenya, Tanzania, and persons affiliated with foreign aid organizations interested in the PFM process.

Unfortunately, there is little progress on the Dida PFM project since its inception and implementation. Due to the moratorium on harvesting indigenous trees, the FMUs are not being utilized by the CFAs, and only adjacent communities have legally utilized the fuel wood zone. Zone partitioning has allowed fuel wood to be spatially regulated, but forest access for fuel wood was available to communities prior to partitioning. Therefore, there is little left to do but conduct area patrols by DIFAAFA members and KFS rangers. With this stagnation on the PFM process, little movement on the development of the CFA's management plan and recruiting of community members into the CFA has taken place and has reversed in its effectiveness. DIFAAFA officials have expressed concern that due to the length of stagnation, many former members—initially enthusiastic about participatory development and willing to pay a membership fee—have dropped out of the CFA and used their funds elsewhere in the community. As a frequent stream of membership fees are required by the Societies Act to maintain the CFA, the feedback loop may jeopardize future community participation as fewer members are able to support the project.

Interviewees from parastatals and NGOs who are close to the project—and have been since its inception and implementation—are also frustrated by its stagnation. According to Washington Ayiemba, a large reason for the stagnation is a continuous shift in personnel in the parastatals. The more shifts in leadership, the less excitement there is in the initiative (or initiatives, in a general sense). When leadership leaves for a different

post somewhere in Kenya, much of the knowledge they have about that project or initiative goes with them. This has been the case with the PFM project at Dida. Once the financial support for the project dried up and parastatals were expected to use existing resources to maintain the project's momentum and development, it became another development project in a long list of development projects, and many of those development projects had current funding—thus more momentum. The more leadership rotation takes place, the less likely it is to be understood and/or addressed.

If there is a dying interest from once-involved community members, there are subsequently less funds for communal support locally for the association to continue. If there are fewer funds, those who have initially been trained at the local level to further educate community members struggle to support their own IGAs, much less take time to travel and educate others on IGA production. Without large government funds to support projects that are institutionalized, the meager financial support that parastatals operate on cannot continue to give the project their full support, as they look to newer conservation initiatives that have financial backing from NGOs or the government officers in Nairobi.

At the time of field interviews in July 2011, most of the IGAs approved by the state had been implemented at Dida, but community access to timber within forest boundaries and joint forest management was stalled with anticipation that a new administration in 2013 will remove this statewide restriction[10]. This has placed greater pressure on foreign donors to help support IGAs while allowing consistent CFA participation in general management with local parastatal administrators to be delayed indefinitely. Community representation through CFA administrators is subject to criticism, as there appears to be a disproportionate distribution of access to IGAs that

favor the administrators themselves—who are the first contact point for incoming conservation schemes (Koech *et al.*, 2009). While there are some societies/associations that have operated in Kenya with the main purpose of acquiring foreign aid (Friedberg & Goldstein, 2011), those who operate as the main conduit to aid in the Dida CFA do not appear to be this sort.

The roles between actors in the Dida PFM pilot project can be difficult to understand and assign. Each actor that represents an organization in the ASFMT has a different agenda and perceived role not only in the administration of PFM, but also in the administration of ASF as a whole. The Kenyan government has assigned the ASFMT to implement joint-forest management at ASF through the implementation of the strategic plan approved in 2001. This, in turn, causes the Nairobi representatives at the parastatal head offices to expect their in-field officers to manage the forest in a *de jure* fashion and not a *de facto* one—including enforcement.

The CFA officials in Dida see the role of the parastatals as enforcers of *de jure* forest access and resource use. In turn, the parastatals expect the CFA to maintain the CFA's participation—including joint enforcement—in return. In addition, they have different roles at different times, and this changes the expectations from other actors, both horizontally and vertically linked. For example, Dida CFA members need KFS to contribute their role of forest management and enforcement as articulated in the Forest Act. This is important because they feel that their *own* role in the PFM process depends on KFS representatives upholding their end of the bargain. Without KFS upholding the perceived role of those within the Dida CFA, members imagine the process collapsing due to unenforced forest access and resource extraction, non-equitable actions on training

and participation, etc. KFS requires that the CFAs role is to perpetually co-enforce partitions of the forest (FMUs) and continue to educate and recruit community members that may illicitly use the forest for resources.

Since Dida is still used as a model for PFM success within the East African region, parastatal officials, mainly Mr. Mbuvi from KEFRI, perceive the role of CFA officials to present the project as a success and continue to promote, defend, and implement their CFA management plan. CFA members are expected to give an example of what has been accomplished, why it has been accomplished in the manner it has (e.g. FMU color coding), and promote its successes. With multiple partners and stakeholders from states within sub-Saharan Africa, Europe, and Asia visiting Dida to see how the project has been implemented, Dida CFA members believe the PFM project is becoming only a façade for development instead of an actual example of rural participatory development.

While the CFA has felt they continue to live up to this role, they also seem to feel that the ASFMT role (as KFS and KEFRI are a part of) of fighting to have the project move forward is not being upheld; This, they have told me, can be accomplished by efforts as difficult as pressuring head offices in Nairobi to simple gestures such as providing the CFA with payment for tours/visits for foreign stakeholders and proceeds from video materials created with the CFA's participation (Dida CFA members, personal interview, August 29, 2011).

ASFMNT members see a part of the CFAs role to be one that goes beyond the physical management of ASF. Conservation education of non-CFA affiliated community members is a strong component of the overall PFM agenda. As with many conservation management education schemes, a few community members are trained—often in a

centralized, distant locale where others can be trained in tandem—on IGA techniques, such as aloe harvesting, agroforestry, and beekeeping. The cost of these education programs is covered by funds that are part of an overall conservation initiative-funding package. In the case of ASF, these costs were largely covered by USAID and Nature Kenya during the PFM pilot project and by A Rocha Kenya (via foreign donors and ecotourism revenue) through their ongoing ASSETS[11] program. While these education sessions are often successful in training the few that are chosen to participate, the success of those few returning and educating those within their communities are less successful. In some cases, those who were trained expect to be reimbursed for work lost by training other community members, both within their own villages and in villages adjacent to them. Without this payment, the perceived roles and responsibilities between actors collapses, and the intention of the program stalls or collapses as well. Without addressing role expectations as a vital component, a select few benefit from external conservation education through received knowledge (and, arguably, received *wisdom*) as well as future access flows, such as social, economic, and education access flows.

Representatives of the state expect the parastatals and communities to adhere to *de jure* joint-forest management policies written in state documents, yet both parastatals and CFA communities cannot carry out these policies unless all state mandates are both enforceable and clearly written. Conservation NGOs need the parastatals to protect the forest through enforcement—either through traditional exclusionary practices or joint-management techniques—but also expect forest-adjacent communities to uphold the PFM framework agreed upon during the pilot project.

Notes

[1] Also called Arabuko-Sokoke Forest Management *and Conservation* Team, but the acronym ASFMT is still used.

[2] In the proceedings document of the Zonation Workshop (2001), four workshops are listed in addition to the eight listed here. Additional workshops listed in the 2001 zonation document include "Illegal Activities," "Policy, Legal," "Environmental Profile," and "Crosscutting Themes." While some of these topics are frequently covered in other workshops and in the finalized 2002 management plan, there are no records in the KEFRI library (the depository for these documents) nor are there references to these workshops taking place in other documents.

[3] It is unclear in the PRA report whether women were included in the elder and youth groups or if all women (regardless of age or social status) were placed in one group. If this was the case, a 3:1 ratio imbalance may have affected the priority ranking, as well as affecting the women's subgroup as there would undoubtedly be multiple communities within the umbrella "norm."

[4] In the six years following the fence's completion, human homestead establishment around Shimba Hills increased by 36% near the fence as community members felt safer closer to the reserve.

[5] The order of villages in each CFA is listed spatially and not alphabetically or hierarchically. This spatial order runs from south to north.

[6] Foro village is not listed on the PFM map in the office of the warden of KWS as being part of the Kakuyuni-Mabuani PFM area, but this may be an oversight. The village boundaries that fall within PFM areas on the office map are not shown, yet it is the only village that seems to have been excluded. I have included Foro village due to its listing on the "population density surrounding Arabuko-Sokoke Forest" map found in the ASF management plan (ASFMT, 2002, pg. 5). It is possible that there are political reasons that Foro is not listed as it may have been joined with either Magangani or Mabuani.

[7] The autonomy to manage their own treasuries is a curse and a blessing for small societies around ASF. Membership numbers fluctuate (decreasing more often than increasing) as the society matures. This means that the collection of monthly fees and saved funds fluctuate and decrease as well. Because of the nature of the societies helping out fellow members when they are financially in need, using saved funds can deplete the treasuries or not be reimbursed due to members unable to pay. This limits the funds with which the societies can accomplish aspects of conservation initiatives that they would like to. In this case, it may be beneficial to have a transparent centralized location where funds are stored, such as a bank account managed by the umbrella group ASFADA. This would bring in a party that is not directly involved within the community where pressures of fund distribution would be prevalent. While there may be positives to this method, there may be more drawbacks than benefits. Access to funds by society members would be difficult as the nearest bank is in Malindi approximately 20 km from the forest. Coordinating with CFA members and ASFADA officers may be ridiculously difficult. Therefore, treasury funds would not be available to community members for common local tasks affiliated with the association. In addition, there are trust issues between CFA members and ASFADA. Mismanagement of funds may be perceived whether or not there is evidence of mismanagement. Mismanagement may also be the differences in perspective of entitlement and how the funds should be spent. For instance, when talking with the head of ASFADA, he expressed frustration that due to his role as chairman, he was not provided with a new motorcycle using ASFADA funds. He was frustrated that he had to use his own motorcycle for village visits, and the wear and tear these travels accrued was impractical. Contrary to this view, almost all villagers I discussed ASFADA with had not seen or heard of ASFADA representatives visiting them, although some did not know if ASFADA visited area chiefs. Therefore the spending of ASFADA funds on a new motorcycle may not be thought of as important to those who collect the CFA funds. This is just one case where interviewed community members question the level to which ASFADA represents adjacent dwellers and their interests.

[8] I am unsure what these revisions were.

[9] It is unclear what the disturbance criteria used during the 1997 forest assessment, such as canopy cover, understory diversity, biodiversity/species richness, or habitat impact on avifauna.

[10] It is difficult to gauge whether or not the results of the 2013 national election will have an impact that the majority of the coast desires. Uruhu Kenyatta, the elected president, was not popular in the Coast Province (e.g. Malindi constituency gave Kenyatta 17% of the vote and Odinga 83%). In a post-election analysis article, Justin Willis, professor of history at Durham University, believed that decentralization of power given to provinces and newly-created counties does not have allies in the incoming President (Kenyatta) or the Deputy President (Ruto) (Willis, 2013). Willis stated that Ruto opposed the constitution and Kenyatta was "ambivalent" about it, which will likely increase coastal dissatisfaction in the way land and environmental policies are interpreted and enforced (Willis, 2013).

[11] ASSETS intends to use the bulk of the funds needed to sustain the education program, but due to the low amount of ecotourism funds generated in A Rocha in ASF, most of the funds come from foreign donors providing funds specifically with ASSETS in mind or from A Rocha's own money streams that were not initially intended to support the education program.

CHAPTER VI

CASE STUDY 2: NGAMANI ANTI-BUSHMEAT PROJECT

The second case study examines an anti-bushmeat initiative situated in Ngamani village on the northwestern corner of ASF. Ngamani village falls within the Malanga sublocation. The Germany-based NGO, Nature and Biodiversity Conservation Union (NABU) financially sponsored the anti-bushmeat initiative. NABU worked in conjunction with Nature Kenya, an NGO that is based in Nairobi but with local representatives who work on an initiative-by-initiative basis.

According to Nature Kenya's then-project representative, Patrick Sirya, and members of the Malanga Anti-bushmeat Group[1], the project began as an initiative to reduce pressure on the proliferation of illicit small animal hunting within the boundaries of ASF. Due to the infrequency of small mammal sightings within the forest and the large number of discovered snares in every portion of ASF, conservation organizations, KFS officials, and NMK officials consider it to be a serious issue facing the forest. According to NABU's website, their objective in Kenya is to support "long-term conservation of nature with innovative ideas in co-operation with local partners[2]" (NABU, pg. 1). Yet while NABU's website proclaims they have "created an all-encompassing programme to reduce poverty in the communities around the Arabuko-Sokoke Forest by helping the local population to help themselves" (NABU, pg. 1), the only initiative that might be part of this "all-encompassing programme" discussed or mentioned to me by Nature Kenya or Ngamani residents was the anti-bushmeat project, although their official website also states their program includes "breeding butterflies, bee-keeping, mushroom cultivation, tree nurseries and ecotourism" (NABU, pg. 1).

According to Sirya and Ngamani community members, the anti-bushmeat project would attempt to develop alternatives to animal snaring and tree cutting in ASF by educating adjacent communities about different types of animals that could be raised domestically and either used or sold for protein, dairy products, or live animals. In order to benefit from conservation initiatives, community members wishing to work with NGOs must register with Kenya social services, similar to the requirements of CFAs. In 2009, the Malanga Anti-bushmeat Group registered as an ASF Wildlife Conservation Group and opened up a bank account. Three villager groups were part of the larger Malanga group: Ziani, Ngamani, and Kisimani[3]. In total, there were eight groups (each consisting of 15 members) part of the initial project and divided into four sublocations in different parts of the ASF boundary: Malanga (NW), Dida (SW), Mida (NE), and Matsangoni (SE).

The project performed its own PRA that identified the needs of community members—including the hunters themselves—who were part of the participating groups. The results of the PRA identified which species of animals each group felt would best succeed in their specific environment and which would lead to group members being trained in rearing that species. Group members included those who were taking part in illicit snaring activities, but only Dida had a group (one of three) that consisted entirely of poachers[4]. After many discussions as part of the PRA, it was decided that Malanga desired guineafowl (*Numidida spp.*)[5] whereas Dida desired goats (Somali or small East African spp.[6]).

Because of the project's small budget, only Malanga would actually be eligible for funds by NABU through Nature Kenya, and only the village of Ngamani would

eventually receive any funds. It therefore became a pilot project for the greater anti-bushmeat project which meant the energy, time, and resources community members in other areas spent on the PRA was for naught. Guineafowl were the ideal choice for the Malanga area for two reasons explained by Ngamani group members: guineafowl are more resistant to disease due to their native status to the region and they are more desirable by community members in the market. Unfortunately, after attempts to acquire guineafowl, Nature Kenya and the Ngamani group were told by KWS they could not raise guineafowl due to the species being listed as wildlife by the Kenya government and therefore needed a permit—something the group was unable to afford. Incidentally, the crested guineafowl, the most common type domesticated in Kenya, is listed by the International Union for Conservation of Nature (IUCN) as being of "least concern" on the Red List of Threatened Species scale of wildlife (IUCN, 2012).

In lieu of guineafowl, the Ngamani group was given chickens to rear, but chickens were not considered a positive option due to the species' high disease rate. NABU supplied the funds to pay for 35 chickens, but the construction of coops were the responsibility of Ngamani villagers. While there were originally 20 members in 2009, collecting enough funds to build the coop was not feasible. Friends of the Arabuko-Sokoke Forest (FoASF), in collaboration with KFS, supplied the building materials for the coop. The materials largely came from confiscated timber illicitly harvested from ASF and cached at the various forest stations around the forest.

Within a month—the villagers gave the exact date of June 16, 2010—disease struck the 35 chickens, and all perished except five. While NABU promised to send one member from each group to a veterinary specialist to be trained, this didn't happen.

Group members attempted to contact NABU after the majority of the chickens died, but because NABU visits to the community were very rare, the timeliness of the issue passed. During the time of the interview, it had been eight months since the group had been in contact with a NABU representative. When asked if the group had confronted NABU or Nature Kenya about why NABU failed to keep their promise of full group member veterinary education and follow up, group members claimed they had not asked. Instead, group members explained that the pilot project had obviously collapsed. To prevent the remainder of the chickens from dying, the constant upkeep of the mud and pole coop is necessary to maintain a healthy environment from disease and predators. Unfortunately, the coop fell into disarray after the 30 chickens perished from *kideri*, a type of fowl typhoid (Danda *et al.*, 2010), due to the inability to pay for the upkeep using funds from the sale of eggs or chickens.

Because of their initial excitement over the project, group members claimed they would continue to contact NABU in an attempt to start fresh with new chickens and new funds, but they felt this was not going to happen. Instead, the group was eager to find a different donor to help with starting the project again. But no donor has shown interest or come forth. As a result, some members have lost interest in the income-generating or protein-generating scheme and have returned to the forest to snare animals in the forest, which the project had been so enthusiastic to curb. Instead of domesticated chickens, community members were collecting suni, bushback, forest pigs, elephant shrews, and duikers. And while the remaining members of the group is encouraged by the increase of two chickens and three out of the seven now breeding, it is not enough to convince

community members that the time and energy needed for chicken rearing is beneficial as an IGA.

That isn't to say the group members are not collecting funds. The remaining members are still dedicated to collecting ksh. 50 per group member per month. Yet only a fraction of this revenue goes toward chicken rearing. The group members are all too aware that more food for chickens means more eggs and plumper chickens, but the little money they are able to raise goes to *Casuarina* tree nursery planting instead of chicken rearing due to the reliability and establishment of the latter as an IGA.

The money spent on *Casuarina* planting goes to buy seeds from KEFRI, building the nurseries, plastic tubes needed for the seedlings, a $10L^3$ water tank, and a watering can. Yet it is the water that consumes the most money for maintaining a nursery. According to the region, a jerrycan of water (20L) costs ksh. 3, which can water 500 seedling packets once out of the two times needed each day. Therefore, 500 seedlings need ksh6 per day. This can be a significant amount if each month it takes ~ksh. 186, which is the equivalent of four group member's monthly contribution) to water a tree that will take at least THREE YEARS (equivalent to ~3 meters) before it is commercially valuable.

While it is difficult to gauge the number of group members who are in poverty, it is wise to assume the monthly contribution required for membership is difficult to achieve for most members. The difficulty to pay is common throughout conservation groups bordering ASF. One reason it is difficult to maintain enough membership revenue is the lack of consistency in membership fees collected. This problem is not isolated to those who paid membership fees then found the program to be unsuccessful or not useful

and subsequently left the group. It is also a major component of successful groups who have some members with a diverse IGA outlet of income. When looking at poverty in Kenya, it is necessary to look at both generated income as well as consumption needs (Suri *et al.*, 2008). Many members must use funds that were slated to cover membership fees on an incredibly diverse number of needs, from secondary school uniforms and supplies to the ever-increasing cost of maize flour[7] (Kenya's dietary staple) to fresh water. A reduction in crop production due to sustained drought in the region has compounded financial issues that adjacent community members face.

Again, we can see the importance that perceptions of actor roles have in this study. There are horizontal linkages between community groups, such as poachers, membership participants, and non-participating community members, and anti-bushmeat groups from other villages. Each of these community groups interacts in relation to this conservation initiative, as poachers, non-participating community members, and anti-bushmeat groups from other villages look to the membership participants to demonstrate the feasibility of the IGA. The membership participants, in turn, look to the poachers to participate in the group to maximize the project's effectiveness. By looking to these groups in turn, they are projecting their views on each other's role. It would be naïve to believe that these groups are homogeneous or are the only groups influencing each other's actions. Each member has agency and acts through that agency both inside and outside of the group.

Vertical linkages can also be examined. NABU and Nature Kenya look to the group members and poachers to adhere to the requirements of their membership responsibilities, such as maintaining a treasury, collecting membership fees, utilizing funds in a manner that represents the expectations of NABU (i.e., on chickens and coop

building), and influencing various community members on the benefits of the conservation initiative (by way of making the initiative successful via sustainability). Nature Kenya also expects poachers and group members to utilize the conservation initiative, and FoASF expects the initial donation of poles from KWS will be used to construct a chicken coop and continue to maintain it. Because it is the responsibility of KWS to patrol and protect wildlife in ASF, they rely on the roles of NABU and Nature Kenya to further educate adjacent communities on alternative forms of protein and promote small animal rearing/husbandry as an IGA. The government of Kenya relies on NABU, Nature Kenya, and KWS to fulfill a role in which it cannot fulfill itself, mainly education on conservation and IGAs.

In turn, Ngamani group expects the role of NABU to adhere to the promises they make. They also see NABU's role as being one that should continue to fund a project and see its logical successful end. In the case of Ngamani's chickens, this logical successful end would be the survival of the chickens (for a much longer period than one month), the knowledge and ability for group members to administer medicines for disease, and the successful breeding of chickens with initial revenue needed for coop upkeep and possible expansion of the IGA base.

Yet there are also horizontal linkages on the scale of the NGOs. Because NABU operates out of Germany and relies on Nature Kenya to implement the project at ASF, they expect sufficient communication between Nature Kenya, NABU, and the participating communities to spend the designated funds and be transparent in issues that would become obstacles in NABU's objective: "reduce poverty in the communities around the Arabuko-Sokoke Forest by helping the local population to help themselves"

(NABU, pg. 1). If the anti-bushmeat project is a major component of NABU's "all-encompassing programme" around ASF, its success would be fundamental due to it being the only IGA that *substitutes* protein sources instead of relying on money earned through markets (e.g. beekeeping, butterfly farming, and tree nurseries). Yet according to group members, the project was left hanging and allowed to collapse due to a break in communication caused by a change in Nature Kenya's field representative.

Interestingly, the Ngamani group does not attribute this break in communication to Nature Kenya but with NABU. Therefore, a change from a Nature Kenya representative who was an active proponent of the project to a representative who no longer makes frequent visits to the groups it helped establish —thus not a proponent—is a direct fault of NABU's role responsibilities. The Ngamani group sees it as broken promises by NABU. The group then looks for either NABU to start the project anew or for the group to secure a new financial donor to continue the abandoned NABU (and Nature Kenya) project or fund a new project.

The manner in which the Ngamani group calmly spoke of different NGO coming in to pick up where NABU left off with funds and connections further illustrates the interdependencies involved in conservation initiatives. While it shows how rural communities have become accustomed to NGOs and researchers that provide access to social, economic, and political capital and access, it also reflects the base state of many groups interested in conservation. Many rural areas are impoverished to the point that any change in investments is often an unrealistic expectation from NGOs who implement these conservation initiatives. The frequent flood of aid coming into rural communities from conservation organizations may reduce the effectiveness of conservation initiatives

due to the built-up expectations that if one initiative fails, another initiative with an untapped wallet will come in to either continue or replace the previous, oft-failed initiatives in that area. Chicken rearing, butterfly harvesting, and afforestation initiatives are not necessarily received wisdom from Western-based NGOs and local government representatives who have been influenced by such wisdom. All received wisdom cannot be considered an evil to be shunned by the underdeveloped world; Technological appropriation and diffusion are cultural constants. And where there are large funds (and competition) available to "improve" on technology, there will be places to appropriate its diffusion, such as mosquito nets provided by NGOs in Kenya's Western Province that are used not for sleeping under but are instead used for fishing and farming. Communities adapt the technology for their perceived needs instead of their intended use due to the perceived needs of those communities who prioritize *their* needs and in turn trump the perceived needs and/or desires of NGO and government health agencies (Otenyo, 2011).

Notes

[1] There were attempts to contact NABU representatives, but there were no returned responses.

[2] While the quotations taken from the NABU website are verbatim, it should be noted that the English version of the websites appear to be roughly translated from German and may be an unmonitored electronic translation. Therefore, the intention of phrasing by NABU may not be as condescending as the website phrasing implies.

[3] The order of villager groups involved in the project is listed spatially and not alphabetically or hierarchically. This spatial order runs from south to north.

[4] According to Patrick Sirya, this group of poachers never felt comfortable being a part of the project, for they felt it would entrap them and highlight them as being a group conducting the illegal activity and therefore be targets of arrest and/or violence from the KWS. It was also frustrating for Nature Kenya due to the demands of the Dida poachers group wanting aid groups to provide everything for the project instead of registering as a group, paying the cost of establishing that group, and managing it with group-contributed funds (personal interview, July 29, 2011).

[5] Ngamani group members also stated that goats were good for Christmas holidays, but they did not express other benefits for goat rearing. While Dida wanted to rear goats, Ngamani group members claimed that

anti-bushmeat members in Dida are now keeping hares, but they stated hares also didn't survive in Ngamani. I was not given a reason for this.

[6] These species types are assumed, as it wasn't clarified which goat species were recommended, but according to the Kenya Agricultural Research Institute (KARI), these two species are the predominant species in dryland areas of Kenya (Korir, 2008).

[7] The price of maize flour (*unga ya mahindi)* fluctuates often, yet it more often increases in price rather than decreases. Some villagers adjacent to ASF have insisted that since the election violence of 2007, the Coastal Province has experienced an unprecedented increase in food prices. This was initially due to the cost of shipping food to the coast from the Central Province during the violence that shut down much of the commerce in Kenya. But once those routes were operating at pre-election levels, food prices continued to increase. Sustained drought which reduces the amount of *unga* grown in the state, and importing it from neighboring Tanzania both continue to increase the cost of a crop that is vital in maintaining Kenyan food culture and dietary demands.

CHAPTER VII

IMPLICATIONS FOR FURTHER RESEARCH

The complex nature of studying PFM makes it a challenge to understand all of the possible aspects that make a PFM project successful or unsuccessful. The definition of *success* is relative to stakeholders and those who fund projects around the forest. Being an outside researcher from the West increases the difficulties of working with smaller communities. And due to my limited amount of time working in the field and talking with the diverse range of stakeholders involved, this thesis presents an understanding of how the perceptions between actors and its political complexities at the local level. This includes the different roles that actors have within communities and the unknown perceptions between these communities. While spending time with the diverse set of communities and stakeholders would help in better understanding these complexities, it would by no means allow me to fully comprehend them as the dynamics of my role—and thus perceptions of my role—can shift how future collaborations can play out. These possible complications can be seen in the actor role negotiations during my fieldwork and should also be studied in depth.

As an affiliate with both FoASF, NMK, and ARK (at different times more affiliated with one than the other), my role was not only seen as that of a researcher looking at how forest resources were utilized and the impacts it had on communities, forest governance, and forest ecological dynamics, it was also seen as a participant in enforcement. During transect data collection or when monitoring snare activity within the forest boundary, my role was also seen as a dismantler and confiscator of snare wire material that would be taken back to KWS headquarters and delivered to the warden.

Challenging this role expectation brought about different results depending on the actor. For FoASF, the only challenge made was verbally during informal discussions. During these discussions, I expressed my misgivings about filling this role by explaining that *my* role perception was more that of the observer than a participant in enforcement. Members of the ASFMT reacted differently to my role challenge.

The initial challenge was that of my participation in confiscating camping gear, clothing, and logging material found at a small-scale lumber operations within the forest (specifically in the nature reserve portion of the forest). As an affiliate of FoASF, an affiliate of KWS, and I entered the camp, the occupants of the camp scattered into the forest, as we had caught them by surprise. The KWS affiliate told me that it is policy for all material found during these discoveries to be confiscated at that time and returned to the KWS headquarters at the edge of the forest. Feeling I had reached the limits of my role as observer and researcher, I refused to participate in the confiscation, which then led the KWS affiliate to abandon much of the confiscation as well since there was so much to haul back. Instead, we documented the location via GPS coordinates and returned with the confiscated snares found along the trail during our monitoring.

Upon returning and reporting the location to the KWS warden, it was clear that my expected role as a researcher and member of the greater conservation community had been to participate in the confiscation. The warden made it quite plain that the renegotiation of our professional working relationship was not a positive one. This became apparent when during *every* monitoring trip taken after that incident by the FoASF affiliate and me. Subsequently, armed KFS and KWS guards accompanied us whenever we were in ASF. Yet unlike the FoASF affiliate, I was not left alone. Instead of

offering explanations that spoke to needed security for armed poachers (as was my initial thought), it was explained to me that it was due to protection from elephants. In the many months during multiple years of conducting research within the forest also accessed by ASF's elephant community, there had never been any concern for the safety of any person in any of the parties prior to the confiscation incident. During confiscation of poaching camps, etc. from that time forward, my role as confiscator was no longer expected, yet I was still in charge of hauling the snare wires back to camp—a role that I had not challenged with anyone other than my FoASF friend and affiliate during a moment of role reflexivity throughout casual conversation.

During this same conversation, I asked my friend if he also felt conflicted by these multiple roles: one as a forest monitor removing snares and documenting human-inflicted forest disturbance, and the other as a member of the communities who were causing the forest disturbances (e.g. friends and family). Yet his roles seemed to be clear in his mind and speech. He explained that one role helps the other. Without his role as forest monitor and "whistleblower" of forest disturbance, the attention to the issue at large would fall by the wayside, and therefore there wouldn't be any help (through foreign aid, government money streams, or new conservation initiatives) to change the situations that so many of the adjacent dwellers are faced with.

This personal example adds to the roles that actors are perceived to perform but are not the same as the actor's own perception. Without communication between different actors on what limitations there may be for each other's roles, frustration, stagnation, and possible collapse of conservation initiatives can occur. It is important to see how the concept of actor role perception is limited, and not just to conservation

initiatives in Kenya. Rather it is also an important component of *all* cross-cultural conservation projects in sub-Saharan Africa and beyond the continent.

The literature on forest co-management is exhaustive, as this is an important global issue. How co-management has been addressed across the globe, its outcomes and challenges, have not been fully explored in this thesis. The limited literature review and theoretical frameworks addressed in this thesis best represent my research and understanding of how co-management operates both globally and locally, yet because of the field's extensive analysis, this thesis merely scratches the surface, and therefore acts as a springboard for the larger issue as it applies to Kenya—and sub-Saharan Africa at large.

In addition, the PFM process in Kenya is an ongoing and evolving process, as its implementation is at an early stage (Coleman & Fleischman, 2012). Issues addressed in this thesis are snapshots of this process, and because stakeholders—both financial and non-financial—change periodically and without fanfare, documenting this evolution is difficult. To my knowledge, no longitudinal analysis on the PFM process has been conducted in Kenya, although there have been other snapshots performed to see how the process compares with multiple PFM projects around the world (Schreckenberg & Luttrell, 2009; Coleman & Fleischman, 2012).

Due to the sensitivity of illicit timber harvesting and animal trapping, discussions with those involved in the practices are largely non-existent. A trust relationship and proof of anonymity (beyond the promise of a researcher) are needed to explore the issues these communities are confronted with, as well as how intercommunity politics play a role in how the forest is accessed, managed, and harvested.

In addition, the ecosystem dynamics of ASF are frequently changing, and monitoring all of the resource extraction within the forest is a daunting task that has been undertaken by a few local ecologists, NGOs, and researchers (me included). The methodology of systematically documenting forest activity is ongoing. FoASF, its affiliates, and KWS are currently conducting a longitudinal survey of ASF using geospatial software. The aim of collecting this data is to help a diverse set of actors who are interested in conservation, whether it be to develop and adapt conservation initiatives, conduct academic/scientific research, or to develop and implement policies.

As the resolution of orthophotos covering ASF becomes better, clearer, and more readily available, the function of remote sensing can play a large role in monitoring forest disturbance, not only by humans but also by elephants, as both species have large impacts on the habitat within the forest boundaries. In addition, as more faunal population surveys are conducted, the impact that disturbance has on both species and their habitats will become clearer. This data can then be combined with the longitudinal disturbance monitoring data that can ground truth the data collected from the remote sensing data.

CHAPTER VIII

CONCLUSION

Understanding tensions that exist between actors who are dependent on one another to accomplish common conservation goals is immensely complex. The variables that need to be addressed are far ranging, and some have been explored in this thesis. These variables include how different actor roles and the interrelationships between them provide access to different spaces and activities. This includes forest resource access, such as in the case of Jilore KFS guards sanctioning harvesting access to some but not to others. Also access to flows of aid based on the roles that villagers who initially had access to conservation or IGA training do not share it with others based on their belief that there should be additional compensation.

This thesis builds on the existing political ecology literature by arguing that imbalances of power, due in large part to the global world systems structure, establish participant roles through policies set by governments, NGOs, and discourses in environmental conservation. Governments often set environmental policies based on the needs of affluent states that utilize these spaces for leisure activities, such as tourism. NGOs perpetuate the designation of these spaces in two major ways. Firstly, they perpetuate the designation of protected space through the power of revenue from core states in the form of economic capital from both government and private donor funds. These funds are earmarked for specific conservation initiatives that promote either state-sponsored interests/concerns or private interests/concerns, respectively.

Secondly, NGOs choose areas that they feel need the most attention based on areas that peripheral state governments cannot (or choose not to) invest government funds

in. Disinvestment is largely due to a history of structural adjustment schemes that focus investment on capital-generating sectors, such as industries tied to global markets (e.g., commodities for export), land reform that favors private investments (e.g., 99-year land leases to foreign government-affiliated companies), and the removal of domestic spending on basic infrastructures, environmental health, and social programs. Because of the disinvestment of these sectors, NGOs fill these holes using foreign capital that is tied to the wishes of the foreign donors who provide the capital needed to start and/or maintain these initiatives. In this fashion, the global world systems structure—or core-periphery power imbalance and dependency—is maintained.

Power imbalances are solidified through both government laws and NGO operational policies. State laws articulate state, parastatal, and villager roles. In the case of Kenya, these laws are the Kenya Constitution, Forests Act, and Societies Act. They are also articulated through parastatal non-legally binding guidelines created in environmental handbooks. NGOs solidify power imbalances through their desires to meet initiative objectives and through foreign donor decisions made far from where conservation initiatives are to be attempted or in the field. While environmental discourses state that participatory development is the best way for initiatives to succeed, NGOs that are funding the initiatives maintain their power so as to not feel their money is being wasted and the project is in control of the NGO.

Power imbalances are also perpetuated through hegemonies of postcolonialism. The manners in which these postcolonial hegemonies manifest are in confluence with the global world systems structure. Hegemonic discourses of environmental conservation are global, regional, and local. These scales cannot be viewed independently, as the influence

of environmental conservation, roles of NGOs and state authorities, and the meanings of "environmental protection and conservation" before and after independence is multiscalar. Therefore, postcolonialism maintains the importance of role structures that reinforce the perceptions of participant roles in conservation initiatives and the inherent expectations in these perceptions. While actor role perceptions may be structural, acknowledging and being reflexive of this structure is necessary.

In writing about conservation initiatives in Papua New Guinea, anthropologist Paige West (2006) explores how a plethora of conservation initiatives set up in order to help local populations by capitalizing on the natural resources and their "values" can become so convoluted, that roles and expectations between actors can reach a point of irrelevance, and in its place, resentment, mistrust, and an enforcement of received wisdom. When initial attempts at communication fail or falter, it is often much easier to result to a "top down" approach to conservation management than the initial hopes of "bottom up" approaches.

In the first case study explored in this thesis, the stagnation (and perhaps inevitable collapse) of the PFM pilot project in Dida, appears to have much to do with the perceived roles of the immediate actors. But it is also multitude of tied hands due to state laws that can contradict themselves thus cannot be implemented easily. As a consequence, fortress conservation can be much easier to enforce—at least at some level. I have attempted to illustrate that other levels can make more difficult, such as the multiplicity of roles that each actor may have in different situations and with different actor interactions. These role multiplicities can contradict each other and therefore the perceptions within and between actor communities. Distrust of how contradictory these

roles can become has caused great tension between stakeholders (and future stakeholders, such as the two future CFA participants).

The Ngamani Anti-bushmeat Project is also intended to show that conservation initiatives can often break down due actor role perceptions that are not resolved—even *after* the conservation initiative collapses. Local participants of the project still remain frustrated by the lack of role fulfillment by NABU, and while NABU did not respond to my enquiries, it is assumed that they see the roles of the local participants as being played out, as evident from their promotion of the conservation initiative on their German-language website (translatable to English). And it is all to common of a practice of waiting for the next conservation initiative to come in to replace the failed one or to pick up where the last one left off. And yet it is the local participants who are devoted to the failed conservation initiatives that are left without anything to show for their labor, energy, and passions.

The two case studies examined clearly show that achieving awareness and understanding of role perceptions are paramount to increasing the success of participatory conservation initiatives intended to benefit both ecological conservation and community development. This thesis focuses on two types of conservation initiatives: PFM and the various IGAs that often accompany them. An increase in transparency is one way to increase understanding. A required submission of all published research, government documents, and parastatal handbooks to the local KEFRI library would be beneficial. As stated in Chapter II, the literature surrounding conservation initiatives and ecological research was largely absent from this public library.

Awareness and understanding of role perceptions includes an obvious increase of transparency but it also must include engagement of how role perceptions manifest and perpetuate. This can be accomplished in a number of ways.

One approach is to review various the failures and successes of past conservation initiatives in the area combined with an assessment of current issues, as well as ones that are perceived by multiple actors. Combining the assessments from the perspectives of actors at multiple scales can anticipate new approaches to how the initiatives should be tackled. Participants at multiple scales—with their diverse knowledge sets (Robbins, 2000)—can be negotiated and used as benchmarks throughout the initiative process.

To reduce unrealistic role expectations of a diverse set of participants, a conversation that focuses on perceived roles is necessary. But it is the reflective component that is key. One conversation is not enough. Multiple conversations—one at each benchmark reached—would not only increase transparency, but would also continue to keep the issue of role perceptions at the forefront of decision-making. In addition, reflection on how roles influence actions by participants is also important.

Due to the uneven power dynamics in initiative design and implementation, NGOs, parastatal, and government officials, their reflexivity on roles is paramount. It is important for them to ask questions such as "what is my role?" and "how is it being perceived by other actors?" and by asking other actors "what do you expect us to do?" These would help alleviate confusion and animosity throughout the process. Everyone has hopes of initiative success, especially when money is either promised or utilized. Thus reflection upon how roles influence perceptions of progress may decrease failures

of conservation initiatives involving affluent global donors and marginalized local communities.

My own experiences as a white researcher affiliated with conservation organizations and individuals exemplifies why these questions are important. I faced many difficulties in trying to combine my role as an "objective" researcher and the perceived role of snare confiscator. The roles that I could have filled were more than just these two. If I chose to fill all of the perceived roles that the diverse individuals and groups I encountered expected me to, I would have been an activist for specific local organizations, a voice for land rights, a politician, a journalist, a promoter of KWS and KFS policies, an editor for locally-created conservation reports destined for European NGO donors, and an all-around wise man who had answers to many of the structural problems faced by communities including drought, crop failure, poverty, marginalization, and political incompetency. It was vital for me to ask the above questions to ground myself and how my role was perceived—regardless of whether I stated my own role perception before interviews and as succinctly as my translator and I thought possible.

As my research progressed, how I perceived my role altered. Role reflexivity revealed that I needed to be prepared for these roles perceived by communities, and if I did not fill them in some capacity, not only did I feel my legitimacy as a researcher declined, but also my abilities to help them in any way I could. Both of these fears are a symptom of postcolonialism. Finding a line between what I *would* do and what I *wouldn't* do shifted throughout my research, and had I stayed longer than three months, I have no doubt my role would have continued to be negotiated by the communities I interacted with and within my self.

This thesis is intended to assist in opening up avenues of dialogue that have been either disregarded or not explored during the history of these initiatives. While much of this information may not be new to those who live and work in the area, multiple parties I met with expressed that my added voice to the conversation is very helpful in addressing breakdowns in communication and differences of opinions in how initiatives should be carried out increase animosity between participants in conservation initiatives. It is my intention to provide both my own voice and opinions with this information, and also to give voice to many underrepresented people in these processes.

APPENDIX A

LIST OF ABBREVIATIONS AND ACRONYMS

USAID – United States Agency for International Development

ASF – Arabuko-Sokoke Forest Reserve

ASFADA – Arabuko-Sokoke Forest Adjacent Dwellers Association

ASFMT – Arabuko-Sokoke Forest Management Team

ASSETS – Arabuko-Sokoke Schools and Eco-Tourism Scheme

CBO – Community-Based Organization

CFA – Citizen Forest Association

CIFOR – Center for International Forestry Research

CPR – Common Pool Resource(s)

DIFAAFA – Dida Forest Adjacent Area Forest Association

EU – European Union

FADA – Forest Adjacent Dwellers Association (later ASFADA)

FMU – Forest Management Unit

FoASF – Friends of the Arabuko-Sokoke Forest

IGA – Income Generating Activities

KEFRI – Kenya Forestry Research Institute

KFS – Kenya Forest Service

KFWG – Kenya Forest Working Group

KSH – Kenya Shillings

KWS – Kenya Wildlife Service

NABU – Nature and Biodiversity Union

NGO – Non-Government Organization

NMK – National Museums of Kenya

PAR – Participatory Action Research

PFM – Participatory Forest Management

PRA – Participatory Rural Appraisal

UN – United Nations

APPENDIX B

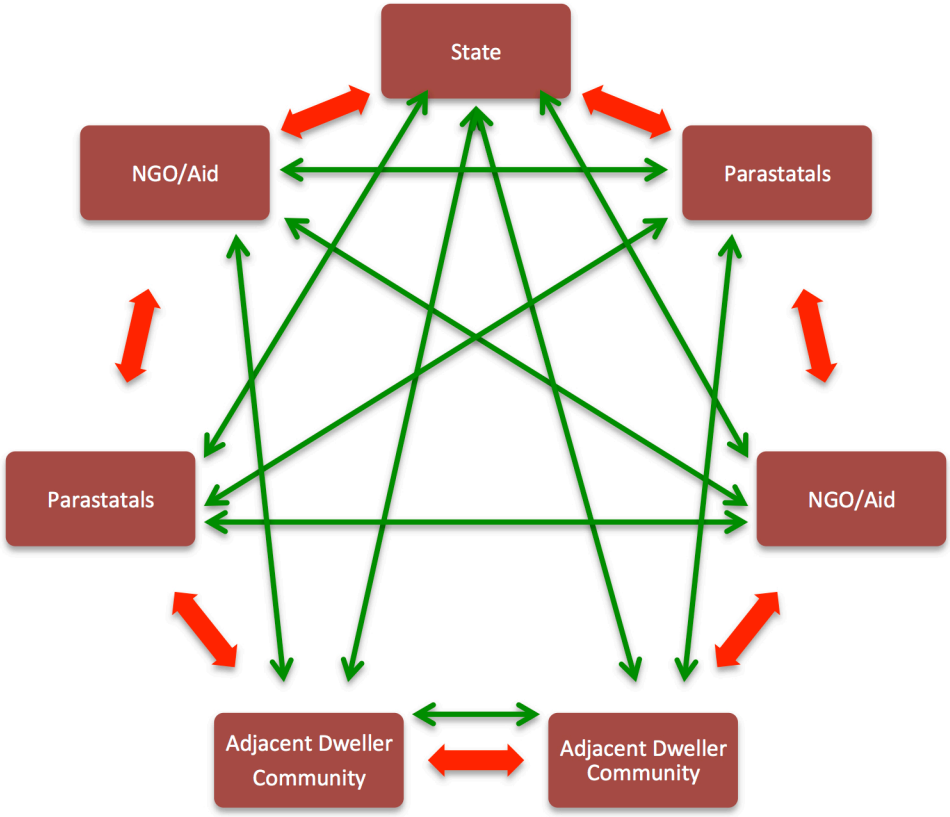
TABLES AND FIGURES

Table 1. Dida Area PRA Results (ASFMT, 1998)

Sub-group	**Problem 1**[1]	**Problem 2**	**Problem 3**	**Problem 4**	**Problem 5**	**Problem 6**
Elders	Inadequate water supply	Human/ Wildlife conflict	Poor roads (inadequate food?)	Inadequate health facilities	Low income	Inadequate schools
Middle-Aged men	Inadequate water supply	Human/ Wildlife conflict	Lack of quality seeds	Inadequate maternity facilities	Inadequate agricultural inputs	Inadequate schools
Women	Human/ Wildlife conflict	Inadequate health facilities	Inadequate water supply	Lack of local market	Lack of secondary schools	Poor roads (tied with problem 5)
Youth	Low income	Inadequate water supply	Human/ Wildlife conflict	Low agricultural yields	Human diseases (e.g. malaria)	Livestock diseases

[1] The exact ranking of each group's issues cannot be verified except the women's group, as the hand-written ranking (incl. vote count) was included as appendix 5 of that document, and this hand-written ranking is different than the reported ranking in the body of the PRA report (appendix used in above chart). Appendix 4 shows "cause and effect" flowchart of the elders subgroup, and this with the three causes including "inadequate food" as one of the top three, yet the body of the PRA report lists it as "poor roads" which is found nowhere in the flowchart.

Figure 1. Interdependency Web



This figure shows the inter- and intra-dependencies between actors at multiple scales. Thick arrows indicate traditional role dependencies under strict state-managed forest, while the thin arrows indicate increasing complexity of role dependencies between actors under joint-forest management. This web is used to help understand complexities of role expectations.

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