



Making 'Mangroves Together': Carbon, conservation and co-management in Gazi Bay, Kenya

Amber Huff and Charles Tonui

Mangroves

A large, abstract graphic of mangrove roots in various shades of green and brown, set against a solid green background.

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Market-based strategies are increasingly being framed by high-level stakeholders as ideal means of responding to environmental problems on various scales. As a result, concepts and mechanisms that link markets to local conservation initiatives such as payments for ecosystem services (PES) schemes, carbon trading and other forms of offsetting, and conservation finance instruments and mechanisms like biodiversity derivatives, water futures, and wetland and species banking have both proliferated and diversified in the past two decades. Market-based conservation is a key component of international initiatives that aim to promote capitalization of pro-environment goods and services and stimulate 'green' or pro-environment economic growth. This paper contributes to a growing body of research in political ecology that seeks to enhance our understanding of variegated dynamics and processes around the 'neoliberalisation of nature' by exploring empirical dimensions of marketization processes on the ground. We bring together tools and insights from social anthropology, human geography, and science studies (STS) to explore changing property rights, modes of governance and the reconfiguration of control and rights to benefit from natural resources in the context of a unique 'blue forest' mangrove conservation project called Mikoko Pamoja based at Gazi Bay in southern coastal Kenya. Mikoko Pamoja is promoted as a 'community-led' mangrove conservation project aiming to conserve and enhance local ecosystems and deliver livelihood benefits to local populations whilst mitigating global carbon emissions through the sale of project-based carbon credits on the voluntary carbon market (VCM). Specifically we ask how changing governance relationships, including community co-management of mangrove forests facilitated through Kenya's Forest Policy reforms, institute marketized environmental management through novel stakeholder alliances and the application of techniques of valuing, trading and consuming nature. Our findings demonstrate the central significance of the 'community-based' participatory forest co-management model to the project's access to mangrove forests for scientific activities and technical assessment, to the project's mobilisation of informal social institutions for mangrove management and to project branding and marketing of carbon credits. While we conclude that Mikoko Pamoja represents a unique example in the field of VCM projects in which the national and sub-national policy landscape, local governance institutions, and international partner priorities have aligned, our findings also highlight how this particular project's successes can mask a number of persistent challenges associated with formal co-management arrangements and issues of equity in marketized conservation more broadly.

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Acronyms

ACES	Association for Coastal Ecosystem Services
ACTS	African Centre for Technology Studies
ANT	Actor-Network Theory
CDM	Clean Development Mechanism
CEC	County Executive Committee
CFA	Community Forestry Associations
ESRC	Economic and Social Research Council
ES	Ecosystem Services
ESPA	Ecosystem Services for Poverty Alleviation programme
FAC	Forest Adjacent Communities
FMA	Forest Management Agreement
GHG	Green House Gases
GOGACOFA	Gogoni-Gazi Community Forest Association
JFM	Joint Forest Management
KFS	Kenya Forest Service
KMFRI	Kenya Marines and Fisheries Research Institute
MPCBO	Mikoko Pamoja Community Based Organisation
NGO	Non-Governmental Organisation
PDD	Project Design Document
PES	Payments for Ecosystem Services
PPP	Public-Private Partnership
REDD+	Reduced Emissions from Deforestation and Degradation in developing countries
SEEA	System of Environmental-Economic Accounting
STS	Science Studies
TEEB	The Economics of Ecosystems and Biodiversity
UK	United Kingdom
UN	United Nations
VCM	Voluntary Carbon Market
WWF	Worldwide Fund for Nature

Keywords

Conservation; mangroves; Neoliberalisation of nature; marketisation; natural resource governance; carbon; forest policy; community-based natural resource management; co-management; Kenya

Abstract

Market-based strategies are increasingly being framed by high-level stakeholders as ideal means of responding to environmental problems on various scales. As a result, concepts and mechanisms that link markets to local conservation initiatives such as payments for ecosystem services (PES) schemes, carbon trading and other forms of offsetting, and conservation finance instruments and mechanisms like biodiversity derivatives, water futures, and wetland and species banking have both proliferated and diversified in the past two decades. Market-based conservation is a key component of international initiatives that aim to promote capitalization of pro-environment goods and services and stimulate 'green' or pro-environment economic growth. This paper contributes to a growing body of research in political ecology that seeks to enhance our understanding of variegated dynamics and processes around the 'neoliberalisation of nature' by exploring empirical dimensions of marketisation processes on the ground. We bring together tools and insights from social anthropology, human geography, and science studies (STS) to explore changing property rights, modes of governance and the reconfiguration of control and rights to benefit from natural resources in the context of a unique 'blue forest' mangrove conservation project called Mikoko Pamoja based at Gazi Bay in southern coastal Kenya. Mikoko Pamoja is promoted as a 'community-led' mangrove conservation project aiming to conserve and enhance local ecosystems and deliver livelihood benefits to local populations whilst mitigating global carbon emissions through the sale of project-based carbon credits on the voluntary carbon market (VCM). Specifically we ask how changing governance relationships, including community co-management of mangrove forests facilitated through Kenya's Forest Policy reforms, institute marketised environmental management through novel stakeholder alliances and the application of techniques of valuing, trading and consuming nature. Our findings demonstrate the central significance of the 'community-based' participatory forest co-management model to the project's access to mangrove forests for scientific activities and technical assessment, to the project's mobilisation of informal social institutions for mangrove management and to project branding and marketing of carbon credits. While we conclude that Mikoko Pamoja represents a unique example in the field of VCM projects in which the national and sub-national policy landscape, local governance institutions, and international partner priorities have aligned, our findings also highlight how this particular project's successes can mask a number of persistent challenges associated with formal co-management arrangements and issues of equity in marketised conservation more broadly.

1. Introduction

Policymakers and politicians, environmental organisations, economists and researchers in a number of fields increasingly frame market forces as the ideal means of responding to daunting environmental problems. As a result, concepts and mechanisms that link markets to local conservation initiatives have surged in popularity and diversified in the past two decades. These include payments for ecosystem services (PES) schemes, carbon trading and other forms of offsetting, and conservation finance instruments and mechanisms like biodiversity derivatives, water futures, and wetland and species banking (Arsel and Büscher 2012; Ecosystem Marketplace 2013). Market-based conservation is a key component of international initiatives like the United Nation's (UN) Green Economy approach, which incorporates regulatory recommendations, market and finance based instruments, and voluntary initiatives to promote capitalisation of pro-environment goods and services and stimulate 'green' or pro-environment economic growth (UNEMG 2011). National governments, intergovernmental organisations and development banks have followed suit in developing their own complementary and interlinked green growth strategies through a growing assortment of collaborations, agreements, mechanisms and partnerships (African Development Bank 2014; Bodansky *et al.* 2014; Fay 2012; UNDESA 2013).

Many ostensibly transformative solutions to climate change and environmental degradation are associated with strategies that simultaneously involve privatisation and the direct or indirect valuation of natural capital and the characteristics and functions of ecological systems. Fundamentally this is meant to bring the natural environment into line with the logic of the global economic system (MacKenzie 2009; UNEMG 2011; UNSD 2014a). These concepts and mechanisms are based in the paradigm of market environmentalism, a mode of resource regulation that promises market-based solutions for addressing both economic and environmental problems (Bakker 2005: 543; Anderson and Leal 1998: 302–303). In this framing, without private property rights and monetary valuation, resource users have neither the incentive nor the value information available to appropriately weigh the trade-offs of resource use (Anderson and Leal 1998). This makes natural resources and ecosystems vulnerable to pollution and degradation through over-exploitation. Coupled governance and market failures are thus conceptualised as the primary cause of environmental problems, and corrective market techniques and governance transformations, brought about through new transformative multi-stakeholder alliances, as their potential solution (Death 2014; Pearce *et al.* 1989; Ring *et al.* 2010).

We use the term 'marketisation of nature' to describe social and political processes and relations by and through which property and accumulative rights are formalised, new goods and marketing institutions, relations and alliances are assembled and co-produced (Çalışkan and Callon 2010; Ossandón 2015; McAfee 2014). The marketisation of nature is part of broader processes of neoliberal globalisation, and encompasses a number of scientific, political, material and discursive techniques meant to bring non-market and non-economic materials, processes and living things, including those that are considered part of natural ecosystems and are objects of traditional conservation, into the purview, disciplinary regimes and operating logics of economics and markets. This includes changes in the ways that local resources are documented and managed at the site of intervention, alongside the application of expert knowledge, detailed technical assessment, measurement and application of standardisation and valuation techniques to natural processes to create substitutable units that can be used and traded as monetised measures of environmental wellbeing and degradation (Sullivan 2009). These monetised measures or units are often discussed in terms of a variety of 'ecosystem services' derived from intact or enhanced already existing ecological settings, which are priced and traded with the goal of 'greening' or mitigating environmentally destructive commercial or consumptive activities elsewhere (West and Brockington 2012; Büscher *et al.* 2012; Fletcher 2010; Igoe and Brockington 2007; Duffy 2008; Castree 2008; Castree 2010).

This working paper contributes to a growing body of research in political ecology that seeks to enhance our understanding of variegated dynamics and processes around the 'neoliberalisation of nature' (Heynen and Robbins 2005; McCarthy and Prudham 2004; Bakker 2005; Arsel and Büscher 2012). While theoretical implications of the neoliberalisation of nature have been widely explored, there is less work that disaggregates different marketisation approaches and links critiques to empirical dimensions of marketisation processes as on the ground. Our work brings together tools and insights from social anthropology, human geography, and science studies (STS) to explore changing property rights, modes of governance and the reconfiguration of control and rights to benefit from natural resources in the context of a unique 'blue forest' mangrove conservation project called Mikoko Pamoja based at Gazi Bay in southern coastal Kenya. This aims to create project-based carbon credits for the voluntary carbon market (VCM) and deliver benefits to local populations. Specifically we ask how governance relationships, involving the institution of new modes of environmental management through novel stakeholder alliances, facilitate the application of techniques that enact new ways of valuing, trading and consuming nature. We ask what trade-offs are involved and what is at stake for project planners and beneficiaries, and ultimately what risks such projects face.

The Mikoko Pamoja project builds on over a decade of ecological and socioeconomic research conducted at Gazi Bay and the aims to conserve local mangrove forests, restore and enhance degraded coastal wetlands and preserve and enhance biodiversity and other ecosystem services. Alongside these environmental goals, the project leverages recent national and county (sub-national)¹ level reforms in Kenya that allow for co-management of forest resources between forest-adjacent communities and the Kenya Forest Service.² In doing so, the project explicitly seeks to involve local beneficiaries in resource management and contribute to local livelihoods and development by generating a number of co-benefits, including through a direct-to-community PES scheme funded through production and sale of project-based carbon credits for the VCM.

We further seek to identify the emerging social impacts and implications of nature marketisation in this context, with a particular interest in ways that new synergies across national level policy reforms, governance relations, and finance may precipitate similarly novel patterns of social impact, particularly in terms of representation and the distribution of power and benefits (Holmes and Cavanagh 2016). As in many cases, political ecology provides an integrative 'critical lens to examine the often uneven effects of market-led environmental discourse and conservation policies' and to reciprocally situate local dynamics in relation to broader processes and networks (Neimark 2012, 893).

We begin with a review of recent debates around ecosystem services, nature marketisation and resource governance. We then present an overview of the research methods and research setting, followed by a discussion of key findings from analyses of project literature and recent qualitative fieldwork conducted at Gazi Bay. Because conservation initiatives like the Mikoko Pamoja project enmesh local ecologies and socio-ecological relationships in the politics of both national level policy and global environmental mitigation, questions and claims regarding sustainability 'transformations' at different scales are at the forefront of the research.

¹ The County Governments Act, 2012.

² The Forest Conservation and Management Act No. 34, 2016.

2. Ecosystem Services, the Marketisation of Nature and Sustainability

2.1 Ecosystem Services: From Metaphors to Markets

The mainstreaming of market environmentalism parallels the widespread adoption from the 1980s of increasingly economic language to describe ecological processes and functions. The language of 'environmental' and 'ecosystem services' (ES) emerged from a strategic effort among ecological economists and others to communicate the importance of non-market ecosystems and biodiversity to humanity in a language reflecting 'dominant political and economic views', and to use this framing to encourage conservation (Gómez-Baggethun and Ruiz-Pérez 2011: 614).

ES is a concept that is used to describe values, uses and benefits that humans obtain from the structures, processes and outflows of natural ecosystems (Fisher *et al.* 2008). The 2005 Millennium Ecosystem Assessment sought to operationalise the concept, and categorised these as *provisioning services* such as food, water, timber, fuels, minerals and fiber; *regulating services* such as air and water purification, carbon sequestration, climate regulation, coastal protection and flood buffering; *cultural services* associated with spiritual and aesthetic values, recreation and cultural heritage; and *supporting services* such as soil formation, photosynthesis, and nutrient cycling (Corvalan *et al.* 2005). In other words, besides the provisioning of conventional commodities in the form of raw materials for production, the concept of ecosystem services also encompasses a variety of non-market³ values, uses and benefits to humans of natural systems (Gómez-Baggethun and Ruiz-Pérez 2011).

With the normalisation of market environmentalism in global environmental policy and scientific discourse, the notion of ES has shifted to literal pricing or monetary valuation of natural resources through initiatives seeking to develop and refine new assessment and accounting techniques (Costanza *et al.* 1997; De Groot *et al.* 2012; UNSD 2014b). In the context of overlapping crises and the rise of 'green growth' discourses of the late 2000s and 2010s, political support for documenting, commercialising and commodifying the diverse values, uses and benefits embodied in the ES concept grew. This has resulted in a number of initiatives meant to inform national accounting and project-based standards, including the System of Environmental-Economic Accounting (SEEA) and The Economics of Ecosystems and Biodiversity (TEEB) (Ring *et al.* 2010; Sukhdev *et al.* 2014; WAVES 2014).

Nature marketisation became increasingly framed as a transformative strategy for achieving sustainability in both environmental and economic domains without requiring systemic changes to existing economic structures, industrial production regimes or patterns of material consumption and accumulation (UNDP 2012). In recent years, widespread political support for strategies to address climate change through reducing GHG emissions has led to the creation of a number of 'cap and trade' type rules and mechanisms to regulate industrial emissions (compliance schemes) and to the establishment of voluntary markets for trade in credits for many types of environmental services. Some high-profile examples in practice include crediting and offset schemes for maintaining biodiversity and particularly for sequestering atmospheric carbon; state or industry led ecological 'rehabilitation' schemes and PES approaches to community-based conservation that are linked to particular projects and often expansive bundles of policies and programmes under institutional arrangements like the

³ 'Non-market' refers to functions and characteristics of natural systems that benefit humans, but the value of which has not conventionally been reflected in monetary terms, in market transactions or in public payments (Gómez-Baggethun and Ruiz-Pérez 2011).

Clean Development Mechanism (CDM) and Reduced Emissions from Deforestation and Degradation in developing countries (REDD+) (Leach and Scoones 2015; Büscher *et al.* 2012; Sullivan 2013).⁴

Despite their diversity, these programmes and practices all use market or market-like incentives to foster investment in *in situ* environmental processes in non-industrialised areas in ways that are meant to connect them to and compensate for environmental damage or destruction, usually in places at great geographical and social distance from the source of undesirable environmental impacts. These practices are often encouraged through instrumentalising principles of compensatory mitigation like 'no net loss' or 'net positive impact' on various scales.⁵ For corporate actors with access to resources and partnerships with environmental groups or government agencies, these principles can be met through the creation of private conservation programmes and environmental rehabilitation schemes. However, many actors find it more feasible, expedient or marketable to voluntarily offset or make up for environmental damage and unsustainable activities (for example hectares of forest clear-cut or emissions from energy consumption) by purchasing certified 'credits' from dedicated brokers and conservation projects that produce them.

Contrary to the market environmentalist perspective, which considers the Earth and its constituent components as part of an imminent market universe, we understand marketisation as an inherently social and political set of phenomena. Drawing on perspectives from political ecology, political economy and actor-network theory (ANT), marketisation can be understood from different constitutive and processual standpoints. From a descriptive constitutive perspective, marketisation involves heterogeneous arrangements of techniques including: rules and conventions; technical devices; metrological systems; logistical infrastructures; texts, discourses and narratives; technical and scientific knowledge and characteristics embodied in living beings and nonliving materials (Çalışkan and Callon, 2010: 3).

In processual perspective, marketisation can also be seen in terms of related and overlapping processes of change. Following Bakker (2005), these include: (1) organisational and governance changes affecting ownership or management of resources, often from public to private sectors, but, we argue, not necessarily limited to direct forms of privatisation; (2) institutional changes in resource management practices that introduce principles (for example efficiency), methods (for example cost benefit assessment; metrification), and objectives (for example profit maximisation) comprising commercialisation; and (3) commodification, the creation of economic goods by applying techniques intended to standardise, or 'make equivalent' a class of goods and services so that they can be accounted for, substituted and traded through market relations (Bakker 2005; MacKenzie 2009).

Bridging constitutive and processual perspectives, we theorise marketisation as an instrumental set of ideas, techniques and alliances that are meant to bring non-market and non-economic goods, services and living things into the purview, disciplinary regimes, metrics, and operating logics of economics and markets.⁶ With a specific focus on organisational and governance changes that affect ownership or

⁴ The full terminology of REDD+ is 'Reduced Emissions from Deforestation and Degradation in developing countries, and the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks in developing countries' (UNFCCC 2014).

⁵ 'No net loss' and 'net positive impact' are principles used for evaluating whether the impacts of a corporate actor (or a particular conservation project) are sustainable for the purposes of public relations or to satisfy industry, regulatory or certification requirements. The principle of 'no net loss' means that, 'damages resulting from human activities must be balanced by at least equivalent gains' (European Commission 2016). When measured gains exceed losses in reference to things like biodiversity, habitat loss through deforestation, greenhouse gas sequestration and other ecosystem services, the terms 'net gain' or 'net positive impact' are often applied (Raine *et al.* 2014).

⁶ A full examination of ES commodification is beyond the focus of this paper. However, in the conceptualisation of nature marketisation that guided this research, we view nature commodities, including commodified 'ecosystem services' and

management of forest resources, we use this theorisation as a framework for building toward a more comprehensive understanding of the ways that natural places and things are enmeshed in broader networks of value and political economies of neoliberal conservation, and specifically of market based environmental mitigation.

2.2 'Local' Mangroves as Sites of Global Intervention

Since the late 2010s, and despite the under-performance of international carbon markets, mangroves have become an important focus market-based carbon-oriented nature conservation, and a lot of work by different conservation organizations has been focused on framing or branding mangroves as a particularly charismatic, vulnerable and valuable ecosystem type in terms of both sustaining local livelihoods and supplying global carbon markets.⁷ 'Blue carbon' is an industry term for the vast amounts of atmospheric CO₂ stored and sequestered in coastal ecosystems such as mangrove forests, sea grass beds, and saltmarshes, and 'blue forests' is the term coined specifically in reference to mangroves, which are said to contain up to six times the carbon sequestration potential of terrestrial forests, mostly below-ground (Nelleman *et al.* 2009; Locatelli *et al.* 2014). Beyond carbon, conserved mangroves and other coastal ecosystems are framed as untapped sites of potential value capture for a number of additional ecosystem services, including coastal protection, fisheries, water purification, and marine and coastal biodiversity (Lau 2013: 1).

Narratives emphasising the importance of conserving, restoring, and even creating, new mangrove forests through plantation-based afforestation activities focus on the delivery of ecosystem services provided by intact, restored or conserved mangrove forests, as well as the hazards of mangrove loss to local economies and ecological wellbeing, because ecosystem services provided by healthy intact mangroves deliver a variety of benefits that enhance and protect livelihoods. In the language of the Millennium Ecosystem Assessment (2005), provisioning services deliver food, building materials for housing and furnishings, fuel wood for cooking and fibre to local communities. Regulating services provide coastal protection, biodiversity, water purification and enhanced fisheries. In addition, mangroves deliver benefits in the form of both cultural services and ecological supporting services.

The narrative 'scales up' to describe the national and international significance of local mangrove conservation to broader beneficiary communities, and justifies other dimensions of technical-managerial governance transitions. Because mangrove forests sequester exceptionally large amounts of carbon, their efficient management and marketisation can be used to mitigate high GHG emission industrial or consumptive activities elsewhere. Achieving these localised and scaled benefits and delivering them to diverse stakeholder communities requires intervention. It means ensuring efficiency in livelihood related resource use, increasing mangrove stocks and enhancing mangrove based ecosystem service provision through plantation cultivation, refining and applying scientific metrological techniques for measuring stored carbon and econometric techniques of valuation to render this carbon legible to markets and thus accessible to consumers interested in mitigating their own emissions and supporting local development. This includes refining and applying carbon and other ecosystem services assessment and accounting techniques and pricing schemes to mangrove-based ecosystem services.

In parallel, sub-national or project-based systems of payments for ecosystem services and alternative livelihood projects must be established to deter leakage, the spatial displacement of degrading

carbon credits, as objects that are simultaneously material, social and discursive, and that emerge from constitutive elements, processes and relationships that they embody and the alliances that come together around them and facilitate their construction.

⁷ See, for example, programme web sites of Blue Ventures, <https://blueventures.org/conservation/blue-forests/>, the Worldwide Fund for Nature (WWF), http://wwf.panda.org/about_our_earth/blue_planet/coasts/mangroves/ and Earthwatch, <http://eu.earthwatch.org/expeditions/managing-mangroves-and-capturing-carbon-in-kenyan-communities>

activities, which occurs when deforesting activities simply move to other areas, to supplement local income that is lost through conservation trade-offs and to increase income and benefits sharing opportunities for local populations, thus reducing poverty (Dyer 2011; Ebeling and Yasué 2008; Aukland *et al.* 2003).

2.3 The Role of Changing Resource Governance

In this narrative, ensuring delivery of benefits to all beneficiaries, local and global, relies on place based transitions in the ways that resources are governed to facilitate the legibility of natural processes and valuation. Specifically, governance arrangements must transition from a more or less free-for-all in which an assumed deficit of management results in over exploitation and degradation, to technical management to ensure efficient resource use and valorisation at a local level. In order to enact these changes, four prevailing governance options or frameworks exist: customary resource management; centralised state control and management; private management; and participatory or community co-management of resources.

Since the 1990s, community based approaches have come to be considered a corrective to a centralised resource management approach that donors widely associate with dismal outcomes due to poor design, inefficiency and corruption (Agrawal and Gibson 1999). The guiding logic of community-based conservation approaches is that, if people living in and around protected places and directly dependent on natural resources are, (1) able to participate in their management, and (2) equitably benefit from conservation activities, multiple wins can be achieved for diverse stakeholders. These wins include facilitating sectoral decentralisation, realising meaningful participation, supporting cultural autonomy, and achieving conservation and local development goals side by side (Agrawal and Gibson 1999; Benjaminsen and Bryceson 2012; Gruber 2010). However, the complexity and diversity of customary governance arrangements in mangroves and the fluid boundaries of resources at the terrestrial-marine interface present challenges to establishing PES schemes and ensuring that benefits from them are equitably distributed and shared among a 'bounded community' of resource users (Locatelli *et al.* 2014).

In standard practice, addressing these conditions requires institutional change to formalise and define property rights (which can be used as a means to draw boundaries around groups of local beneficiaries) and to introduce mechanisms for benefits sharing that are congruent with local conditions including cultural norms of equity and livelihood needs (Cox *et al.* 2010; Locatelli *et al.* 2014). If both customary governance and centralised state management are precluded as options on principle, two dominant options for change remain, privatisation of natural resources, or some type of participatory co-management arrangement. Although outright privatisation remains a popular policy choice, co-management is viewed by many donors and experts as more amenable to addressing concerns about rights, justice and poverty alleviation as resource institutions undergo transitions (Schreiber 2001). However, it is important to note that in practice the institution of hybrid or overlapping governance frameworks is common. One relevant example of this is the proliferation of public-private partnerships (PPPs) for resource governance, often under the banner of participatory or community co-management.

2.4 Marketisation and its Critics

Taken together, these changes carry major social, political and ecological implications. As with conventional forms of restrictive spatial or species focused environmental conservation, marketised conservation can carry high stakes for global environmental justice, local rights and inequalities, landscapes and livelihoods (Barnett *et al.* 2011; Brockington 1999; Lyons and Westoby 2014). For example, rather than representing a transformative solution for overlapping economic and environmental crises, ecological economists and environmental social scientists have claimed that marketisation and commodification of ecosystem services mask ecological complexity and a diversity of non-economic ways of valuing ecosystems, as well as the power and wealth asymmetries that underlie both neoliberal resource control regimes and international ecosystem services-based trading schemes (Kosoy and Corbera 2010). Some critics point out that these practices may well induce rather than rectify

issues of local resource scarcity and degradation, undermine the environmental sustainability of local livelihoods, reduce livelihood capabilities, exacerbate environmental, social and economic inequalities and create situations conducive to violent exclusion and conflict in developing countries (Peters 2009).

Critics have implicated nature marketisation and associated changes in resource governance in broader trends in 'Greenwashing' by polluting firms (Polonsky *et al.* 2010). They have also been associated with resource grabs, particularly 'blue grabbing' and 'green grabbing', in which environmental agendas and national development interests drive large scale appropriation of marine or terrestrial resources from customary control of local resource users and re-allocate resource rights and rights to benefits to ostensibly more efficient user groups (Fairhead *et al.* 2012; Blomley *et al.* 2013; Dunlap and Fairhead 2014; Scoones *et al.* 2013; Wolford *et al.* 2013). These changes can be catalysed through multiple forms of dispossession, including the disarticulation of local resource governance arrangements from cultural values around nature, physical displacement of local communities or parts of communities, or through economic displacement resulting from inequitable transfers ownership, control, access and use rights, and consolidation of rights to materially benefit from natural resources or landscapes among local, national and international elites (Bennett and Dearden 2014; McAfee 2012; McAfee 2014; Peluso and Lund 2011).

While there has been much published, debated and hypothesised around the theoretical implications of the 'neoliberalisation of nature', there is less work that links these conceptual insights and critiques to practical dimensions of marketisation processes as experienced and enacted by a plurality of actors on the ground. This is particularly true of conservation projects that produce ES-based commodities for trade in VCMs and operate independently of the regulatory and bureaucratic constraints imposed by compliance markets and United Nations Framework Convention on Climate Change (UNFCCC) mechanisms. Considering this, and the multifaceted conceptual issues outlined so far, we aim to better understand the 'enactment in practice' of marketised environmental services and their implications for sustainability transformations through analysis of resource governance changes associated with the establishment of a VCM carbon credit producing mangrove conservation project.

3. Research Approach, Methods and Partnerships

In the analysis presented here, we employ an overarching 'global ethnography' approach to answer questions about resource governance and institutional changes that facilitate nature marketisation, as well as some of the unruly spaces that emerge around marketisation dynamics. This approach grounds consideration of global forces, networks and actors in the dynamic histories and politics of particular localities with which they enmesh (Burawoy *et al.* 2000; Gille and Ó Riain 2002; Pierce *et al.* 2011). Our methodological approach thus begins with analysis of field based qualitative data and project documents in focal sites in Kenya that were collected as part of an exploratory research project. These analyses are situated in the broader national and global political economy at the nexus of decentralised resource governance, marketised conservation and climate mitigation. Our methods of field based data collection included in-depth interviews, focus groups, landscape walks and ethnographic observation involving diverse groups of scientists, policy experts, government actors, market actors, students, members of civil society groups, local laypersons and leaders based in the villages of Gazi and Makongeni, the nearby town of Ukunda and the Kwale County Government Headquarters based in Kwale Town, Kenya from May through to August 2016.

We use these analyses to examine one theoretical dimension of nature marketisation introduced above from both processual and constitutive standpoints by asking how changes in mangrove forest governance that facilitate the creation and marketing of carbon credits have been brought about, and through what sorts of alliances, amidst competing aims and claims, both discursive and material, around mangrove conservation in southern coastal Kenya. We also ask about the implications of these changes: how and for whose benefits such changes are enacted, and whose voices and claims privileged and silenced in debate? Are intended outcomes achieved in ways that accrue great benefits for some and entail great cost for others? How are benefits and costs distributed across scales and social and geographic space? What, precisely, is sustained?

Researchers based in the United Kingdom (UK) at the ESRC STEPS Centre, and in Kenya at the African Centre for Technology Studies (ACTS), carried out data collection and analyses for this exploratory project. A UK-based research assistant contributed to the review of institutional and academic literature. The research was carried out in partnership with Mikoko Pamoja project managers, affiliated research scientists from the Kenya Marines and Fisheries Research Institute (KMFRI), members of the Mikoko Pamoja Community Based Organisation (MPCBO) and other local groups in Gazi and Makongeni villages where the Mikoko Pamoja project is based. We have benefitted greatly from the collegiality and hospitality of our partners and from access granted to project information, personnel, workspaces, social events, living spaces and community meetings.

4. Mikoko Pamoja: Community, Co-management, Co-benefits and Carbon Finance in Coastal Habitats in Coastal Southern Kenya

Mikoko Pamoja, meaning 'Mangroves Together' in Kiswahili, is promoted as a small-scale community-led mangrove restoration and reforestation project. It is based in Kwale County on the southern coast of Kenya, about 50 kilometres south of Mombasa and just north of the Tanzanian border. The project involves residents and terrestrial and marine territory associated with the neighbouring villages of Gazi (population ~4000) and Makongeni (population ~500),⁸ which are located near the small coastal city of Ukunda. Mikoko Pamoja aims to restore degraded coastal wetlands and beaches, enhance ecosystem services and counter the negative effects of mangrove overexploitation by members of local populations and licenced harvesters. Drivers of degradation identified by natural scientists affiliated with the project include wood extraction by licensed and unlicensed mangrove 'pole cutters', conversion pressure from aquaculture projects, pollution and degrading effects of climate change.

As part of the Mikoko Pamoja project, approximately 117 hectares of natural and plantation mangrove forest is gazetted under Kenya's forest sector reforms that allow for co-management of forests with local communities. These are sub-divided into different project areas for conservation of what is classified as natural forest, conservation of previously cultivated plantation stock, and areas that will be gradually expanded through new plantation activities. The project also involves a number of community development and broader conservation activities that mean that the project has economic, educational, and ecological impacts far beyond the primary gazetted area. The current operation is modelled after, but not linked to, any UNFCCC climate mechanisms, nor is it associated with any North-South compliance schemes (Wylie *et al.* 2016). Rather, project administration and the direct-to-community PES scheme are funded primarily through engagement with the international voluntary market for carbon credits. The project-based carbon credits produced by Mikoko Pamoja are sold through a dedicated charity registered in Scotland called The Association for Coastal Ecosystem Services (ACES),⁹ with carbon verification through Plan Vivo.¹⁰

Mikoko Pamoja is research-intensive, community-involving and community-driven, and policy-relevant. The project is structured around reforestation and restoration to produce carbon credits, but many project leaders and personnel view the sale of credits as a means to achieve many ends. These include protecting important ecological resources, facilitating research and building capacity of Kenyan natural scientists, preserving and enhancing biodiversity and contributing to local livelihoods and development through a direct-to-community PES scheme to deliver financial benefits and compensate for local trade-offs associated with conservation activities. Because of Mikoko Pamoja and the cumulative work of a generation of Kenyan and international marine ecologists, biologists and postgraduate students, the 615 hectares of mangrove forest at Gazi Bay are the most thoroughly researched mangroves in Africa and are among the most well researched on Earth (Huxham 2011).

Mikoko Pamoja is the first project of its type in the world, and is important to the international conservation community and national and county (sub-national) level policy makers in Kenya due to its status as a demonstration project for informing PES policy, particularly in regards to carbon-based ES. Some consider the project to be a pilot for incorporating mangrove forests into Kenya's national forest policy and nascent REDD+ programme, and the project is in fact considered by some stakeholders to be

⁸ The project is currently undergoing expansion to a site called Vanga Island to the south of the current project area.

⁹ For more on ACES, see <http://www.aces-org.co.uk/why-ecosystems/>

¹⁰ Plan Vivo is a carbon certification organisation that markets itself on the basis of pro-poor values, social responsibility and transparency.

paving the way for the adaptation of REDD financing schemes for mangroves more broadly. As such, the project has garnered local, national and international attention.

A number of organisational and research partnerships dating from the early-mid 2000s have been instrumental in facilitating research into the mangrove ecology of Gazi Bay and have fed in to project development and operations. These partners include the KMFRI, multinational insurance company Aviva, the Earthwatch Institute, and Edinburgh Napier University, Bangor University and Edinburgh University and other Kenyan Government institutions and local stakeholders (Plan Vivo 2010; Huxham 2013; AGEDI 2014). Mikoko Pamoja was technically established under a two-year research programme called 'Swahili Seas', a partnership initiated in 2010 between UK and Kenya based researchers, funded through the DfID Ecosystem Services for Poverty Alleviation programme (ESPA). However, full project activities and the generation of project-based carbon credits did not start until organisational alliances and governance structures were formalised after 2012.

The project's day-to-day operations are coordinated by members of two key groups, the MPCBO that involves residents of Gazi and Makongeni villages, and the Mikoko Pamoja Steering Group that includes an international team affiliated with Kenyan and European research organisations and international environmental NGOs. In addition to a degree of start-up financing and continued support and expert guidance from partners listed above, the project's day-to-day operations are led for the most part by Kenyan scientists and practitioners in collaboration with the MPCBO committee. The MPCBO plays a pivotal role in the project, and is responsible for generating local support for mangrove conservation, managing carbon payments from the PES scheme, mobilising local community members, and carrying out the community development projects that they fund. These projects are decided through a public consensus process in the context of open assemblies, or *baraza*, and Community Based Organisation (CBO) committee members are accountable to other community members if concerns arise over how funds are spent and other dimensions of the development projects. Another important responsibility of the MPCBO is to create awareness on conservation, encourage conservation activities and ensure local residents' compliance with conservation-related rules. The Mikoko Pamoja Steering Group provides expert advice and technical assistance on a voluntary basis to the MPCBO and coordinates scientific and educational activities of the project.

The prevailing rule in deciding on how funds flowing to the MPCBO from the PES scheme will be applied to community development is that projects must provide benefits that are accessible to or shared by all village residents. Funds are divided between the two villages and any resident of Gazi or Makongeni attending an MPCBO *baraza* may suggest or critique ideas for community development projects or raise concerns about how they are being carried out. CBO members are accountable to other community members if concerns arise over how funds are spent on these projects. MP project staff, notably the dedicated Social Impact Officer, but also project coordinators and research scientists, are meant to ensure consistent direct and indirect flow of monetary and other benefits to a variety of local groups, most notably women and youth. They support alternative livelihood projects (usually initiated by the county government or other national Non-Governmental Organisations (NGOs), science education, and create work opportunities to compensate for local costs of mangrove conservation.

Mikoko Pamoja project personnel often use the term 'the community' in discussing the MPCBO committee, MPCBO members and, more broadly, residents of Gazi and Makongeni villages. Yet there is quite a bit of variability both between and within the two villages, and in terms of relative capabilities and power, and in terms of the challenges that different people face in their daily lives. Residents of the two villages have a high degree of labour mobility. Livelihood activities vary by village and are heavily gendered.

Due to their respective proximity to seascape versus farmland, men from Gazi are heavily involved in marine fishing while men from Makongeni are, in the majority, farmers. In addition to subsistence activities, many of which are seasonal, men frequently take on outside jobs in manual labour or the

service sector. However, unemployment is high and these were increasingly difficult to come by in 2016 due to what many residents of Gazi described as a depressed regional tourism economy mainly due to fear around terror related events in Kenya in recent years.

Both licensed and unlicensed Mangrove pole cutting has traditionally been a common livelihood activity of men in the area as well, but this has been displaced, first by intermittently enforced by government restrictions and then, since the early 2010s, by conservation activities. Women's work in both villages involves weaving mats and roof thatches, firewood collection, marine foraging, and preparing and selling food (Crona 2006; Rönnbäck *et al.* 2007). One women's NGO in Gazi, Gazi Women Boardwalk, operates a mangrove boardwalk, guiding ecotourists through mangroves near Gazi village centre and serving home-cooked traditional Swahili foods, but this has also been heavily impacted by the waning tourist market. Locals, and particularly women, often take on both volunteered and paid roles related to mangrove conservation.

The Mikoko Pamoja project was designed with care over several years, and garners praise on a number of fronts. The project is driven by rigorous science, is small-scale and collaborative, and its operations are exceptionally transparent. Project records and reports are available online through multiple platforms, and further information and records can be directly requested from project managers. Staff members are attentive to priorities and communication needs of policymakers and other stakeholders. It pleases policymakers that, even though the project is not currently linked to UNFCCC mitigation mechanisms, it is modelled after them and is thus seen as in good shape, on a project level, to potentially be incorporated into national and sub-national (under the devolved system) level programming in the future and to inform policy and project development more broadly.

Viewing the project from an ecological standpoint, many mangrove conservation and rehabilitation projects around the world use non-native species for plantation monoculture due to differential ease of propagation. In contrast, all of Mikoko Pamoja mangrove plantation activities involve propagation of native mangrove species (namely *Rhizophora mucronata* and *Sonneratia alba*) in degraded areas based on their natural reproductive cycles. This is crucial to the project's scientific research dimension, which has led to new ways of propagating native species; measuring carbon stored in mangroves, including belowground carbon sequestration; assessing mangrove biodiversity and understanding relationships between mangroves and other coastal resource systems and ecological types.

From results of interviews and review of literature, it is clear that the project's designers understand and are responsive to many common concerns and criticisms of market environmentalism and monetary valuation of ecosystems. They acknowledge uncertainty around ecological dynamics, their activities and goals, and give consideration to how political and economic factors influence decisions about the use of resources that have clearly understood market values and important roles in livelihoods of the poor (see Huxham *et al.* 2015: 169). The project is welcoming to social scientists, including those who are critical or sceptical of marketised conservation, and is both welcoming of and responsive to critiques of the project.

The project seeks to avoid exacerbating social tensions, negative social and economic impacts and exclusionary governance arrangements that are so often critiqued by researchers studying forest conservation in the Global South. Project offices are accessible and familiar to locals, as they are located in a building in the centre of Gazi village that is shared with the Kenya Marine and Fisheries Institute (which maintains a mangrove monitoring station there). The project director and visiting research scientists and volunteers live in Gazi village, and the project coordinator is local to Makongeni village. Project staff and volunteers are respectful and considerate of the traditions and religious and cultural norms of the mostly Muslim local population (for example, women working on and visiting the project are expected to 'cover up their busts and thighs' in order to be considerate of local norms of modesty).

The Steering Committee work hard to make sure that carbon revenues and other co-benefits flow to local beneficiaries via the PES scheme, support of alternative livelihoods projects, support of local schools and NGOs and include local residents in many project activities, including mangrove cultivation (planting, tending and transplanting seedlings) and monitoring. A great deal of attention has been dedicated to ensuring that local women and young people particularly benefit from alternative livelihood activities, education events and opportunities to participate in project governance through the CBO and other civil society groups. The co-management plan gives substantial governance authority and weight to the MPCBO in project decision-making, and a significant percentage of funds from carbon sales go directly to the MPCBO to spend on local development projects.

5. National Policy Reform, Mangrove Co-management and Complex Alliances

5.1 National Forest Policy Reforms in Kenya

Understanding the context, and processes and alliances through which marketisation is taking place in Gazi Bay requires consideration of how rationales of management regimes discussed previously dovetail with the changing policy landscape in Kenya, particularly regarding changes in the ways that forest resources are governed. In response to the perception of a history of poor performance of Kenya's forest sector, rethinking national forest policy and forest governance has been a major issue on national and sub-national levels for many years. Key changes affecting the governance of forests have been initiated through overlapping processes of decentralisation and forest sector reform.

Prior to the enactment of the national Forest Policy in 2005, the Kenyan State was considered the owner and primary beneficiary of forests in Kenya, regardless of diverse customary governance arrangements practiced on the ground. In contrast, the 2005 reforms sought many changes to the ways in which forests were defined, valued and managed. The Forest Policy articulated forest benefits in terms of Ecosystem Services and aimed to define and legitimise a more inclusive list of forest beneficiaries, devolve forest management from the central government to local authorities, and facilitate a regime of participatory forest management (Republic of Kenya 2005; Ludeki *et al.* 2006). All non-privately owned forests in Kenya, including mangrove land, is trust land registered by the government as 'Forest Reserve' that can hypothetically be brought into participatory co-management regimes (Huxham 2011).

The 2005 reforms created the semi-autonomous, quasi-private Kenya Forest Service (KFS) as an implementing institution meant to partner with a variety of local level institutions formalized in the new policy, including local forest authorities and community forestry associations (CFAs). This was aimed at facilitating the formation of strong partnerships to carry out decentralised forest management and conservation, for involving local communities in managing and conserving forests and for promoting private investment in gazetted forest reserves and other forest resources in order to increase efficiency in the sector. Joint forest management (JFM) was instituted as a mechanism for creating partnerships between local level groups and extra-local stakeholders, linking the new KFS to forest adjacent communities (FACs) through CFAs, and allowing for co-management of forests by KFS and local communities. CFAs are formed by FACs along with other stakeholders (these may be private sector corporate actors, research groups, NGOs, etc.), and forest management agreements must specify both user rights and benefits that accrue to the CFAs as part of formal management plans (Banana *et al.* 2013). This quasi-devolved governance framework is widely viewed to facilitate better outcomes for local livelihoods than centralised forest governance schemes or resource privatisation.

The decentralisation process in Kenya has accelerated under 2015 and 2016 legislation¹¹ reforms, establishing roles for county governments in forest governance as well, particularly as forest-related issues articulate with broader economic, urban development and environmental planning concerns. The 2010 promulgation of the Constitution of Kenya included key environmental related provisions, including the national forest cover target of ten per cent, transfer of some management functions with regard to ungazetted forests to the county level, as well as creation of county government roles to jointly support development of forest sector in partnerships with the national government. The national, county government and forest sector stakeholders then reviewed the Forest Policy and Forest Bill to realign them with the constitution to further strengthen the devolved functions of the forest

¹¹ The Forest Conservation and Management Act No 34 of 2016.

sector in Kenya.¹² These changes also stipulate that CBOs have the responsibility of increasing cooperation with the national and county governments, non-state actors, local communities and private sector actors to achieve integrated county level development plans.¹³

5.2 New Alliances and Institutional Changes in Mangrove Governance at Gazi Bay

The Mikoko Pamoja project was technically established in 2010, but has been gradually evolving since its inception. The project's technical specification was prepared in 2011, and the MPCBO was granted status as a CBO by the Ministry of Gender, Children and Social Development in 2012. To facilitate the Mikoko Pamoja project, the MPCBO is in turn intended to be part of a larger CFA under a Participatory Forest Management Agreement (FMA) with the KFS. This CFA, the Gogoni-Gazi Community Forest Association (GOGACOFA), comprises twelve new and previously existing user groups who benefit from forests in and near Gazi Bay, including the Mikoko Pamoja CBO. Eight of these groups are considered 'direct beneficiaries' of mangroves forests.

The co-management arrangement between the CFA and KFS is a legal mechanism meant to increase efficiency in mangrove forest management, facilitate community participation in forest governance and ensuring that benefits of forest conservation flow to the community level (Abdallah *et al.* 2014). Building and formalising the co-management arrangements involved, first, the establishment of the CFA and the development of a forest management plan that was presented to KFS for consideration. Based on conversations with the project director, the process of establishing new local level governance institutions and developing the management plan was both costly, requiring about US\$30,000 of external funding, and complicated, requiring substantial contributions from local residents, project staff and international experts.

The management plan included specification of management structures, user groups, beneficiaries and their respective rights and responsibilities, mapping and zoning of conservation activity areas (Table 5.1) and descriptions of the five-year plan for activities in different areas, documenting baseline carbon stocks, explaining plans for carbon capture, plans for securing gazetted mangroves from cutting and degradation, plans for controlling leakage and a specification of anticipated or potential challenges and risks.

Following this process, in October of 2013 GOGACOFA entered into a formal participatory co-management agreement with the KFS. Through this agreement, the CFA was granted both tenureship of project areas described above and carbon rights to which the current PES scheme is anchored. The agreement gives substantial responsibility to the MPCBO to ensure that rules about resource use are adhered to at a local level, and established a legal mechanism by which funds from project-based carbon sales go directly to the MPCBO. For the two fiscal years for which project-based carbon sales records are available, Mikoko Pamoja has succeeded in selling nearly all of the Plan Vivo-certified carbon credits it has produced,¹⁴ and revenue from these has funded a number of small development projects for the community, including the purchase of school books for local children, repairs to the leaky roof of the

¹² For example, according to an interview with a member of the Environment and Natural Resources Office County Executive Committee (CEC), the Kwale County Government, through the County Ministry of Environment and Natural Resources, has sub-legislated the environmental policy and provided multi-stakeholder platform to forest sector players to support tree planting in the county.

¹³ See, for example, the Kwale County Integrated Development Plan.

¹⁴ The majority of credits that Mikoko Pamoja produces are purchased by the Earthwatch Institute, which applies the credits to offset travel-related emissions, and Zero Mission, a Swedish consulting firm that helps corporations develop 'greening' and offsetting strategies. The remaining credits are purchased by individuals and research groups, either for personal offsetting or to support the project and its co-benefits.

classrooms at Gazi primary school and much progress towards building electrified water pump stations in both Gazi and Makongeni villages.

Table 5.1 Mikoko Pamoja activity areas described in the technical specification and Plan Vivo Project Design Document (PDD) (Huxham 2011 and 2013) and in interviews with project personnel

Activity Area	Area size	Activities	Specific goals
Area 1: <i>Rhizophora mucronata</i> natural forest	107 ha. (divided in two sub-areas)	Protection and enhancement of existing natural mangrove forest	General ecosystem conservation; Avoided deforestation; Enhance mangroves for ecotourism benefits; quantified aboveground and belowground carbon benefit; support community development through PES.
Area 2: <i>Rhizophora mucronata</i> plantation forest	10 ha. (divided in two sub-areas)	Enhancement of existing mangrove plantations	General ecosystem conservation; avoided deforestation; quantified aboveground and belowground carbon benefit; support community development through PES.
Area 3: <i>Sonneratia alba</i> open beach plantation	8 ha in total (0.4 new ha added annually)	New plantation cultivation on open beach	Increasing forested area; increasing carbon capture potential from baseline zero; quantified aboveground and belowground carbon benefit; support community development through PES.
<i>Casuarina equisetifolia</i> Woodlot	Unknown: 3,000 trees	New planting on community land near Gazi school	Leakage control; provide fuel wood and timber for local needs; provide income for MPCBO development fund.

5.3 Challenges and Contestations

However, despite successes in establishing the local co-management arrangements and ensuring the flow of funds to these projects, Mikoko Pamoja is not without substantial challenges associated with the multi-stakeholder governance framework and with crucial tensions, particularly around ultimate project goals, within the alliances that have enacted them. In terms of the governance arrangements, establishing the CFA facilitated the creation of the broader project in the first place, but the CFA is unstable. At the time of data collection for this project, even though the MPCBO remained very active, the broader CFA GOGACOFA, the central enabling institution under Forest Policy reforms, was 'dormant' and non-functioning.

The reasons for this were contested among members of different constituent groups whom we interviewed. The Ecosystem Conservator of the KFS based in Kwale County, whilst acknowledging a good relationship between the KFS and Mikoko Pamoja, speculated that this was due to a lack of action by CFA leaders, but that KFS also suffered from a shortage of funding and capacity. She explained, 'we signed an agreement with them yet they are not working to meet that'. She explained further, 'when it comes to implementation, it is their responsibility. They did not even have a work plan the last time

maybe because they were not in a position of writing one because of lack of training. We tried to plan with them to organise how they could be trained but it is also expensive.'

At the same time, some CFA members speculated that it was due to the KFS officers not fulfilling their responsibilities in terms of supporting the CFA. The local KFS officials are viewed by some MPCBO members, some members of other local user groups and some project personnel as prioritising fee collection (monthly user fees from CFA member groups and fees from licensing pole cutters) over support of the community members' conservation work. The Gazi village head cited illegal mangrove pole cutting as one of the major challenges facing the MPCBO, which complicates the job of securing gazetted mangroves from illegal cutting and threatens carbon certification, and lays part of the blame with KFS due to failure to provide sufficient information or signposting to local groups. Another source of discontent with KFS is the fact that they have continued to license legal mangrove pole cutters in the area at a high rate, which many people see as contradictory to the goals of limiting deforestation, controlling leakage and producing carbon credits.

Contested goals and motivations for conservation create tensions and precarity around mangrove governance and the project more broadly. This is due in part to the nature of the alliances that have brought about the changes discussed above. Mikoko Pamoja has brought together diverse organisations and actors with equally diverse goals, constraints and capabilities. Analyses of interviews with on-the-ground project staff and coordinators as well as international researchers involved in the Steering Committee demonstrate that members of the main project personnel generally share a common and primary aim to conserve and research the mangroves of Kenya's South coast, with the community-based scheme and carbon sales viewed as an equitable, pro-poor and climate-friendly pathway for achieving this.

In contrast, from analyses of interviews, ethnographic observation of discussions in MPCBO committee meetings and community assemblies, it seems that funds flowing from carbon sales to the CBO are the primary motivation for local community members to be involved in conservation activities, and they voluntarily forego benefits that could be derived from extraction of mangrove products. People's immediate livelihood and provisioning needs were at the front of people's minds during the 2016 research. In a meeting of the MPCBO committee and Mikoko Pamoja project personnel, a visiting carbon broker from Sweden asked the group, 'What would happen if carbon payments stop?' An elder member of the MPCBO responded plainly that should the payments stop, the mangroves would be cut down to get something from them. He explained that they would be cut down rapidly because of people's immediate needs, even though local residents know more now about mangrove ecology, ecosystem services, and fisheries.

Whether this would actually happen or was positioning on the part of the committee member is up for debate, but this represents a crucial tension in the project. In a one-on-one interview, the Mikoko Pamoja project coordinator, who is also from Makongeni village and keenly understands the stakes for both the project and local residents, further explained that that the funds from carbon sales are what have brought people together as 'the community' more than anything else. He explained the precarity of this situation for the project in the simplest terms: '[...]if the funds are lost, we lose the community'. The implication was that if the PES scheme were compromised, then local support and community-level compliance institutions, the enabling formal governance structures (the CFA and MPCBO), and the primary source of the project's social co-benefits that make Mikoko Pamoja's carbon credits consistently attractive to buyers and politicians, would collapse.

These issues were explained in different terms by the County Forestry Officer for Kwale County, 'When we look at the opportunity costs of Mikoko Pamoja, what they [local community members and members of the MPCBO] are getting is not equivalent to what they are foregoing. They are many issues such as price fluctuations in the carbon market. It is not something that can be depended on by the projects it would like to support. Their income does not cover their administrative activities as such. Alternative

income sources should be sorted and that is where the county government is willing to chip in for it to realise more benefits. The community may give up on the project since its benefits are not great'.

6. Conclusions

Mikoko Pamoja's conservation strategy at Gazi Bay depends on Kenya's 'community-based' participatory forest co-management model at the site level for three main reasons. First, it facilitates the ability to market effectively the project as community-led and its carbon credits as equitably produced and locally beneficial. Second, it provides legal mechanisms to both access territories for conservation activities (through community tenure rights) and to ensure that benefits from conservation activities flow to the residents of participating villages (through community carbon rights) and to actors with stake in achieving the constitutional commitment to a forest cover target of ten per cent in Kenya. Third, the CFA agreement and support of diverse local civil society groups including the MPCBO, means that the project is able to mobilise local *informal* social institutions for mangrove management, including securing mangrove trees from cutters, through social pressure and sanctioning. Despite the contestations arising from complex and diverse conservation and development alliances, this strategy has also engendered a number of strengths and benefits.

Mikoko Pamoja represents a unique example in the field of VCM projects in which the national and sub-national policy landscape, local governance institutions, and international partner and investor priorities have aligned. Because of this, it is an important case to understand and describe, but at the same time it is important to note that this same combination of facilitating variables is unlikely in other VCM settings, and possibly also not transferable to other contexts. Establishing the project on the terms described in this paper has been a gambit of sorts as it has entailed clear risks and uncertainties for the project as well as for local residents, and reflects what can only be an extreme commitment to achieving often-elusive 'multiple wins' on the part of key project planners and local partners. In addition to the alignment of policy, institutions and priorities, assembling the and maintaining the relations for 'making' mangroves work to deliver benefits at multiple levels has required constant, careful and often hidden labour on the part of those with a stake in project outcomes.

According to Taiyab (2005) developers of independent VCM carbon projects are free from the stringent guidelines, lengthy paper work, and high transaction costs associated with engagement with compliance markets or UN mechanisms. This means that they have more freedom in designing and innovating in the context of small-scale community based projects. The ways in which co-benefits of these projects are created in terms of, for example, local economic development or biodiversity, are a key selling point to both project investors and consumers of the credits that the project produces. However, the freedom and flexibility of VCM carbon projects can also mean more opportunity for local or international project developers to engage in Greenwashing or take advantage of local communities and siphon off funds from carbon sales without delivering tangible co-benefits on the ground. VCM projects throughout sub-Saharan Africa have been subject to allegations of corruption; lack of transparency; claims of local marginalisation; inadequacies in the implementation process around free, prior and informed consent; insufficient flow of benefits to local populations in relation to opportunity costs of project participation and of elite capture of project revenue or resource control, exacerbating local level inequalities in wealth and social power (Nel and Hill 2014; Paladino and Fiske 2016). At a broader scale, Bumpus and Liverman claim that the North-South exchange that characterises VCO and other carbon market arrangements (i.e. CDM and REDD+), 'while economically rational to some, can be seen as a case of terms of trade and of powerful countries and carbon traders extracting the low-hanging fruit of cheap carbon reductions from the developing world' (Bumpus and Liverman 2008: 142).

With regard to Mikoko Pamoja, the constitutive elements and relationships that we have discussed, from Plan Vivo certification to native propagation to scientific research, the empowerment of the MPCBO and focus on supporting women's livelihoods and political participation, are co-benefits that are crucial to the Mikoko Pamoja project's marketing image as socially responsible, scientifically sound, policy relevant, responsive to critique, and scalable (Taiyab 2005). It is intriguing to note that, while the

marketisation has been described in terms of 'making things the same' (i.e. in this case a credit for 1,000 tonnes of carbon and carbon dioxide equivalent sequestered in Kenyan mangroves is theoretically commensurate with a certified credit for 1,000 tonnes of carbon and carbon dioxide equivalent sequestered anywhere in the world through any process) (see, for example, MacKenzie 2009), Mikoko Pamoja is effectively producing a care-based and marketable 'virtuous commodity', a 'boutique' carbon, the credits for which have more, and qualitatively different, value in the context of market relations than other credits (Paterson and Stripple 2012).

A result of this is that, despite the well known under performance of international carbon markets and the failure of many VCM-linked carbon conservation projects, Mikoko Pamoja, through ACES and Plan Vivo, is consistently able to sell the majority of the carbon credits that it produces, and the MPCBO PES scheme does deliver regular direct payments from these sales to fund development projects. As with small-batch, shade-grown, fair-trade coffee, certified heritage pork, or local, organic heirloom tomatoes, consumption of Mikoko Pamoja's special carbon credits are luxury goods that facilitate the elite performance of sustainability as it enmeshes distant investors, including students, extractive industry actors, international NGOs and other consumers, in ideal and 'local' conservation relations. Reciprocally, the steamy green 'blue forest' of Gazi Bay, as enacted by a plurality of stakeholders on the ground, is socially, politically and technically enfolded within the overarching narratives of global environmental and economic sustainability as its value(s) are delivered to diverse local and extra-local beneficiaries at a number of levels and to a number of ends.

The Mikoko Pamoja project's successes can mask a number of persistent challenges associated with the project-specific structures and dynamics, but these carry lessons for co-management arrangements intended to facilitate marketised conservation and equitable governance arrangements more broadly. In addition to important considerations for the project's future, these issues bring to the fore significant implications for community control of and access to forest resources. If the project were to collapse due to the defection of 'the community', it is unlikely that resource governance arrangements could simply re-set to conditions that existed prior to the establishment of the CFA with the KFS. Just as the 'blue forest' has become enfolded in global environmental politics and flows of value and knowledge, it has too been rendered legible and assigned particular values in the context of Kenya's environmental and development strategies.

Co-management is framed as a more forest-user friendly form of institutional change than resource privatisation, and is widely associated with claims of ensuring environmental justice, cultural autonomy and sustainable livelihoods for forest-dependent people. But collective tenure rights and carbon rights have only been secured by the CBO through the CFA agreement with the forest service, with Mikoko Pamoja project personnel serving as go betweens and strong advocates for local residents throughout the process. But tenure rights are not the same as ownership or control. Under Forest Policy reforms, the KFS is the arbiter of community tenure rights to forests, holds *de facto* control of gazetted forests, and is tasked with ensuring their efficient management in the national interest. As such, it operates in many ways as a private entity, and in many ways as key instituting actor in resource territorialisation. In the face of this, and reflecting the care-based approach of the project, Mikoko Pamoja project director, in particular, has been involved diplomatically in working with the MPCBO and assuring the KFS that community management is effective. This has been viewed as necessary in order to preclude a possible future move to securitise the gazetted mangroves at Gazi Bay by the increasingly militarised KFS, as such a move could open spaces for new forms of conflict and environmental threat both within mangrove-dependent villages and between residents and government actors.

More broadly, in addition to the complexities of maintaining co-management agreements discussed in this paper, the bureaucratic process of establishing a co-management agreement in the first place is expensive and complicated. Responsibility for initiating the process falls to the local level rather than government actors, who may be better equipped, which practically requires that co-management

agreements be established through collaboration with wealthy elites, businesses and research organisations with access to funding and technical expertise. Although co-management has been framed as an accessible alternative to privatisation in Kenya's forest policy, the procedures for participating in co-management are out of reach for many indigenous and forest-dependent communities. This means that co-management may in fact represent in some cases run the risk of serving as a disguised or obscured pathway to resource appropriation or 'grabbing' by elites and private sector actors under the guise of community management. This is a particularly salient issue with the acceleration of broader decentralising reforms since 2015, as local CFAs are expected to evolve in ways that generate revenue and employment through alliances with county government and private sector actors, thus contributing to county-level and national visions for economic development. In order to realise more equitable forest co-management in Kenya that ensures benefits to people most in need of it, this glaring gap between forest policies, feasibility in practice and equity must be addressed.

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