Design and Implementation of REDD+ projects: Strategies applied in the Kasigau corridor project in Kenya

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George Njoroge - 200658704

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Supervisor: Dr. Susannah Sallu

UNIVERSITY OF LEEDS

School of Earth and Environment

Declaration of Academic Integrity

I have read the University regulations on cheating and plagiarism, and I state that this piece of work is my own, and it does not contain any unacknowledged work from any other sources.

Name: George K. Njoroge

Signed: _____

Date: 23rd August 2012

Course: MSc. Sustainability (Environment and Development)

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ACRONYMES

AFOLU	Agriculture, Forestry, Land Use
CCBA	Climate Community and Biodiversity Alliance
CCBS	Carbon Community and Biodiversity Standards
CDM	Clean Development Mechanism
COP	Conference of Parties
DD	Deforestation and Degradation
FCP	Forests Carbon Projects
FCPF	Forest Carbon Partnership Fund
GCP	Global Canopy Programme
GHG	Green House Gases
ICDP	Integrated Conservation and Development Programmes
IUCN	International Union for Conservation of Nature
KFS	Kenya Forest Service
NGOs	Non-Governmental Organisations
NCCAP	National Climate Change Action Plan
NRPS	National REDD-Plus Strategy
PDD	Project Design Document
PES	Payment for Ecosystem Services
PIN	Project Idea Note
REDD	Reduction of Emissions from Deforestation and forest Degradation
UNEP	United Nations Environmental Program
UNFCCC	United Nations Framework Convention on Climate Change
VCM	Voluntary Carbon Markets

ABSTRACT

Reducing Emissions from Deforestation and forest Degradation (REDD+) projects were initiated in many tropical countries after a transitional agreement on REDD+ was reached during the UNFCCC COP 13 in 2007. However, to date very little research has evaluated design and implementation of these early REDD+ projects particularly in Africa, hence evidence from local experiences with the projects is not forthcoming. The study attempted to fill this knowledge gap by investigating the design and implementation of a REDD+ project initiated in a dryland forest in Kenya which is faced with an increasing threat of deforestation and forest degradation.

An analytical framework delineating key steps and technical outputs in the course of planning and implementing a Forest Carbon Project was used as the lens in evaluating the case study project. Data was collected through analysis of project documents, informal interviews with local community members, key informant interviews with the project developer and field observations.

The study found out that from conception, design and during the implementation cycle, the project adheres to the key principles and approaches for REDD projects in its different aspects. These are carbon modelling, community engagement, forest protection, habitat enhancement and monitoring of carbon. Forest and wildlife protection and conservation measures include preventing further clearing of land for expansion of subsistence agriculture and encroachment through grazing, and containing charcoal burning, forest fires and poaching for game meat and trophies. The project employs a monitoring portfolio for vegetation and wildlife comprising of ground and aerial surveys and patrols. A menu of rural enterprise and community development interventions for diversifying economic opportunities and local well-being are also promoted. These are meant to enable the project to achieve emission reductions from deforestation and forest degradation and to deliver socio-economic and ecological co-benefits.

Revenue generated from sale of carbon credits supports all project activities demonstrating that carbon markets are becoming an important source of finance for forest and wildlife conservation and community development in tropical countries. Vital lessons emerge from the Kasigau Corridor REDD+ project on how forest carbon projects can tailor their design and implementation towards attaining the triple dividends of climate mitigation, biodiversity conservation and diversify communities' livelihood opportunities. The pioneer REDD+ project can therefore inform development of more successful schemes in dryland forests across the tropics.

1. INTRODUCTION

1.1 Background

Deforestation and forest Degradation (DD) is a global phenomenon that occurs in many countries and in varying degrees in different ecological and socio-economic contexts. Tropical forests are increasingly under this threat. Among other impacts, DD reduces biological diversity and affects ecological functioning thereby lowering the capacity of forests to sustain livelihoods and mitigate global climate change.

According to estimates by the United Nations Framework Convention on Climate Change (UNFCCC), 17% of global CO2 emissions originate from the loss of forests as result of unsustainable land use methods and land cover changes. Reducing emissions from deforestation and forest degradation (REDD) was therefore proposed in the UNFCCC as a global collaborative approach to climate mitigation which emphasizes protecting and sustainably managing tropical forest resources in developing countries. The REDD mechanism advocates award of incentives to individuals, communities, projects and countries, for their efforts to reduce forest sector greenhouse gas emissions through avoided deforestation.

Three geographically distinct levels for developing REDD interventions are proposed. These are national, sub-national and project or site level. Landscape level (national and sub-national) interventions aim to generate emissions reductions across a heterogeneous landscape where forest type, legal classification, and deforestation drivers vary, while projects aim to generate emissions reductions based on slowing or stopping deforestation and degradation in a localized area (Madeira, 2009).

After a transitional agreement on REDD+ was reached during the United Nations Framework Convention on Climate Change Conference of Parties (UNFCCC's COP 13) and pending an international binding framework, various REDD-type activities began to be implemented throughout the developing world. The projects are initiated in UNFCCC pilot countries[1] whereby funding for projects is provided through a global fund established by UNFCCC and in non-pilot countries whereby projects are financed through the voluntary emissions reduction markets. The transition period was meant to allow parties to achieve agreement on contentious issues including reference levels, leakage and permanence (see definitions in section 2.1b).

A binding REDD framework will facilitate the achievement of what Angelsen (2008) refers to as the '3E' criteria for REDD: Effectiveness – achieve significant emission reductions, efficiency – achieve the reductions at minimum cost and, Equity – distribution of benefits and costs fairly among and within countries. Under a post 2012 global REDD architecture, REDD+

[1] *Countries selected by UNFCCC for piloting of REDD project on the basis of forest cover relative to total area i.e. those with more than 10% forest cover.*

payments will become available through the official Clean Development Mechanism (CDM) market.

Meanwhile, 'demonstration' or 'pilot' REDD projects are being implemented in diverse forest types, with varying land tenure systems, land use types, local institutional and legal frameworks and driven by varied objectives. In the absence of legally-binding regulatory frameworks on carbon emissions in most jurisdictions, a number of voluntary standards and programs have presented an array of options for REDD+ project development (Seifert-Granzin, 2011). Project development requires complying with rigorous standards of analysing and documenting carbon benefits, working through an array of legal, business and community relations issues and carrying out the challenging work of reforestation and forest and land management activities that go beyond business as usual in order to create carbon benefits (Olander & Ebeling, 2011).

In Kenya, a number of REDD readiness activities and projects are underway and in different stages of development. Many more could be in the pipeline as more actors explore possibilities for establishing REDD+ projects at local, subnational and national scales. Bilateral mechanism, international NGOs and local environmental NGOs and private sector project developers are expected to be key players.

However, to date very little research has explicitly examined the projects, particularly their design, implementation and local experiences with them (Mustalahti et al., 2012). As Madeira (2009) further points out, with few REDD activities underway, little evidence indicates whether REDD projects are meeting their expectations. Hence knowledge on local experiences, challenges and prospects for REDD+ projects is not forthcoming. This points to the need for comprehensive assessments on processes involved and lessons emerging from various REDD+ projects in the region in order to fill this knowledge gap.

The aim of this study was therefore to contribute to this body of knowledge by investigating the Kasigau corridor REDD+ project in Kenya which is among the pioneer projects implemented under the guidelines of the Voluntary Carbon Markets. The specific objectives was to conduct an examination of the design and implementation of the project and to assess how it is targeted to achieve climate, socio-economic and ecological objectives as envisioned of REDD projects. The study also sought to flag out some distinctive process and features, and to glean lessons emerging from the project.

1.2 Ecological and policy context for REDD+ in Kenya

Kenya is among the tropical countries where critical levels of deforestation and forest degradation is matter of national socio-economic and ecological concern and hence the rationale for REDD+. Both underlying and direct drivers of deforestation and forest

degradation are at play whereby clearing of land for agricultural expansion is a major driver of DD in Kenya. Application of the REDD mechanism in the country is therefore consistent with Kenya's target to achieve a ten percent tree cover, up from the current less than three percent.

The REDD mechanism has been domesticated in Kenya through two interrelated aspects: (i) the preparation of National REDD-Plus Strategy (NRPS) 2009-2010 which spells out the guidelines for domesticating and implementing REDD-plus in the country and (ii) the development of readiness activities and pilot projects. The NRPS indicates that planned (legal) and unplanned (illegal) deforestation and forest degradation need to be identified at multiple scales (national, regional, local) and different geographic areas to inform conservation interventions, financial feasibility of reducing emissions from deforestation and forest degradation (REDD plus), monitoring approaches and policy reform. The Kenya Forest Service as the national REDD+ focal point is charged with developing a national strategy for implementation of REDD activities in the country and spearheading local multi-stakeholder activities.

Besides the REDD projects and readiness activities and the NRPS, there are a number of policy and institutional frameworks and initiatives at both national and international levels that have also been instrumental to domestication and development of the REDD mechanism in Kenya. Among them is the World Bank's Forest Carbon Partnership Fund (FCPF) which Kenya joined in 2010, and also supports reductions in emissions of carbon from deforestation and forest degradation.

The Kenya National Climate Change Action Plan (NCCAP) on the other hand includes a low-carbon scenario assessment of the forestry and other land-use sector. The low carbon analysis concludes that the forestry sector has the largest potential to mitigate emissions in Kenya, and restoration of forests on degraded lands is a potential REDD+ activity that can help to increase carbon sinks (Murphy and McFatridge, 2012).

1.3 Navigating this thesis

The next section presents the literature review which explores perspectives on different aspects of REDD project design and implementation. Section 3 outlines the analytical approach applied in examining the case study, and the methods for data collection and analysis. Section 4 presents the analysis of findings. Finally in section 5 we discuss the results in terms of the activities and processes involved and then draw conclusions and offer suggestions for further research.

2. ISSUES IN DESIGN AND IMPLEMENTATION OF REDD+ PROJECTS

2.1a Introduction

Wide ranging debates have critiqued the global architecture and potential for successes of the REDD mechanism. Views on design and implementation of REDD projects are also prevalent in these debates. To infer Mbow et al. (2012), the discussion on REDD appear to be moving from the broad conceptual framing to the local implementation on the ground. This includes arguments on prospects, challenges and opportunities in tropical countries. The literature review examines divergent perspectives on the different procedural elements, technical aspects and success factors for REDD projects. But first, a set of definitions are outlined to enable contextual understanding of terminologies as they relate to the REDD mechanism broadly and REDD projects in particular.

2.1b Definitions of terminologies

Deforestation –two different parameters can be used in defining deforestation (Kanninen, et al., 2007). First, based on land use, Angelsen et al., (2008) define deforestation as the long term or permanent conversion or permanent conversion of land from forest to non-forest. Second, according to crown cover, Hosonuma et al (2012) assert that deforestation denotes the (complete) removal of trees and the conversion from forest into other land uses such as agriculture, mining etc, with the assumption that forest vegetation is not expected to naturally regrow in that area.

Degradation – changes within the forest which negatively affect structure or function of the forest stand or site, and thereby lower the capacity of the forest to supply products and/or services. In the contest of a REDD mechanism, forest degradation results in the net loss of carbon from the ecosystem, which can be measured in decrease in carbon stock per unit area (Angelsenet al., 2008).

REDD – REDD is according to the UNFCCC defined as: reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries through a broad set of approaches and actions. However, Angelsen and Wertz-Kanounnikoff (2008) posit that in discussions, REDD primarily refers to: (i) developing mechanisms to make payments to developing countries for reducing emissions from deforestation and forest degradation and (ii) readiness activities which prepare countries to participate in the REDD mechanism.

REDD differs from Clean Development Mechanism in that, while CDM entails forest-related mitigation only through afforestation and reforestation projects, REDD focuses on possibilities to reduce emissions from deforestation and forest degradation as well as the capacity of forests to conserve carbon (Global Canopy Programme (GCP), 2009, International Union for Conservation of Nature (IUCN), 2011).The different acronyms -RED, REDD, REDD+

reflect differences in scope of type of proposed activities (IUCN, 2011). In the rest of this study, the term 'REDD' will refer to the full scope of 'REDD-plus'.

Reference Level – Cenamo et al. (2009) define this as the baseline upon which the emissions reductions expected under REDD activities would be calculated. Currently, there are two basic approaches being considered: (i) through historical deforestation rates considering the average of previous deforestation and projecting it to a future baseline scenario; and (ii) through projections and modelling of simulated deforestation based on the analysis of presumptions and socio-economic parameters that interfere with the dynamics of deforestation in the future, such as population growth, infrastructure construction, governance policies etc.

Permanence - the duration and non-reversibility of a reduction in Green House Gas emissions Angelsen et al., 2008). This implies ensuring that a forest area saved today is not destroyed tomorrow by avoiding non permanence risks which include pest attacks, fire etc. (Dutscheke and Angelsen, 2008).

Leakage – UNFCCC (2003) defines leakage as the net change of anthropogenic emissions by sources of greenhouse gases, which occurs outside the project boundary, and which is measurable and attributable to the project activity.

Additionality – According to Angelsen et al. (2008) projects under the Kyoto Protocol must demonstrate 'additionaliy' – real, measurable and long term benefits in reducing of preventing carbon emissions that would have occurred without the project.

Validation – is the process whereby an independent accredited auditor reviews the project documentation and design in order to certify that it meets the criteria and rules of the respective standard and applicable methodology (Harvey et al. 2010).

Verification – this process is meant to prove that a project has resulted in reductions of emissions that are real, measurable and give long-term benefits to the mitigation of climate change before actual issuance of carbon credits (Olander & Ebeling, 2011). An external auditor is engaged to review and certify the volume of emissions benefits that the project has actually achieved.

Carbon rights – Carbon rights refer to the claims from carbon pools, it may also define the management responsibilities associated with specific area of forest. Issues concerning carbon rights include how the rights are defined, how they work in places where land ownership is unclear (Angelsen et al., 2008).

Co-benefits – benefits arising from REDD schemes (other than reducing GHG emissions), such as alleviating poverty, protecting the environment, enhancing biodiversity, improving forest governance and protecting human rights (Angelsen et al., 2008).

2.2 Project design and national policy context

According to Seifert-Granzin (2011), it is advisable for project proponents to analyse ongoing REDD strategy development in their host country, as the elements of this strategy may restrict the eligibility of project activities or may implicitly establish specific legal or technical requirements for stratification, biomass inventory design, or land use change (LUC) monitoring for an eventual compliance regime.

The early REDD+ projects however preceded the preparation of national REDD+ strategies and therefore contend with policy hiatus. And like other forest carbon projects (e.g. under the Clean Development Mechanism), they are also faced with an environment of rapid change and uncertainty for many technical aspects of project design (Seifert-Granzin, 2011). Consequently, during the initial stages, progress with REDD implementation is slow and uneven as the operational conditions are not clearly defined and also facing multiple institutional challenges (Mbow et al. 2012).

The early REDD initiatives will therefore not only play a fundamental role in the process of REDD readiness in methodological development, but also building institutional capacity in countries that as yet lack sufficient governance required to implement REDD schemes at the national level (Cenamo et al 2009). It is also noteworthy that international policy advocates for REDD+ at national and subnational levels of accounting as opposed to the project level model for carbon projects (Mbow et al. 2012). The local level projects will therefore be valuable yard sticks in planning and implementation of REDD+ subnational and national schemes. The early REDD projects will be important real-world tests of various REDD+ strategies and institutional arrangements (Sill et al. 2009).

2.3 Project idea and preliminary assessment

According to Cerbu et al. (2009) the criteria for location of first generation REDD+ projects can be characterised as official and unofficial whereby: (i) official motivation included the need to achieve biodiversity benefits, community benefits, threat of deforestation, environmental value, demonstration of user need and climate benefits, and (ii) unofficial, attracted by the interest of other parties (government/ NGOs), prior relation with country/region/stakeholders/good governance/ institutional setting and previous experience in related sectors or projects.

Sills et al. (2009) on the other hand argue that projects may be more inclined to an official motivation largely driven by biodiversity, conservation and development goals, with carbon

benefits at best a secondary consideration. The primary objective of REDD+ and most forest carbon projects is however to increase carbon stocks or reducing carbon stock losses in order to benefit from carbon funds. There will always be other objectives more closely related to the core mission of the organization proposing the project (Olander & Ebeling, 2011). These normative arguments underscores conflicting views points on primary and secondary objectives of projects.

Assessing the drivers of deforestation and forest degradation constitutes an important aspect of a project's preliminary assessment. In the current literature, drivers of deforestation and forest degradation are differentiated as direct or proximate causes, and indirect or underlying causes (Geist and Lambin, 2001(a), Geist and Lambin, 2002(b), Kanninen, et al., 2007, Kissinger et al., 2012). The first category involves factors that are directly linked to the act of clearing or degrading land e.g. agricultural expansion, wood extraction, infrastructure extension etc., while the second category includes the background societal factors that drive these direct causes e.g. macroeconomic factors, governance, cultural, demographic and technological factors (Kanninen, et al., 2007).

A REDD project may aim both to change the behaviour of agents who are already operating in the project area, and to prevent new agents of deforestation and degradation from entering the project area (Sills et al. 2009, Madeira, 2009). As Olander & Ebeling (2011) emphasizes, a project should encompass all the areas that may be significant emissions sources or sinks due to project activities, and for which the monitoring effort is economical. Poffenberger et al (undated) further posit that a start-up period of around five years is needed before maximal reduction in the deforestation rates is reached due to the phased allocation of funds and the time required for gaining experience and building capacity.

2.4 Community consultation and capacity building

As IUCN (2011) advocates engagement of a broad stakeholder group is important in order to develop REDD strategies that respond to local needs and concerns while effectively targeting the drivers of deforestation. Kimbowa et al. (2011) categorises stakeholders into direct actors who include the project implementers/project owners and technical supporters/service providers. Indirect actors on the other hand are stakeholders' such as the government REDD task force, carbon buyers, the media, project validators and registries and certification agencies.

Illuminating this further, Olander & Ebeling (2011) recognises stakeholders to be communities and landowners either as direct project participants and rights holders, stakeholders in forest and land resource use, and/or neighbouring populations benefiting from current land uses and deforestation and NGOs introducing new techniques and coordinating training efforts.

According to Dougill et al (2012), community-based approaches to resource management vary in the extent to which communities are engaged. In the case of Forest carbon projects, the degree of community involvement links to the requirements of accreditation standards that the project seeks to attain (Dougill et al. 2012). With respect to REDD projects, Poffenberger et al (undated) posit that engaging forest communities in the design process helps to increase local knowledge about the mechanism, encouraged communities to strengthen their forest-protection efforts, and established stronger linkages between the communities themselves, as well as with the other stakeholders.

2.5 Carbon accounting, monitoring and verification

Forest carbon project development requires carbon benefits to be quantified using rigorous methodological approaches, independently validated, and later verified for issuance of certified carbon credits (Olander & Ebeling, 2011). Olander & Ebeling, (2011) further reckons that methodologies provide the core framework for the quantification of carbon benefits and include instructions for the establishment of a without-project baseline, measurement and monitoring changes of carbon stocks, and the assessment of leakage and project emissions.

Carbon inventorying is preceded by definition of national reference levels of deforestation or a project baseline. The two basic approaches currently recommended under the UNFCCC guidelines are (ii) a historical baseline which is built on deforestation rates considering the average of previous deforestation and projecting it to a future baseline scenario; and (ii) projections and modeling of simulated deforestation based on the analysis of presumptions and socioeconomic parameters that interfere with the dynamics of deforestation in the future, such as population growth, infrastructure construction, governance policies and others.

According to Poffenberger et al (undated), carbon credits can be recalculated at various stages of project development including an initial feasibility based on scientific literature, field assessment based on the first set of ground sampling and remote sensing data, preliminary method based carbon calculations using the exact specifications according to the methodology initially submitted for validation and revised method-based carbon calculation after revisions to the methodology were made and additional samples and remote data analyzed.

Monitoring which is an on-going process over the course of the project implementation cycle gives verifiable evidence that the project is generating GHG benefits (Olander & Ebeling, 2011). Skutsch et al asserts that community carbon monitoring is likely to be much cost effective than professional surveys and comes with other advantages such as transparency and recognition of the value of community forest management in providing carbon services.

REDD+ project methodologies also require the assessment of risks to permanence and sources of leakage of carbon emissions using tools and procedures stipulated for each methodology. Olander & Ebeling (2011) categorises risks into different assessment categories, namely internal risks (e.g. project management capacity or financial viability), natural risks (e.g. occurrence of fires and pests), and external risks (e.g. land tenure conflict), further noting that in severe cases, projects can fail risk assessment test and, consequently, validation under the VCS.

Olander & Ebeling (2011) further reckons that leakage that cannot be avoided through project design must be quantified and debited from overall project benefits, through monitoring or the application of discount factors i.e. subtracting a percentage of carbon credits.

2.6 Validation and registration

Before presenting a project for validation and registration a project design document (PDD) is prepared. It acts as the key source of information and analysis that summarises project characteristics, quantifies carbon benefits, and lays out a monitoring plan, thereby providing for independent project validation and verification of its emissions reductions or removals (Olander & Ebeling, 2011).

Project proponents need to define which standard to use based on characteristics, projected scale of carbon benefit and location; and in consequence, which market segment they are aiming for. Standards are a specific set of criteria and procedures for identifying a project's boundary, determining the baseline scenario, demonstrating additionality, quantifying net GHG emission reductions and/or removals, and specifying the monitoring procedure. The choice of both the VCS and the CCB Standards would enhance the project's chances of meeting the technical requirements and safeguards of a future UNFCCC REDD+ compliance regime (Seifert-Granzin, 2011).

Following successful validation, registration is the point at which the project is formally recognized as eligible to generate credits under the relevant carbon standard. VCS registration is only formally required at the time when project proponents request issuance of credits based on verification results and consists of a submission of all the required documentation by the project proponent and a completeness check conducted by the approved VCS Registry(Olander & Ebeling, 2011).

VCS is commonly combined with CCB standards to address other environmental and socioeconomic impacts and, a combined certification currently provides the best option for addressing carbon accounting and social and environmental concerns (Olander & Ebeling, 2011. While a project's design and implementation is independent of other projects, it will have to coordinate the zoning of subnational or project areas to avoid overlaps that could affect emissions accounting (Seifert-Granzin, 2011)

New standards and initiatives that support the environmental integrity of the voluntary carbon have been developed. These standards include the Voluntary Carbon Standards (VCS) 18, with a primary focus related to calculating carbon and methodological questions; and the Climate, Community and Biodiversity Standards (CCB Standards) 19, which verify the positive impacts of the project also in terms of co-benefits – related to positive impacts on communities and biodiversity.

The choice of methodologies is bound to specific applicability and eligibility criteria to be met by the project (Seifert-Granzin, 2011). According to Conservational International (undated) the Climate, Community & Biodiversity (CCB) Standards credibly cover all the issues of permanence, additionality, offsite impacts/leakage and measurement & monitoring issues and benefits allocation for land-based projects, and is one of the leading screening tool for investors to ensure that the projects they support are well-designed and will generate real carbon, biodiversity and local community benefits and by doing so, minimize potential project risk and maximize the value created for investors and offset buyers.

2.7 Carbon rights and co-benefits

To sell carbon credits, a project proponent must demonstrate that it has long-term rights to the carbon (Madeira, 2009). Establishing partnerships deal with the land users who are the legal concession holders or local stakeholders is one of the three ways through which a project proponent can demonstrate long-term rights to the carbon (Madeira, 2009). Regardless of legal tenure, local actors have de facto control over the forest, and, unless they are part of the intervention and see the benefits, long-term sustainability or permanence won't happen (Madeira, 2009).

Others ways to "right to the GHG emission reductions and the ownership of the project" under the Voluntary Carbon Standard (VCS 2008a, 8) are: (i) acquiring forest concession rights for the project and (ii) entering into an agreement with the landowner with existing right to the carbon to develop a carbon project. The legal strategy a project uses to establish long-term carbon rights is associated with the type of DD threat it faces (Madeira, 2009).

Different types of actors bring different priorities and emphasise different co-benefits (Sills et al. 2009). However, community engagement framework for some REDD project do not adhere to PES characteristics, as they may entailed job creation, ICDP-like mechanisms, and community foundations (Madeira, 2009). Payments of emissions reductions from REDD activities could be rewarded inform of carbon credits but also by building social infrastructure for local communities to promote community development and poverty reduction activities (Mbow et al., 2012).

A project must therefore have sufficient forest area to generate adequate carbon credits to cover the costs of project implementation, monitoring, and livelihood activities. Clearly, REDD interventions can be pro-poor and yield local benefits even if local actors are not involved directly in generating measurable carbon benefits. However, the more removed local actors are from the generation of the environmental service, the more they become PES non participants whose benefits or costs are directly related to project proponent beliefs about the link between local actors and project permanence, and the resulting discretionary decisions in designing and implementing the intervention(Madeira, 2009)

Others such as Compese (2011) stress that a REDD strategy should addresses rights-holder and stakeholder livelihoods, strengthened by a clear, overarching commitment to ensure that REDD will not do harm and will strive to deliver substantial additional social benefits for participating forest dependent communities.

2.8 Project Financing

Funding for forest carbon projects are divided into two categories: Market-mechanism, which means that the project is trading, or intend to trade its emission reductions in the carbon markets for offsetting GHG emissions. Funds based are on voluntary donations, not related to the generation of offsets and not linked to any market.

Market focussed projects incur large up-front costs in developing and certifying projects, which means that project developers need to ensure both that the project will continue for many years and that they can recover costs (Madeira, 2009). Olander & Ebeling (2011) advocate developing financing structures to cover the gap between the start of project implementation and the issuance and sale of carbon credits. Three financing options for market based projects are stipulated by Covel (2011) as: self-financed, forward finance from investors[2], buyers[3] (there could be brokers[4] in between investors and buyers) or donor[5] support. The schematic below (Bayonet al., 2007) represents the purchasing behaviour and drivers of the VCM

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[2]***Investors*** **-** have an interest in realizing returns from financing provided to the project (in the form of a share of credits, or profits when credits are sold).

[3] Some ***buyers*** may become partial investors into project activities through upfront payments or by assuming external transaction costs.

[4]***Brokers*** match buyers with sellers (projects), often according to previously agreed conditions and typically receive a percentage of the transaction value as fee for their services.

[5]***Donors*** provide complementary funding for some core activities, in effect valuing other conservation or community attributes besides the emissions reductions benefits.

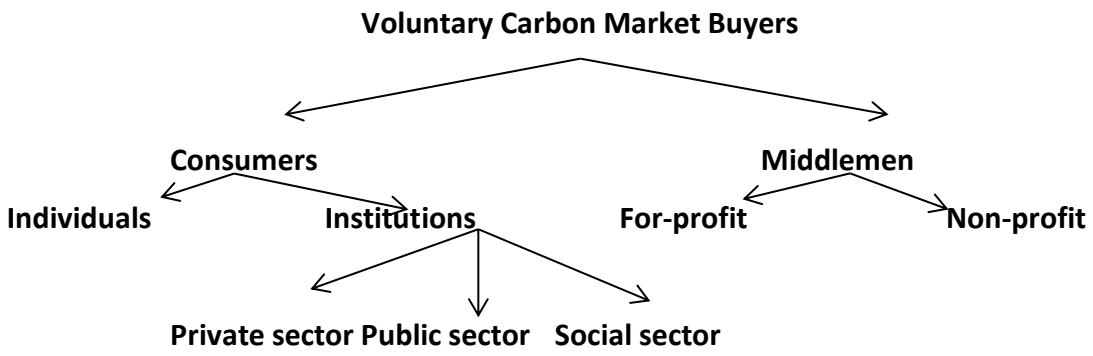

Figure 1: Buyers in Voluntary Carbon Markets - Source: Bayonet al. (2007)

As reckoned by Seifert-Granzin (2011), it is imperative that REDD projects keep one eye on voluntary markets and the other on UNFCCC Post-2012, in order to maximize consistency between activities and a changing policy environment.

2.9 Critical success factors for REDD+ projects

Dougill et al (2012) posit that project design requires to consider project boundaries, benefit distribution, capacity building for community monitoring of carbon storage together with awareness-raising using decision support tools. Pofffenberge et al. (undated) underscore the need for familiarity with local conditions, strong coalition of partners, government support and stakeholder engagement. Seifert-Granzin, (2011) stress solid project management skills; and detailed knowledge of relevant national and international laws and policies.

Noting the idea underlying REDD as simple; Angelsen (2008) outlines some of the fundamental parameters that require definition in an effective REDD design at global scale as: measurement, scale, funding, permanence, liability, leakage and reference levels, and their implications for effectiveness, efficiency and equity. This requires a combination of technical expertise in forestry; biomass measurements and carbon accounting.

Adequate start-up financing is also underpinned as contingent to successful projects (Poffenberge et al., undated). Others such as Agrawal & Angelsen (2009) emphasize sufficient size and clear boundaries of forests, predictable benefits, local autonomy in designing clear statutory land tenure rights and enforceable rules for access and use of forests, and provisions for monitoring and clear sanctions for rule violations by forest communities.

Others such as Conservational International (undated) sums up the key issues that should be carefully considered during the design and evaluation of projects as the potential loss of carbon benefits over time (the permanence issue), the accounting of greenhouse gas benefits (the additionally, offsite impacts/leakage and measurement & monitoring issues), and how projects affect biodiversity and local livelihoods (the multiple benefit issue).

The first generation of REDD+ projects are also building on and borrowing from the accumulated experience of a wide range of previous conservation interventions such as Payment for Ecosystem Services (PES) schemes and Integrated Conservation and Development Projects (ICDP) (Sills et al. 2009). Pushing this argument further, Blom et al, (2010) point out that the design and implementation of sub-national REDD projects can be done in a way that avoids the past pitfalls and mistakes, while building upon some successes, of the ICDP conservation approach. Supporting this view, Brandon & Wells (2009) reckon there are important similarities and overlaps with ICDPs, noting that ICDPs have generally performed poorly hence due to avoidable mistakes in their design and implementation, which REDD+ projects should learn from.

3. METHODOLOGICAL AND ANALYTICAL FRAMEWORK

This section also offers a description of the project area and the analytical framework used for evaluating the design and implementation of the case study project. The methods used for data collection and data analysis and the limitations of the study are then outlined.

3.1 Description of study area

Taita Taveta County in located in south eastern Kenya. Climate in this semi-arid area is mainly hot and dry in most of the year with rainfall historically occurring seasonally twice a year. The short rains occurs in December and the long rains in April with an average of between 300-450mm. However, in the past ten years local climatic conditions appear much more irregular, characterized by unpredictable and frequent failure of rains. This phenomenon has been attributed to climate change.

The project covers a corridor of land (the Kasigau Wildlife Corridor) between the Tsavo East and the Tsavo West National Parks. The corridor is part of the larger Tsavo ecosystem that spreads north to the Tana River and South into Tanzania. It serves as a migratory corridor and range extension area for wildlife from the protected parts of the Tsavo ecosystem. The dry land forest also provides fundamental livelihood and cultural resources for local people.

Traditionally, community settlements were mostly restricted to the higher elevations of the Taita Hills, Eastern Arc Mountains, and Mt. Kasigau. Kenya's post-independence government allocated the unoccupied land to the Taita community for use as grazing land and was gazetted in the 1970s. The community formed legal entities such as the Rukinga Ranching Co. Ltd. to hold title for the land. However, unlike the pastoral communities in Kenya, the community did not stock large herds of cattle and hence did not make intensive use of the ranches. Most of these ranches therefore remained a natural dry land forest over the years. A map identifying the general ecosystem and the project zone is provided in figure 2 below.

The Taita ethnic community traditionally settled and farmed on the fertile forested hills throughout the 20thcentury where higher rainfall and cooler climates made agriculture more viable. The communities maintained a traditional community trust land system, where the Chief (the highest appointed administrative officer at the location level) allocated land to families for farming, but with no formal legal rights on the land. According to McKim (2011) such customary systems of land tenure scheme can include a complex system of resource rights, including those of clans and families.

The population of the area has slightly risen above the 350 000 people recorded during the Kenya National Bureau of Statistics 2009 census, who live within 5km of the project boundaries. The traditional practice of land subdivision was becoming untenable due to population growth on the hills. Therefore towards the late 1980s and early 1990s the Taita

families began to descend to the dryland acacia-commiphora forest that dominate the lower elevations where climate was much hotter and drier. Much of the land is still communally owned in group ranches ranging from as little as 50 shareholders to as many as 2500. Subdivision of the community trust lands into legal plots and issuance of title to the families currently occupying them has been ongoing in recent years driven by political and social economic interests. The inhabitants to date are rural smallholder farmers, many of whom are poor. They have traditionally depended heavily on subsistence agriculture in an area which is considered to be marginal for agriculture.

Phase I of project covers a ranch where local shareholders sold out their shares to outsiders majority of which were eventually held by a small group of white Kenyan ranchers. The ranchers operated a beef production venture for a number of years but failed partly due to fragility of the ecosystem. In 1998, the ranchers leased 20,000 acres of Rukinga Ranch to Wildlife Works, a US registered corporation to establish the Rukinga Wildlife Sanctuary, which was domesticated as a Kenyan limited liability company. Wildlife works later purchased all of the ranch in 1999 by majority acquisition of shares in Rukinga Ranching Company. Phase II of the project seeks to expand to a number of other ranches neighboring Rukinga ranch and which are still communally owned and also faced with an imminent deforestation threat.

The ecosystem can be broadly categorized as a semi-arid dry land forest interspersed with savannah grassland. It can be designated roughly into four strata along an elevation of 1500-3500 feet above sea level. These are a montane forest from 2000-3500 feet and a dry land forest extending from 2000 feet and covers much of the project area (86%). The dry land forest comprises of a variety of drought tolerant Acacia species with an average canopy height of between 5-7m interspersed with occasional taller hardwood species.

The thick forest then thins and eventually transitions to patches of savannah grasses and shrubs covering the lower elevation zone. The grassland strata is still in its historic condition, and provides significant feeding for large ungulates such as elephant, buffalo, and Grevy zebra and different species of gazelles.

3.2 Analytical Approach

A guide in which Olander & Ebeling (2011) outlines key steps and components in designing Forest Carbon Projects (FCPs) provided one of the analytical lens. The steps consist of developing a project idea and preliminary assessment, project design and planning, developing a project design document, developing a project implementation strategy, financing and investing arrangements, gaining approval in the host country and consultation with stakeholders, project validation and registration, implementation and monitoring, and verification and issuance.

Although these steps has many variants within REDD+ project design and implementation guides i.e. number of steps with different names, seven generic phases are usually identifiable. Some steps may sequentially follow each while others occur in parallel. However, McNally (2010), advances the view that the phases of a project don't always have a concrete start or end points, or specific deliverables at each stage, further underscoring the importance of having various inputs (time, funding and expertise), as required at specific points of design and implementation process.

The study also gained insights from Seifert-Granzin (2011) illustration of a REDD+ project development cycle and the technical outputs at different stage (table 2.)

Table 2: Steps and technical outputs in REDD+ project development- source, Seifert-Granzin (2011)

Step	Technical output
Project Idea and Preliminary Assessment	Deforestation and degradation analysis (patterns & rates) Feasibility Assessment Project Idea Note
Project Design and Planning	Analysis of agents and drivers Preliminary definition of project boundaries Socioeconomic impact assessment Biodiversity impact assessment Program planning (logical framework) Non-permanence risk analysis
Development of Project Design Document (Carbon Accounting)	New methodology design (if applicable) VCS Project Description (= Project Design Document) Design monitoring plan (deforestation and degradation rates & patterns, emissions & removals, drivers, socioeconomic & environmental impacts) Harmonization with emerging governmental requirements and guidance
Development of Project Implementation Strategy	Reassess feasibility in light of technical outputs Development of with-project scenario and ex-ante estimates of emissions reductions
Financing and Investment Arrangements	Long-term financial plan
Approvals, Validation and Registration	Possible insertion into national accounting frameworks
Implementation and Monitoring	Monitoring Report (deforestation and degradation rates & patterns, emissions & removals, drivers, socioeconomic & environmental impacts) Loss Event Report (if necessary)
Verification and Issuance	Non-Permanence Risk Report Addressing Information Request (IRs) and Corrective Action Requests (CARs

These steps are applied in establishing project boundaries, analysis of drivers, causes and agents of deforestation and forest degradation, establishing the baseline, detecting

deforestation and degradation rates, defining project interventions, leakage assessment and management, and permanence and risk assessment. Standards such as VCS have provided tools and guidelines for undertaking these assessments.

3.3 Data collection methods

Triangulated methods were used to collect data beginning with retrieval of secondary data and information from project records such as project design documents and validation documents. The secondary data was validated with unstructured interviews with community members and observations made during site visits. Sampling sites and respondent selection was aided by local informants

The randomly selected respondents from different locations covered by the project were interviewed to obtain their perspectives on the socio-economic and environmental context of the area. The interviews enquired about land tenure and land use change and current socio-economic activities. It also included questions about deforestation and forest degradation in the area and the respondent's familiarity with, as well as participation in the REDD+ project. These informal interviews were recorded as field notes.

This was followed by key informant interviews with persons involved in design and implementation of the project using an opened ended questionnaire. The questions were structured around project conceptualisation, social and biophysical attributes of the project site, the project strategy with respect to work plan and its implementation, partners and beneficiaries, sources and utilisation of funds, challenges experienced (technical, financial, organizational etc.). This methods contributed to answering the research questions.

3.4 Limitations of the study

While the results of the study may be generalised to other REDD intervention in the country or in other tropical regions, it is constrained by a number of factors. One, the study focused on a single project which may not be representative of various biophysical conditions and socio-economic situations in other areas where REDD-plus projects may be implemented. Limited experience with the REDD mechanism also poses the risk of overlooking some important considerations and insights which may enhance substantiation of the findings and recommendations on design and implementation of projects.

The study also did not delve into detail on some technical aspects of the project such choice of the standard used for validation and verification and methodology for measurement, monitoring and reporting carbon or how it fitted with project activities, the site characteristics, and the socioeconomic or policy environment.

4. ANALYSIS OF FINDINGS

This section presents the results of the qualitative synthesis derived from the data synthesis. The data was analysed thematically in order to derive ideas and insights on the process of designing and implementing a REDD+ project.

The analysis began with an overview of the project idea and preliminary assessment, project design and planning. The community consultation process, the project management structure and the project's source of funds are then elucidated. The technical aspects of the projects comprising of the process of validation and registration of the project under the VSC and CCB standards is then illuminated.

Project implementation and monitoring comprising of livelihood diversification activities and other community wellbeing projects, methods of community engagement and revenue disbursement and forest protection and monitoring activities are then described. Verification of the project for eligibility to generate credits under VCS standards is then outlined.

4.1 Project idea

Existence of deforestation and forest degradation on forest land is a key rationale for a REDD+ project. Like many typical rural semi-arid areas in Kenya, Taita Taveta area where the project is located is characterised by vegetation clearing. The main driver of this deforestation is slash and burn agricultural expansion by the indigenous populations and accelerated by an immigrant population to the area that mainly occurred in the 1990s. Farming under harsh conditions exacerbated by climate change usually results in crop failure which lead farmers to continue clearing more land in the hope that it could guarantee crop resilience and better yields

Constant crop failure results in food insecurity and lack of financial sustainability which triggers alternative methods for eking a living such as charcoal burning and poaching for bush meat. These are often unsustainable and in the long run negatively impact on local livelihood and biodiversity conservation. This sequence of aggressive clearing of vegetation by local agents of deforestation would therefore continue under the baseline scenario through slash and burn clearing mainly for agricultural expansion, and potentially affecting the carbon stocks.

The baseline was in place before the project proponent arrived in the area. In phase I of the project (the sanctuary) a portion of the forest was experiencing systematic clearing (prior to arrival of project proponent in 1999) and was being converted to land for agricultural production. After the marking of the project boundary, the farms were abandoned and the portion is now recovering as native bush and grassland and may develop a unique reforested species mix over time.

Previous activities such as cattle grazing, ecotourism in the ranches did not incur significant alteration on the vegetation. However, the area experiences significant trees damage by elephants as they feed, a phenomenon locals presumed to be *'the elephant's strategy to open up the canopy to allow more grasses to grow'*. Under the project's baseline scenario i.e. without forest protection and conservation and alternative livelihoods for the communities, the pattern of deforestation would continue at an even more accelerated rate due to a much larger human population and other intervening factors as illustrated in figure 1- below.

A without project scenario is thus expected to affect livelihoods, carbon stocks and biodiversity. Improving the quality of the natural ecosystem by avoiding mosaic deforestation and forest degradation is therefore vital for climate mitigation, sustaining the ecosystem and local livelihood systems.

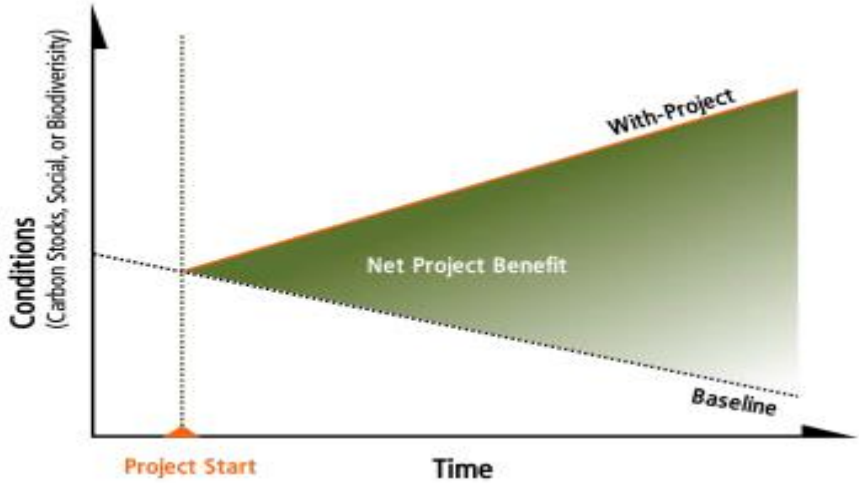

Figure 2: Baseline scenario and the projected impact on carbon stocks, social well-being and biodiversity (source – Olander & Ebeling, 2011)

4.2 Preliminary assessment

The carbon stock modeling (change analysis) approach used in this project was based on actual historical deforestation of the entire project zone and the specific project area. This was quantified using two sets of data. The first method entailed a carbon inventory conducted using a permanent plot sampling methodology which is considered a more accurate method for forest inventory than remote sensing. The second method entailed a manual expert analysis of Landsat Remote Sensing imagery for the past 15 years prior to the beginning of the project to determine the rate of deforestation in the project area.

Carbon measurement and reporting began by training some project staff who then taught local people how to perform carbon inventorying in the forest through training sessions held within the community. Except for tree biomass inventories where input from local people is

made, other carbon measurement methods such as remote sensing, project validation and monitoring are technical activities conducted by forest-carbon verification experts. Technical details on how this procedures were carried out including the sampling methods, sizes of sampling plots created, measurements of height and status of the trees included in the inventory for each plot and mathematical calculations for determining the carbon biomass per tree/plot are beyond the scope of this study. Alongside carbon stock measurement, clearer forest boundaries were established through demarcation and mapping.

4.3 *Project design and planning*

Project planning and design included technical and procedural elements leading to the preparation of the Project Design Document for external validation. The project planning and design also incorporates the activities to be implemented, legal matters, project financial architecture and engagement of stakeholders. The project design process took about two years and was coordinated by the project developer with contributions from a diverse group of actors who included the staff from the project proponent agency, forestry specialists, wildlife conservation specialists, government policy makers and field staff on forestry and wildlife management, remote sensing experts and carbon modellers. Individuals from the local community also contributed in varied ways to the project design.

After acquiring ownership rights of the Rukinga ranch (a portion of the total project area), Wildlife Works began wildlife conservation activities which included avoiding further habitat destruction from deforestation. The venture however yielded insufficient revenue returns to offset expenditure on conservation activities. The conception for the project therefore emerged from consideration of the potential of carbon funding to both finance conservation activities and to support alternative livelihoods of local communities who are the main drivers of deforestation and forest degradation.

A REDD+ project was therefore considered as viable approach to conserving the threatened biodiversity resources in the area whilst simultaneously contributing to livelihoods of local communities. Phase 1 of the project covering the Rukinga ranch initially comprised of 74,516 acres (30,168.66 ha), but has been historically reduced by subdivisions that occurred prior to the start of the project. Demonstrating a different trajectory, some of the communal ranches covered under phase II of the project has undergone subdivision into individual parcels where settlements has also been established. Other communal ranches targeted in phase II also risk undergoing similar subdivision for future settlements and small-scale agriculture, logging and other uses.

Phase II was planned to expand the project to thirteen neighboring ranches by entering them into a conservation easement supported by proceeds from carbon sales. This is with a view to interest landowners in the other ranches constituting the entire dry land forest corridor to

support conservation and tap the benefits of the global carbon market. The project falls under agriculture, forestry and land uses (AFOLU) classification. More than 25% of the boundary of the project area is within fifty meters of land deforested through anthropogenic activities in ten years prior to the project start date.

Phase I of the project is targeted to impact communities neighboring Rukinga ranch i.e. surrounding Mt Kasigau. Phase II is geared towards sustaining the impact on communities who are targeted by Phase I and expanding the impact to communities inhabiting Teri Ranch, Mwatate and the populations along the Mombasa-Nairobi highway and on the boundary with Tsavo East National Park (refer to below map – figure 2).

Therefore, among other objectives, the REDD+ project seeks to prevent further deforestation and degradation of the Kasigau wildlife sanctuary and the surrounding ranches through protection of the area as a wildlife corridor for mammals such as elephant, buffalo, grevy's zebra and other large mammal species and big cats such as lion, cheetah and African hunting dog and various species of birds, some of which are considered endangered, vulnerable or threatened. The second objective was to expand the conservation influence into communally owned ranches within the Kasigau Corridor through collaborative conservation ventures with community landowners. The third objective was to secure the financial sustainability of an existing conservation project by tapping into the carbon market in order to support conservation activities and to diversify livelihoods for local communities in order to remove pressure on the dry land forest.

The technical aspects of the project were done by two outside consulting groups hired by the project proponent. This entailed preparation of the carbon accounting and drafting the PDD. The PDD provides a range of information related to the socioeconomic aspects of the community, biodiversity and carbon as well as the various project activities to be implemented. These information was derived from some activities that can be considered to be part of project implementation. The PDD was therefore prepared after some project activities had already been initiated and was completed when the project design documents were submitted to the Climate Community and Biodiversity Alliance (CCBA) and the Voluntary Carbon Standard (VCS) program for certification.

Other aspects incorporated in the project design and planning include:

(i) Non-permanence risk analysis and proposed mitigation strategies

The significant risks that could have an impact on the project in the future and their mitigation strategies were forecasted. Some of the risks are internal to local project dynamics while others are influenced by policies and practices operating at the national level (Poffenberger et al, undated). Repeated crop failure posing food insecurity and loss of sustenance for local

communities could lead to a resurgence of deforestation activities and increased poaching. This threat is very likely and has been mitigated through alternative income generation and livelihood sustenance activities.

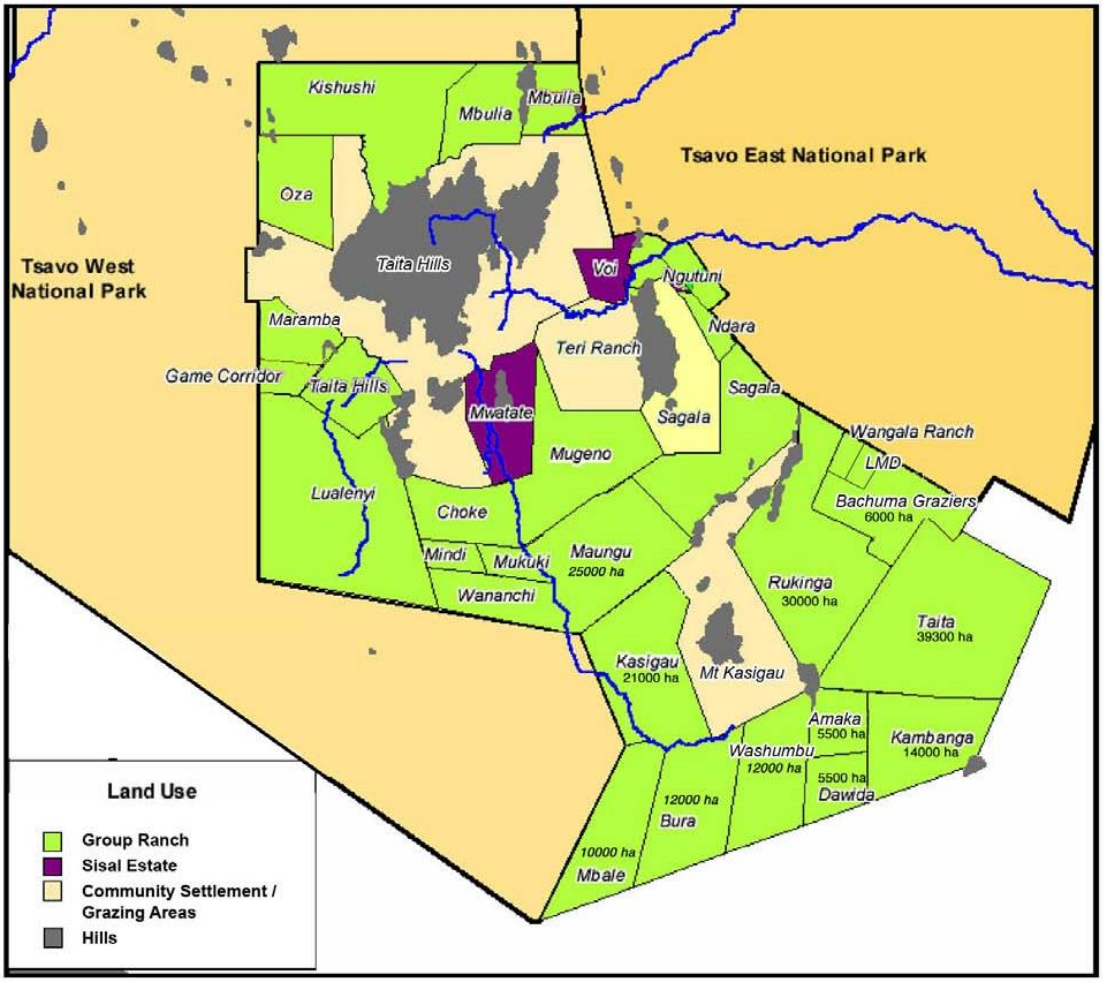

Fig 3: Map showing the Kasigau corridor ecosystem, Source – Wildlife Works

Influx/invasion of cattle grazers due to draught in adjacent areas is also an important threat which is especially posed by pastoralists from the neighboring counties of Tana River and Garissa. However the increasing aridity in the area may force these pastoralists to direct their livestock elsewhere in their search for pastures and water during dry spells. Should the influx continue, it is mitigated by the fact that livestock only affects the quantity of grass and therefore has no significant change in carbon stocks.

Drought, exacerbated by climate change may impact on introduced cash crops such as Jojoba and citrus making their survival difficult. As a mitigation measure the crops will be planted economically so as balance between water demand and profit margins. Drought also causes severe stress on wildlife species. However, most wildlife species are drought adapted which will be complemented with emergence water supply.

Grass fires are common in the region due to the intense heat and dry conditions, although naturally occurring fires are extremely rare. The project mitigation action is to create awareness among the local population about the dangers of burning fallows to improve grazing for their animals. However, fires tend to burn grasses and shrubs and move quickly before they catch the trees which have become tolerant of grass fires.

The government may legally undertake compulsory land expropriation through purchase or otherwise for a development scheme or exploit a resource of national interest. This risk was considered as very low as the Government of Kenya is very supportive of forest conservation projects and has no recent history of expropriation of private lands. The project is also faced with the risk that carbon revenues do not eventuate or is inadequate for sustaining the project financially. This risk was mitigated by modelling the project's financial sustainability at very conservative carbon prices. The project proponent has previous experience with the carbon market dynamics and foresees the likelihood of this occurring as minimal.

(ii) Assessment of Leakage

One of the project's leakage prevention strategy entails protection of the forest land from illegal encroachment and other potential deforestation agents or even damage to biodiversity. The project developer has successfully achieved this on ranch it owns over 10 year period prior to commissioning of the REDD project. In addition to preventing deforestation threat originating from the locality, protection has also eliminated the threat posed by immigrant populations from other areas of Kenya in search of unprotected land for slash and burn agriculture which would have been the case under the baseline/without project scenario.

The second leakage protection strategy is complementing protection with provision of economic alternatives and incentives to the community to alleviate clearance of forests for agriculture. Providing economic alternatives and incentives in the community also inculcates partnership and allows making forest protection more effective. The other strategy is exclusion of deforestation agents from the leakage belt through expansion of the project and extending monitoring and protection in the remaining dry land forest where slash and burn agriculture may be relocated.

4.4 Project management structure

The project developer is generally responsible for the overall organization, management, and legal representation of the project. The project has an office at the project site managed by an overall project coordinator supported by staff whose roles and responsibilities in project development include technical issues, business and legal issues, stakeholder relations, project implementation activities, and monitoring and third party audit.

The project has created mechanisms for partnerships and networking with different organizations. These include cooperation with Kenya Forest Service on various pertinent issues in the course of project development as well as the focal point for REDD+ in the country. It also entails conforming with and seeking approvals necessary for the project in line with the National strategy for REDD. With one of the key objectives of the project being to conserve wildlife, the project complies with all national laws and license requirements relating to conservation projects in Kenya. The project also maintains a working relationship with the Kenya Wildlife Service particularly in collaborative poaching control operations.

The project is also bound by relevant laws of Kenya including the Registration of Titles Act, Chapter 281; Environmental Management and Coordination Act (Act 8, 1999), the Companies Act, Law of Kenya, Chapter 486.

4.5 Community consultation

The project developer ensured the principles of free, prior, and informed consent was observed. The initial contact with the community occurred when the project proponent arrived in the area to conserve the Rukinga ranch and sought cooperation with the community in the protection of the ecosystem i.e. ten years before the REDD+ project. With respect to the REDD+ project, consultation and engagement with the community occurred in two different ways: (i) during elaboration of the project to the community and (ii) during the process of recruiting individuals and households for participation in the various proposed activities at different stages of the project cycle.

Consultations were done through participatory workshops, community meetings and political consultations in order to guarantee the involvement and commitment of all the local stakeholders. Raising awareness regarding the REDD+ project and associated activities and what benefits the local community ranch shareholders and general community can achieve through the carbon markets was undertaken. Where possible, communication and negotiations around project design and planning were effected through local community institutions that were assessed as being representative of the wider community.

The project therefore embraced a transparent process in its design by involving all the local stakeholders in order to guarantee their support and commitment to the project. The consultation process achieved a legally binding agreement with the landowners, which confers the carbon and biodiversity rights of the project area to the project developer. The agreement also sets out the obligations and responsibilities placed on the landowners for the duration of the project.

4.6 Project financing and investing arrangements

To cover the gap between the project start-up costs and the issuance and sale of carbon, funds were provided by the project developer and supplemented by forward finance through partnerships established with other investors. The investors provided this upfront finance in exchange for rights in carbon credit revenues. Project start-up costs were also met through engaging commercial project developers whose contribution to technical expertise to manage key activities in design, validation and verification in exchange for share of project revenues.

4.7 Approvals, validation and registration

The Kasigau REDD+ project was developed on the basis of the voluntary markets but with an eye on an eventual compliance market under the UNFCCC post-2012. The projects underwent a third party validation using both the Voluntary Carbon Standard (VCS) and the Climate Carbon and Biodiversity (CCB) standard. Under VCS set of criteria and procedures, for the project's boundaries were identified, the baseline scenario determined, additionality demonstrated, net GHG emission reductions and/or removals quantified, and the monitoring procedure specified.

The CCB validation process on the other hand comprised of a desk review of the project design, the baseline and the monitoring plan supplemented by follow-up site visit and interviews with project stakeholders. Resolution of outstanding issues was then done leading to the issuance of the final validation report and opinion. CCB standards focus on social and biodiversity co-benefits but do not lead to the issuance of carbon credits. It was therefore used in combination with a carbon accounting standard such as the VCS.

The project start date for phase I of the project (Rukinga Ranch) was selected to be January 1 2006 with a project crediting period of 20 years i.e. the time commitment to maintain carbon stocks. Project crediting end date is therefore December 31st 2025. It is estimated to avoid the emission of over 3.5 million metric tonnes of C_{O2}e over the 20 year project life, or approximately 175,000 metric tonnes per year across the carbon pools of above and belowground biomass, and soil carbon.

The crediting period for phase II (Community Ranches) of the project started on January 1st 2010 and ends on 31st December 2039, hence a project life of 30 years. It is estimated to avoid the emission of over 39 million metric tonnes of CO2e that would have been emitted due to slash and burn deforestation over the 30-year project life. The crediting period of 30 years is the minimum allowed under the VCS REDD standard. The period provides a balance of financial return and permanence of GHG reductions as the threat to this area is intense. In the event that the threat is overcome during the stipulated project life, the planned end date can be extended, which is also subject to generating sufficient funding to sustain the project.

4.7 Project implementation and monitoring

Core project implementation activities comprise of introduction of alternative livelihood activities and other community development projects, forest protection and conservation activities and carbon modelling and monitoring. A core project staff, technical specialists and community members makes varied contributions in these activities.

(a) Livelihood diversification activities and other community projects

Various activities have been simultaneously implemented to increase livelihood options and strengthen the capacity to generate income and assisting the locals to meet their basic needs. Core business projects included an Eco factory that employs people from the community to sew organic cotton clothing which is exported to the US and Europe for sale in fashion boutiques as well as through contractual arrangements with agencies such as German sports brand, Puma. A commercial Eco charcoal production has been initiated as an alternative to "bush charcoal". The facility has been certified by the Kenya Forest Service (charcoal regulations) as well as approval of the project Environmental Impact Assessment by the National Environment Management Authority.

A green houses for production and distribution of citrus fruits and medicinal plants such as Neem and Morabaini, to meet medicinal and nutritional needs has also been started. Other agroforestry tree nurseries have also been established in the villages where farmers obtain seedlings to improve tree cover on farms with view to augmenting food security and meet fuel wood needs for the broader community. The project developer in collaboration with a government agricultural research agency has also conducted trials for climate appropriate/draught tolerant crops such as jojoba. The project proponent has also contracted an ecotourism provider to operate a camp in the Rukinga Sanctuary. The camp provides employment for safari guides and other service jobs, and a market for local produce.

Some of these activities consisted of building community capacity to participate e.g equipping locals with skills to work in the clothing factory, trained local people in better dry land farming techniques, training local guards, rangers and tree nursery staff. In addition to livelihood diversification activities, other projects that have been implemented include funding school building renovations and improvements, health interventions, water projects, construction of rangers' posts and an education bursary's scheme. All these projects that are spread across different project locations. The water projects include construction of tanks and digging pans and wells within the REDD+ project area and in the reference areas to improve water availability for local people as well as for livestock and wildlife so as to reduce human wildlife conflicts.

Other potential opportunities that will be considered with additional financing from carbon revenues, apiculture opportunities, sustainable harvesting of non-timber forest products

(gums, resins, etc.) and providing access to low-interest credit for alternative livelihood activities.

A share of carbon revenues would also supplement local income sources. Besides economic and social wellbeing projects, the project proponent reckoned that the project is having a general conservation influence on the community and has supported local community conservation institutions. This has reinvigorated community based conservation initiatives for enhancement of flora and fauna biodiversity through community trust lands, and community lead de-snaring activities in the National Parks, as well as less emotive means of dealing with wildlife conflict.

The project activities and projects are financed with proceeds from the sale of carbon credits? Expenses comprise of equipment costs, ongoing expenses of direct project actions for the life of the project which include support for community forest protection activities and alternative livelihood initiatives and community projects, carbon monitoring and maintenance costs, periodic third party verification fees as well as salaries for project staff. The remainder is paid directly to households of the group ranches, who will function as corporate shareholders.

(b) Community engagement and revenue disbursement

The project employs a community liaison and outreach program in sensitising the community about environmental conservation, climate change issues and about REDD+ project. The program reaches out to the general community, schools and project employees using a variety of techniques and teaching models. Currently between 70 – 80 percent of the local households were participating in their respective community ranches.

Community members are also engaged through Locational Carbon Committee (LCCs) and Community Based Organizations (CBOs). The LCCs elected by community members select and prioritize proposed projects to be allocated funds based on local needs. Funds are channeled through the Wildlife Works Carbon Trust (WWCT) to CBOs who oversee implementation of approved projects. The organizational chart of this system is shown in figure 3. Training on running LCCs as well as monitoring of carbon and biodiversity is also provided.

(c) Forest and wildlife conservation and protection

Forest conservation and protection activities comprises of approaches to prevent further encroachment and clearing of forest land , charcoal burning, forest fires set by humans and poaching for game meat and trophies. The project has employed rangers to prevent illegal access to the sanctuary. Perpetrators are dealt with through mechanisms established by Kenya government authorities from the local administration, Kenya Forest Service and Kenya Wildlife Service.The rangers are complemented by extensive community outreach to ensure

community support in volunteer patrols and forest watchers in order to increase the frequency and effectiveness of forest protection.

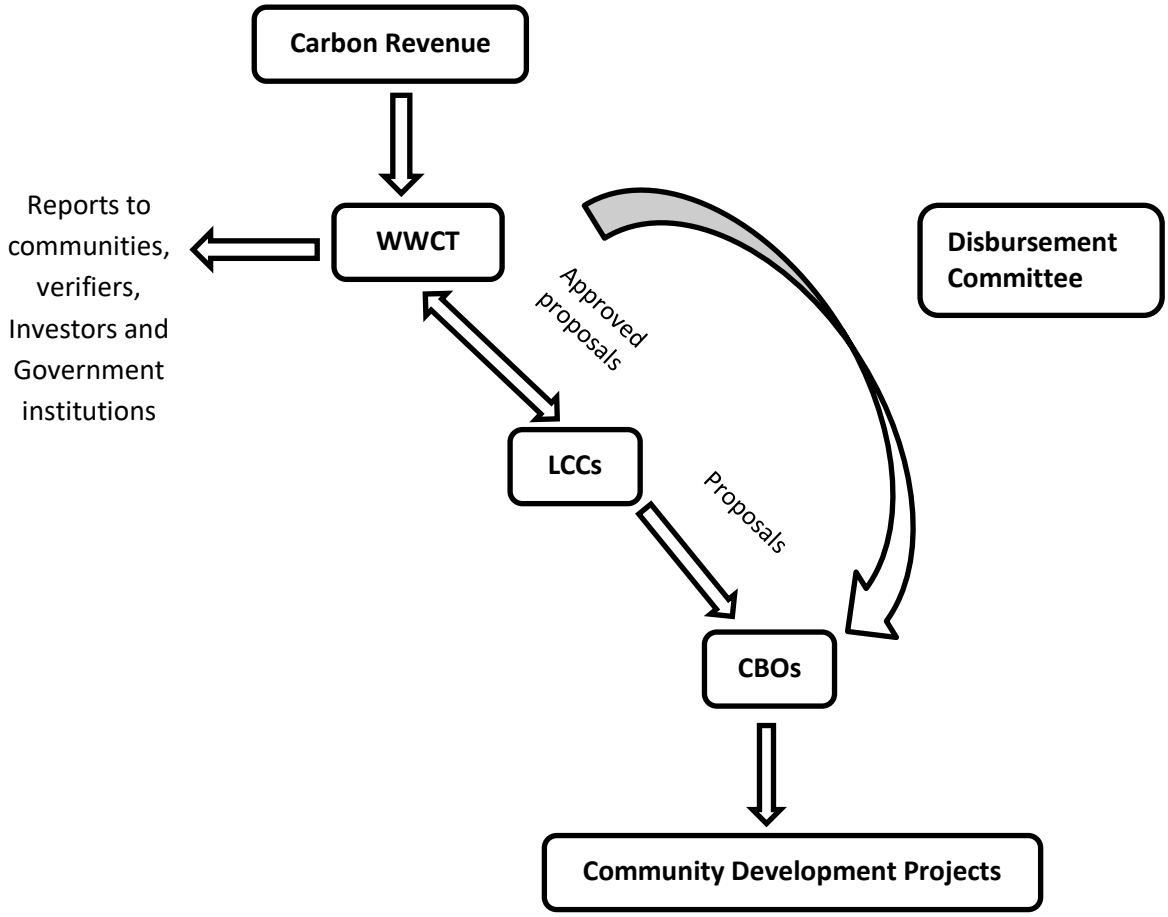

Figure 4: Community engagement and revenue disbursement system – source, Wildlife Works

(d) Carbon and wildlife monitoring

An annual monitoring of the carbon is conducted whereby the sampling plots are revisited to conduct biomass inventories to check for either reduction or increase in carbon stocks. 512 permanent carbon biomass sampling plots have been established across phase I and II of the project and contain 15136 trees which shall be monitored for carbon emissions over the project lifetime. This will complimented by detecting any large scale deforestation or boundary changes using satellite imagery. The purpose of carbon monitoring is thus to protect the forest against unplanned emissions during the project crediting period and ensure no identifiable leakage has occurred that can be attributed to the project.

Besides biomass (carbon) monitoring, habitat/vegetation monitoring is also undertaken in order to understand the species diversity, composition and dynamics, and to use this information as a basis for evaluating regeneration or disturbances such as the impact of growing elephant populations on vegetation. Monitoring of wildlife populations is also

undertaken using encounters recorded by rangers during patrols, logs made by other project staff, a community-based wildlife monitoring scheme and camera traps. Aerial transects are also undertaken on a gyrocopter which traverses the project area to both monitor occurrence of wildlife and incidences of livestock encroachment, charcoaling activities and poaching (carcasses).

(e) Social Monitoring

At least two household surveys have been conducted in randomly selected households across six administrative locations to assess social progress under the project using key indicators. Variables examined include: sources of livelihood and food security; cash income and expenditure by household; assets and utilities; access to land and land use; farm inputs, credit and insurance; crops, farm animals, trees on farm; soil, land and water management practices; domestic and agricultural water use; weather and market information; general knowledge about environment and the REDD+ project; participation in community groups and local decision making processes and, access to infrastructure and services. Detailed information on how carbon, biodiversity and social monitoring procedures are carried out is provided in the project monitoring reports and in a more comprehensive biodiversity and social monitoring report.

Other surveys conducted include charcoal and firewood (i.e. number of bags of charcoal and stacks of firewood) monitoring to assess their continued production in the project area. A charcoal traders' survey has also been conducted to complement the charcoal and firewood monitoring by understanding the nature people behind the trade i.e. age, household size, their origin and their other sources of income; as well as market prices. The outcomes of the surveys are discussed with the LCCs during an annual social and biodiversity monitoring meeting.

4.9 Verification and issuance

Verification is meant to prove that a project has resulted in reductions of emissions that are real, measurable and give long-term benefits to the mitigation of climate change before actual issuance of carbon credits (Olander & Ebeling, 2011). In the case of the Kasigau project, the annual verifications are undertaken by auditors of the project who revisit the permanent sample plots to conduct similar activities to monitoring.

After the initial validation, periodic verifications were also proposed to be performed every five years by an accredited certifying organization throughout the crediting period. The certifications are meant to verify that the carbon remaining in the project is in keeping with the values expected at the start of the project. Following successful verification, the project became formally recognized as eligible to generate credits under VCS standards.

5.0 DISCUSSION AND CONCLUSION

5.1 DISCUSSION

Conservation of wildlife outside protected areas has been applied in different parts of Kenya particularly in private conservancies and communal wildlife sanctuaries. Land owners are provided with economic incentives, aiming to convince them to forego other forms of land use to pursue activities that are compatible with conservation. Those making arguments in support of the approach insist that that revenues from conservation based enterprises such as tourism are much better in comparison to the combined gains from subsistence farming and pastoralism.

The incentives are financed by government subsidies and donor grants and in some cases supplemented by tourism revenue. Generating easements for landholders with financial return derived from carbon stocks is a new concept penetrating the conservation sector. Initiatives for protecting wilderness areas for financial return developed by private companies that are not donor funded are equally rare. The Kasigau Corridor project was therefore the first initiative of its kind in Kenya and one of the very first in Africa to combine both REDD activities with wildlife conservation.

Wildlife habitats in Kenya majority of which are located in dry land forests and the savannah where vegetation formation comprises of drought resistant tree species, shrubs and grasses are faced with deforestation and forest degradation posing a threat to both the habitat and its wildlife populations. Interactions among the underlying and direct drivers of deforestation and forest degradation often result in complex challenges. Their mitigation may therefore tend to require innovative approaches a REDD+ project ought to lay emphasis on.

REDD+ projects are therefore promising to be a source of conservation easements in these areas with substantial forest land under communal or private ownership. Land use in these areas comprises of pure pastoralism or a mix of agriculture and pastoralism and wildlife conservation.

The Kasigau Corridor REDD+ project has made substantial progress by abiding by the key principles and approaches of the REDD+ mechanism as well as the procedures of project design and implementation. While specific actions taken to design the project evolved for approximately two years, the foundation for the project was established a decade earlier when the project developer initiated a wildlife sanctuary in a portion of the overall area covered by the project. The project developer therefore benefited from prior relationships established in the local community and government authorities in assessing the potential of the dry forest for REDD+ activities.

The first phase of the project was implemented in one of the ranches owned by the project developer, which occupies only a fraction of the Kasigau ecosystem, but with plans for expansion. Although the project developer holds legal ownership for the ranch, cooperation and partnership with the local community was crucial in order to guarantee the success of forest protection from deforestation and degradation. The project later progressed to phase II covering neighbouring ranches. This is consistent with Olander & Ebeling (2011) assertion that projects make preliminary and conservative estimate of project boundaries and size which provides an essential starting point, with the likelihood to modify project boundaries over the course of the project development, land owner outreach and land acquisition.

Project implementation was also observed to begin at any point prior to validation and registration. Although the project is managed as one homogenous area, it involves multiple interventions occurring at different times and in different locations within the project site. Multiple participants are also involved in different activities and therefore the management structure and the activities to be carried out by different participants requires to be clearly defined. These confirms Poffenberger et al (undated) view that designing a REDD project is a complex process with a wide range of actors and involving diverse set of activities often occurring simultaneously. In the Kasigau REDD+ project, activities took place in the forest, others in community settlement areas, and others are undertaken at the project offices located at the project site.

The project's primary motivation can be understood to be conservation of biodiversity and protecting a critical landscape for human populations and wildlife, while promoting rural development and poverty alleviation was secondary. Both the underlying and direct drivers of deforestation in the project site are consistent with evaluations conducted in different dry lands in Kenya. Expansion of agriculture through slash and burn is a major driver of DD, which can be attributed to increasing populations, non-intensive and subsistence nature of farming and low agricultural potential in dry lands.

Remote sensing techniques in combination with terrestrial measurements of tree biomass and canopy cover were used to calculate carbon credits that will be generated by the project on the basis of a historical baseline. Similar techniques are used in the periodic carbon monitoring and verification activities for securing carbon credits over the life of the project.
Different strategies are also used to address the threat of deforestation and forest degradation and to promote emission reductions or to increase carbon sequestration. These include forest protection and conservation activities and diversifying the livelihood opportunities of local communities who are the main agents of deforestation and forest degradation.

Diverse alternative livelihoods activities, incentive mechanisms and local community development projects are promoted through the project. The study could however not establish the level of participation and success of these initiatives. Community benefits from the project were mainly inform of employment in different project activities, training and capacity building to participate in the project, support for livelihoods activities and community-based forest and wildlife conservation and development activities. While the first two benefits are considered as part of project implementation and accounted in project costs, the latter two benefits types would be supported from 'net income' generated by the project.

The use of participatory methods in design and implementation was very important as it helped to increase the communities understanding on the nature of project and to communicate the processes for developing the project. However, due to the technical nature of some aspects of project activities some of which required application of technology and other highly specialised skills, the project engaged experts. This could be an impediment for projects because paying technical experts drains funds and resources from other interventions which more directly impacts communities' livelihoods and forest conservation. It is therefore necessary to maintain a good balance between outsourcing expertise and developing of internal capacity that will remain with the project management team over the projects lifetime (Olander & Ebeling, 2011).

I will argue that permanence and risks assessment is not adequately addressed in the project design. With projected growth in population, an increased need for land for settlements and agricultural expansion is likely to continue to place pressure on the project area. The project design therefore ought to consider a future community land use plan stipulating how much land in the project sites is likely to be used for expansion of agriculture and settlements.

Although forest protection is an important activity in the project, I will argue that alternative livelihoods options (including training and support for intensifying agricultural production, community-led micro-enterprises and ecotourism development) can be the most appropriate leakage mitigation strategy in the leakage belt. They should be sustainable in the long run to diminish the need for local communities to shift conversion of forest land for agriculture or grazing or other unsustainable activities offsite. However prevention of leakage beyond the leakage belt can only be guaranteed by effective forest conservation policies.

The kasigau project is a market focussed REDD project which, to infer Poffenberger et al (undated), payments from carbon sales generally do not start flowing until credits have been validated starting around year two and three at the earliest. The project developer therefore raised start-up funds through a financial model that integrated financing agreements with other investors/carbon buyers supplemented with provision of technical services for post-dated payment.

All the project activities including project management and administration, forest conservation activities and carbon modelling and livelihood diversification activities are now financed from carbon revenues. The project implementer recoups the costs of running the project, while net revenue is shared between a dividend for land owners earn carbon revenues and promotion of economic development and other community well-being projects. The bulk of projects costs should also directly benefit local communities who manage many of the project activities (Poffenberger et al., undated).

5.2 CONCLUSION AND SUGGESTIONS FOR FURTHER RESEARCH

The study examined a pioneer REDD+ project initiated in a dry land forest to reduce loss of carbon stocks due to slash and burn agriculture, and to prevent decimation of wildlife species through poaching and habitat destruction. The project demonstrates that despite being guided by defined REDD+ protocols, projects may have diverse designs in different socio-ecological contexts and have specific issues and objectives in addition to addressing DD. The project distinctiveness is particularly manifested in its location between two key national parks in Kenya and its combination of forest and wildlife conservation, community engagement strategy and the menu of livelihood diversification interventions.

The project adds specific information and offers vital lessons on how to plan interventions to combat deforestation and forest degradation in a dry land, how to structure a project implementation strategy, building a financing mechanism and establishing a carbon monitoring and verification systems that meet market or donor requirements.

Nothing in the recent REDD+ assessments undermines a fundamental conclusion that both markets and funds for REDD+ have the potential to become a new financing frontier for forest and wildlife conservation and development in tropical countries. The REDD+ mechanism therefore has the potential to bring substantial benefits to communities through securing direct financial incentives, diversified livelihood options, forest protection and management and conservation of wildlife biodiversity. It is however well designed and well managed projects that will prove that the REDD+ mechanism can be viable. If implemented effectively, projects such as the Kasigau corridor REDD+ project could serve as replicable models across the tropics.

Development of more successful projects will however be informed by studies on specific aspects of some of the early REDD+ projects. Such studies need to investigate successes and challenges while implementing different project components thereby generating valuable lessons for upcoming projects. Such specific assessments need to address specific aspects such carbon accounting, leakage and risk assessment, financial analysis and marketing of credits. Detailed social appraisals to quantify adoption of alternative livelihood activities and

whether there are changes in the quality of life of participating communities also require to be conducted.

REFERENCES

Angelsen, A. and Atmadja, S (2008) What is this book about? In: Angelsen, A. (ed.) (2008) Moving ahead with REDD: Issues, options and implications. CIFOR, Bogor, Indonesia. (pp. 1-10)

Angelsen, A and Wertz-Kanounnikoff, S. (2008) What are the key design issues for REDD and the criteria for assessing options. In: Angelsen, A. (ed.) (2008) Moving ahead with REDD: Issues, options and implications. CIFOR, Bogor, Indonesia. (pp. 11 – 20)

Bayonet, R., Hawn, A. & Hamilton, K. (Eds.) (2007) Voluntary Carbon Markets. An international Business Guide to What they are and How they work. London: Earthscan

Blom, B., Sunderland T., and Murdiyarso, D. (2010) Getting REDD to work locally: lessons learned from integrated conservation and development projects. *Environmental Science & Policy*13 pp. 164 –172.

Brandon, K. and Wells, M. (2009) Lessons for REDD+ from protected areas and integrated conservation and development projects. In: Angelsen, A., Brockhaus, M., Kanninen, M., Sills,E., Sunderlin, W. D. and Wertz-Kanounnikoff, S. (2009) (eds) Realising REDD+: National strategy and policy options. CIFOR, Bogor, Indonesia. pp. 225 – 235

Cerbu, G., Minang, P., Swallow, B. and Meadu, V. (2009) Global survey of REDD projects: what implications for global climate objectives? ASB Policy Brief No. 12. ASB Partnership for the Tropical Forest Margins, Nairobi, Kenya. Available from: www.asb.cgiar.org.

Cenamo, M.C., Pavan M.N., Campos M.T., Barros A.C. and Carvalho, F. (2009) Casebook of REDD projects in Latin America. The Institute for Conservation and Sustainable Development of Amazonas (Idesam) in partnership with The Nature Conservancy-Brazil (TNC-Brazil)

Compese, J (2011) Making REDD work for Communities and Forest Conservation in Tanzania: Integrating REDD+ Social and Environmental Safeguards and Standards in Tanzania. Tanzania Forest Conservation Group (TFCG) Technical Report 32, Dar es salaam, Tanzania.

Covel, P. (2011) Business Guidance: Forest Carbon Marketing and Finance. In: Ebeling, J and Olander, J (eds.). Building Forest Carbon Projects, Washington, DC: Forest Trends.

Dutschke, M. and Angelsen, A. (2008) How do we ensure permanence and assign liability? In: Angelsen, A. (ed.) (2008) Moving ahead with REDD: Issues, options and implications. CIFOR, Bogor, Indonesia. (pp. 77 - 85)

Dougill, A.J., Stringer, L.C., Leventon, J., Riddel, M., Rueff, H., Spracklen, D.V. and Butt, E. (2012) Lessons for community based payment for ecosystem services schemes: from forests to rangelands. *Phil. Trans. R. Soc. B (2012) 367,* 3178-3190

Freud, J.T. and Bird, S.C. (2014) 4th Monitoring Report for The Kasigau Corridor REDD Project Phase II – the community Ranches, Wildlife Works

Geist H and Lambin E 2001 What drives tropical deforestation? A meta-analysis of proximate and underlying causes of deforestation based on subnational case study evidence Land-Use and Land-Cover Change (LUCC) Project, International Geosphere-Biosphere Programme (IGBP), LUCC Report Series: 4

Geist H and Lambin E 2002 Proximate causes and underlying driving forces of tropical deforestation *BioScience 52 143–50*

GCP (2009) The Little REDD Book: An updated guide to governmental and non-governmental proposals for reducing emissions from deforestation and degradation. GCP, Oxford.

Government of Kenya. 2010. Revised REDD Readiness Preparation Proposal. Submitted to the Forest Carbon Partnership Facility. Nairobi: Government of Kenya.

Harvey, C. A., Zerbock O., Papageorgiou S. and Parra A. (2010) What is needed to make REDD+ work on the ground? Lessons learned from pilot forest carbon initiatives. Arlington: Conservation International

Hosonuma, N., Herold, M., De Sy, V., De Fries, R.S., Brockhaus, M., Verchot, L., Angelsen, A. and Romijn, E. (2012) An assessment of deforestation and forest degradation drivers in developing countries. *Environ. Res. Lett. 7*

IUCN (2011) REDD-plus explained: 14 frequently asked questions about REDD
Available at: http://www.iucn.org/[Accessed: 31/5/12]

Jagger, P., Atmadja, S., Pattanayak, S.K. Sills, E. and Sunderli, W.D. (2009) Learning while doing: Evaluating impacts of REDD+ projects. In Angelsen, A. with Brockhaus, M., Kanninen, M., Sills, E., Sunderlin, W. D. and Wertz-Kanounnikoff, S. (eds) (2009) Realising REDD+: National strategy and policy options. CIFOR, Bogor. Pp. 281 – 292

Kimbowa, R., Mwayafu, D.M. and Smith, H (2011) REDD+ and Adaptation to Climate Change in East Africa. REDD Net Article. www.rednet.org Accessed 11/08/2011

Kanninen, M., Murdiyarso, D., Seymour, F., Angelsen, A., Wunder, S. and German, L. (2007)

Do trees grow on money? The implications of deforestation research for policies to promote REDD. Center for International Forestry Research (CIFOR) Bogor.

Kissinger, G., Herold, M. and De Sy. V. (2012) Drivers of Deforestation and Forest Degradation: A Synthesis Report for REDD+ Policymakers. Lexeme Consulting, Vancouver.

Madeira, EM. (2009) REDD in Design: Assessment of Planned First-Generation Activities in Indonesia. Resources for Future, Washington DC.

Mbow, C., Skole, D., Dieng, M., Justice, C., Kwesha, D., Mane, L., El Gamri, M., Von Vordzogbe, V. and Virji, H. (2012) Challenges and Prospects for REDD+ in Africa: Desk Review of REDD+ Implementation in Africa. Global Land Project (GLP) Report No. 5. GLP-IPO, Copenhagen.

McKim, S (2011) Sustainable Solutions: An Integrated Approach to REDD Project Planning Journal of Energy & Environmental Law, Winter Issue, pp. 87-101.

McNally, R. (2010) Overview of REDD project cycle. London: IIED

Ministry of Environment and Mineral Resources. 2012. Kenya's National Climate Change Action Plan: Mitigation. Chapter 4: Forestry. Nairobi: Government of Kenya. Available from: http://www.kccap.info/index.php?option=com_phocadownload&view=category&id=6&Itemid=41.

Murphy, D. and McFatridge, S. (2012) Kenya's Climate Change Action Plan REDD+ Concept Note: Dryland Forest Conservation, International Institute for Sustainable Development (IISD)

Mustalahti, L., Bolin, A., Boyd, E. and Pavola, J. (2012) Can REDD+ Reconcile Local Priorities and Needs with Global Mitigation Benefits? Lessons from Angai Forest, Tanzania. *Ecology and Society* 17(1): 16.

Olander, J. and Ebeling, J. (2011) Building Forest Carbon Projects: Step-by-Step Overview and Guide. In: Olander, J. and Ebeling, J. (eds.) (2011) Building Forest Carbon Projects. Washington, DC: Forest Trends. Available at: http://www.forest trends.org/publications/building_forest_carbon_projects. [Accessed: 18/7/12]

Poffenberger, M., De Gryze, S. &Durschinger, L. (undated) Designing collaborative REDD projects: A case study from Oddar Meanchey Province, Cambodia. Phnom Penh: Community Forestry International

Seifert-Granzin, J. (2011) REDD Guidance: Technical Project Design. In: Olander, J. and Ebeling, J. (eds.) (2011) Building Forest Carbon Projects. Washington, DC: Forest Trends. Available at: http://www.forest trends.org/publications/building forest carbon projects. [Accessed: 18/7/12]

Sills, E., Madeira, E.M., Sunderlin, W.D., Wertz-Kanounnikoff, S. (2009) The evolving landscape of REDD+ projects. In Angelsen, A. with Brockhaus, M., Kanninen, M., Sills, E., Sunderlin, W. D. and Wertz-Kanounnikoff, S. (eds) (2009) Realising REDD+: National strategy and policy options. CIFOR, Bogor. Pp. 265 – 279.

Skutsch, M. M., van Laake, P.E. Zahabu, E.M, Karky, B.S. and Phartiyal, P. (2009). Community Monitoring in REDD+. In: Angelsen, A., Brockhaus, Kanninen, M., Sills,M., Sunderlin, W. D. and Wertz-Kanounnikoff, S. (eds) (2009) Realising REDD+: National strategy and policy options. CIFOR, Bogor, Indonesia. Pp. 101 – 112.

UNFCCC (1998) Kyoto Protocol to the United Nations Framework Convention on Climate Change. New York: Climate Change Secretariat/UNEP.

UNFCCC (2003) Land Use, Land-use Change and Forestry: Definitions and Modalities for Including Afforestation and Reforestation Activities under Article 12 of the Kyoto Protocol in the First Commitment Period: Options Paper on modalities for addressing baselines, additionality and leakage. Document: FCCC/SBSTA/2003/6. Available at: http://unfccc.int/resource/docs/2003/sbsta/06.pdf

VCS. 2008a. Voluntary Carbon Standard Program Guidelines, 2007.1. Washington, DC: Voluntary Carbon Standard.

Wildlife Works (2008) Project Design Document for The Kasigau Corridor REDD Project Phase I – Rukinga Sanctuary, for validation using the Climate Community and Biodiversity Standards. Wildlife Works [Available at: Accessed

Wildlife Works (2011) The Kasigau Corridor REDD Project Phase I – Rukinga Sanctuary: Project Document (PD) For Validation: Wildlife Works: San Francisco

Wildlife Works (2011) The Kasigau Corridor REDD Project Phase II – The Community Ranches: Project Design Document: Wildlife Works: San Francisco

APPENDICES

UNIVERSITY OF LEEDS
School of Earth and Environment

Interview protocol for research project entitled: ***"Design and implementation of REDD pilot projects: Strategies applied in the Kasigau corridor project in Kenya***

Mr. George Njoroge, University of Leeds
Email: njorogegeorge12@gmail.com

The purpose of this interview is to investigate the potential for a systematic design and implementation process in REDD pilot projects and its capacity to improve their effectiveness. The research is interested to investigate this issue by drawing on the multiple perspectives of actors (local land owners, project designers and implementers) were involved the Kasigau corridor project.

Whilst data will go towards fulfilling the requirements of my MSc. dissertation, it is sincerely hoped that the outcomes of this research will be of interest and potential use to interviewees. As such the dissertation will be available for distribution and 2-3 page synthesis produced and shared.

The interview will be conducted as follows: After asking one or two initial questions about the interviewee's role in REDD projects, the interview will be guided by a set of open-ended questions that focus on the design and implementation stages of REDD pilot projects. Interviewees will have flexibility to discuss and explain their answers, but prompts (such as how, why, when) may be used to encourage further explanation on issues of particular interest.

Interviewees have the right not to answer anything they do not want to and will be asked whether they are happy or not for the interview to be recorded. The interview is likely to take between 30 and 45 minutes, the exact timing determined by the extent of discussion. The recording of interviews will save some time (reducing the need for manual note taking) and ensure accurate reporting of statements.

Interviewee happy to proceed Yes/No

Interviewee wants to remain anonymous Yes/No

Interviewee happy for the interview to be recorded Yes/No

Interview would like to receive a copy of the thesis Yes/No

Interview would like to receive a project synthesis Yes/No

Questionnaire for land owners

How long have you lived in this area?

What are the drivers of deforestation and forest degradation in this are?

Have you heard about the REDD+ project (give brief description of the project)?

Are you a member of a ranch that is included in the project, …….if yes which ranch …….

Are you a member of local conservation, community based organization that engaged with the project developer?

What other forum discussing/elaborating on these project have you participated in?

Have you participated in a training/any capacity building activity? What did it entail?

Does you or a member of your family participate in any of the interventions supported by the project? What is your/their role in the project?

Do you foresee this causes of DD eliminated through the REDD project? What causes of DD are likely to occur in the future.

Thank you so much for your time

UNIVERSITY OF LEEDS

School of Earth and Environment

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Interview would like to receive a copy of the thesis Yes/No

Interview would like to receive a project synthesis Yes/No

Questionnaire for project developers

1. What is your name and profession?

2. Did you play a role in designing the project in question? If so, what was your role?

3. Were you also involved in implementation?

4. Was anyone else involved in the design phase of this project? If so, who did what and how were roles determined?

5. How were the following aspects of design and implementation of the project done:

(i) Project idea

- Who came up with the concept for this project? Why
- Was the concept informed by a review of the national REDD+ strategy or a review of neighbouring subnational and project-based activities,
- Was the project idea discussed with the Designated National Authority (REDD+ Coordination office) and/or other relevant government representative?
- Was the Project Idea Note (PIN) presented formally to the DNA for a letter of endorsement and inscription in registries, if applicable?
- What other relevant government departments do you interact with in respect of project matters? e.g. Wildlife, Forestry, Agriculture? \

(ii) Project approvals

Was the project idea discusses with the DNA/or other relevant government representatives?

Did the project seek/gain approvals from host country regulatory authorities?

(iii) Community consultation and participation

- Was the project concept discussed with the community members**?** Through what ways?
- What percent of householders/shareholders in group ranches are participating in the project?
- Are there any agreements signed with participating ranches/community members? What are the contents of the agreement? *(i.e. does it stipulate that community forest use and access rights are consistent with the project design, specifies the benefits accruing to communities from participating in the project.)*
- Individuals who declined to participate in the project, reasons for their unwillingness to participate and what threat they pose to the project?
- Any assistance of NGOs working in the area and existing community based organizations?

(ii) Project design

Who was involved?
How long did it take?

Project Financing

Who funded the project design and why? Any forward finance from investors, buyers or commercial project developers?
Were technical experts paid upfront or did they provide services in exchange for share of project revenues?

How is the project currently funded – have carbon revenues been received?
Has the project secured carbon buyers so far? Units sold so far and price per unit of carbon?
Is there a formula of how funds are shared out among the three – project developer, land owners, community projects?

(iii) Carbon modelling, monitoring & registration

Will the other phases of the project have different crediting periods, and their carbon credits measured different?
Are periodic verification undertaken by auditors of the project as stated in the proposal?
Is it similar to monitoring i.e. revisiting the permanent sampling plots to confirm increase or decrease in carbon stocks?

(iv)Validation and registration

Why were VCS and CCB standards chosen for validation and verification the project?

When was V&R done – before or after start of project activities? How many years after start of project

Carbon stocks

Do you practice assisted natural regeneration and enrichment planting or removal of invasive species?

Alternative livelihood activities

Carbon revenues

Has project sold carbon credits yet? How are payments arrangements (bulk or instalments?)

What percentage of net income is directed to communities?

Have land owners began receiving their share of carbon benefits? How much per ranch/per individual?

Leakage and project risks

6. Did you encounter challenges in design? If so, what were they and why were they a challenge? If not why do you think this was?

7. Did you have to adjust your plans? How and why?

8. Did you encounter challenges at the implementation? If so, what were they and why were they a challenge? If not why do you think this was?

9. Have you had to adjust the project strategy? How and why?

10. Is there anything you would do differently?

11. What is the general progress of the project so far/key milestones?

12. How does it compare with similar projects in other countries/regions?

13. What key lessons should be taken from experience with this project?

Thank you so much for your time