A PLATFORM FOR STAKEHOLDERS IN AFRICAN FORESTRY

AFRICAN WOODLANDS AND SAVANNAHS: OPPORTUNITIES FROM AND POTENTIAL OF REDD+

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African woodlands and savannahs: opportunities from and potential of REDD+

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Acronyms and abbreviations

A/R	Afforestation/Reforestation
A/R	Afforestation/Reforestation
AFF	African Forest Forum
AFOLU	Agriculture, Forestry and Other Land Uses
AWF	African Wildlife Foundation
CO_2	Carbon dioxide
CCX	Chicago Climate Exchange
CBFM	Community Based Forestry Management
CCP	Climate Change Programme
CCBA	Climate, Community, and Biodiversity Alliance
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
DRC	Democratic Republic of the Congo
FAO	Food and Agriculture Organization of the United Nations
FCPF	Forest Carbon Partnership Facility
FIP	Forest Investment Programme
FPIC	Free, Prior, Informed, Consent
FSC	Forest Stewardship Council
GIS	Geographic Information System
GEF	Global Environment Facility
GHG	Green House Gas
GOFC - GOLD	Global Observation of Forest and Land Cover Dynamics
JFM	Joint Forest Management

LULUCF	Land Use, Land Use Change, Forestry
MCDI	Mpingo Conservation and Development Initiative
MRV	Monitoring, Reporting, Verification
NGO	Non-governmental organization
NTFP	Non timber forest products
NICF	Norway's International Climate and Forest Initiative
NORAD	The Norwegian Agency for Development Cooperation
PES	Payments for Environmental Services
PFM	Participatory Forest Management
PDD	Project Design Document
R-PIN	Readiness Preparation Idea Note
R-PP	Readiness Preparation Proposal
REDD	Reducing Emissions from Deforestation and Degradation
REDD+	Reducing Emissions from Deforestation and forest Degradation in developing countries; and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries
SBSTA	Subsidiary Body for Scientific and Technological Advice
Sub-national	States or provinces or regions within countries
TFCG	Tanzania Forest Conservation Group
TIST	International Small Group Tree Planting Program
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
UN-REDD	The United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation in developing countries
VCS	Verified Carbon Standard
VCSA	Voluntary Carbon Standard Association

VERs	Verified Emission Reductions
WB	World Bank

Executive summary

Climate change adversely affects the environment and human livelihoods. This is through alteration of rainfall patterns as well as water availability, sea level and ecosystem productivity, e.g. forest ecosystem. Forest ecosystems are believed to perform a vital role in helping people in developing countries to adapt to negative impacts of climate change since they capture and store carbon dioxide (CO_2) apart from provision of other goods and services, typically manifested during extreme events (such as droughts and floods). Forested areas are, therefore, key resources for mitigating and reducing vulnerability to climate change. The global storage of carbon in forest ecosystems is estimated to be more than 650 billion tons of carbon, of which 44% is stored in biomass, 11% in dead wood and litter, and 45% stored in soil. Despite this capacity, about 17.4% of global greenhouse gases (GHG) emissions originate from the forest sector through deforestation and forest degradation.

The United Nations (UN) initiated a program dedicated to Reducing Emissions from Deforestation and forest Degradation (UN-REDD) as an effort to create a financial value for the carbon stored in forests growing in developing countries. Mitigation and adaptation of UN-REDD fulfilled the aims of several international climate change conventions, including international commitment under the UNFCCC 2009 Copenhagen Accord and the Cancun Agreement of 2010. There was an evolution of REDD to “REDD+” which went further than just deforestation and forest degradation, but included the role of conservation, sustainable forest management, enhancement of forest carbon stocks while upholding the improvement for rural livelihoods in developing countries. In this way, developing countries are encouraged to reduce emissions from forest lands while benefiting from sustainable forest management. This emerged after the realisation that forests are estimated to reduce emissions to values between 13 and 50 billion tons (Gt) of carbon dioxide by 2100 (African Wildlife Foundation, 2011) and can, therefore, become a cornerstone of the post - 2012 global climate change agenda. The establishment and sustainability of REDD+ in African societies requires significant initial investment in the strengthening of local institutions, good governance, capacity building and alternative livelihood opportunities. There is need for continuous support to countries in areas of communication, knowledge sharing and stakeholder engagement to safeguard the accuracy and extensive dissemination of information about REDD+.

Forest ecosystems can be divided by physiognomic types forming eco-regions and these are classified into: Forests (montane and lowland), woodlands and savannahs (East African, Sudanian and Zambezian) and the Sahel.

This report is based on REDD+ activities in African woodlands and savannahs. The African woodland and savannah ecosystems are distributed across 31 countries, i.e. 9 in Southern

Africa, 13 in West Africa and 9 in East and Central Africa covering an area greater than 3.8 million km^2. The savannah woodlands are divided into moist dystrophic and arid eutrophic depending on species composition and soil nutrient status. The miombo woodland is the dominant woodland type in Southern Africa while the Acacia and open woodland dominate the other parts of Africa.

Only four of the countries have received direct support for national REDD programmes, namely Democratic Republic of the Congo (DRC), Nigeria, Tanzania, and Zambia whilst eleven, (Benin, Cameroon, Chad, Ethiopia, Ghana, Kenya, Malawi, South Sudan, Sudan, Uganda and Zimbabwe) do not receive direct support but engage with the UN-REDD processes.

Most of the countries implementing REDD+ projects have some small-scale private sector funding for sub-national level projects based on the existing voluntary forest carbon markets. In countries, such as Zimbabwe, private sector investment in project development is the only form of REDD+ activity. Donor or public funding currently flowing into some countries, such as Kenya and Tanzania, have projects that provided valuable models and lessons from the sub-national and project level REDD+ processes. The initial level of investment for REDD+ activities varies significantly depending on community histories, experiences of development projects and forest management activities at both national and sub-national levels. National REDD+ readiness planning activities, in some countries, include activities funded by the Forest Carbon Partnership Facility (FCPF), forest investment programme (FIP) and private investment programmes. In countries, such as Cameroon and Ghana, there is lack of effective actions to ensure the participation of local people while in other countries they tend to have missed substantial data on the drivers of deforestation. The issue of land tenure has received exaggerated criticism, and some countries have not put in place clear policies/guidelines on carbon rights and benefit sharing mechanisms. In some countries, e.g. Cameroon, studies have shown that current projects lack transparency, meaningful participation or Free, Prior and Informed Consent (FPIC) and disregard issues of land tenure, customary rights and benefit sharing.

Successful climate change mitigation and adaptation must improve the welfare of rural people while integrating sustainable forest management and biodiversity protection. Several models for benefit sharing have been identified. In Tanzania, the community carbon enterprise model has been used as a tool for benefit sharing whilst in Kenya, the benefit sharing model is based on one third each for community development, the individual and the project running costs. The community funds are administered through a trust fund mechanism following some procedures that facilitate transparency. Good governance structures, land tenure systems and law enforcement, market and cultural values of forests, the rights of local communities, benefit-sharing mechanisms as well as poverty and food production policies are important considerations for the success of REDD+ initiatives. In addition, REDD+ projects can be successful when issues of transparency and accountability

are precisely addressed and forest management and land use planning are integrated. The primary lessons learnt through pilot projects demonstrate some of the challenges that REDD+ presents in Africa but also provide insights for molding REDD+ policy frameworks for the benefits of communities while promoting forest conservation in Africa.

REDD+ pilot projects have demonstrated that climate change mitigation through forest carbon payments can enhance the incomes of the rural poor as well as increasing opportunities for adaptation to climate change and growth. Generally, payments for REDD+ and other ecosystem services have great potential in the light of the diversity of schemes that are likely to emerge and the diversity of services likely to be obtained, including potential positive impact on the environment. REDD+ has the ability to save public and private sector funds by promoting a diversity of benefits, improving people's livelihoods and having potential to reduce conflict.

The need for simple, rapid monitoring methods cannot be over-emphasised. A number of scientific evidence gaps are linked to the accuracy of carbon accounting, ascribed to a lack of data, and there are uncertainties related to carbon storage and carbon flux models. Though the REDD+ processes require community participation in monitoring, reporting and verification (MRV), engagement of experts for accurate accounting should not be overruled.

In order to avoid inconsistencies, there might be a need for nested schemes, where projects are linked to sub-national projects, which, in turn, are linked to national projects. Discrete projects need to be adequately coordinated by umbrella organizations operating over larger scales in order to promote the longevity of project impacts at the local scale and allow experiences and good practices to feed into national policy development. Capacity building and resource investments across different levels are also shown to be vital.

The following are the key lessons learnt.

It is important to identify and quantify the actual drivers of deforestation and forest degradation before any project is implemented. The scope, goals and functioning of a REDD+ process should be clearly communicated to all stakeholders ensuring that a wide audience is included in raising awareness and capacity building activities. Countries may need assistance for continuous financial and technical support for learning and knowledge-sharing activities. In some countries, REDD+ activities have gone ahead without national REDD+ strategies. This has caused tension between government departments, NGOs and the private sector. It would be important to include all countries in REDD+ preparatory schemes.

There should be clear methodologies to address the identified drivers of deforestation and forest degradation. Countries may need assistance in developing tools for effective stakeholders' engagement and capacity building for monitoring deforestation and forest

degradation. Most of the REDD+ strategies are financially resource intensive and technically challenging, and need to be supported continually.

As REDD+ initiatives continue, national strategies to address drivers of deforestation and forest degradation need to be integrated with other land use systems and clearly reflected in institutional platforms for synchronisation. There is an urgent need for assistance to all countries to formulate national REDD+ strategies. In addition, there is need for the establishment of more permanent institutional infrastructure that guides and enables dialogue about REDD+ at the national level, including coordination and assessment of complementarities of multiple sources of REDD+ and climate funding to avoid duplication of efforts.

There is a need to manage expectations of communities about revenue from the REDD+ projects/initiatives, including outlining the potential amounts and timing of payments. Increased funding may be required to protect REDD+ projects from inadequately compensated communities so that they do not destroy the forest. In addition, there is need for sensitisation and training of neighbouring communities to ensure that they also reduce or avoid deforestation and forest degradation.

There are several designs to benefit sharing mechanisms, and these provide some clear lessons for other REDD+ projects. Communities are different and, hence, each project should be community specific. There is a need for continuous communication and clear information flow between the communities and other actors, especially safeguards for Social Impact assessment and FPIC at the early stages of project development.

Effective strategies have been built on existing relationships that have expanded into REDD+ projects (social capital) by developing on existing knowledge, experience and relationships that have transparent decision making and based on honesty as well as accountability and are truly participatory.

There are difficulties to secure carbon markets for some developers, and this has created tension from engaged local communities as they need the carbon benefits immediately. There is need for regular updates to engaged local communities on progress and position of carbon markets to contain their expectations.

CHAPTER 1 Introduction

BACKGROUND

The UN-REDD Programme was launched in September 2008 to fulfill the aims of several international conventions on climate change. Under the UN-REDD Programme, existing forest areas with apparent risk of land use change or reduced carbon storage are conserved to avoid a business-as-usual scenario that would have produced emissions but now reduced due to avoided emissions (DIAZ ET AL., 2011). The mitigation and adaptation emphasis of UN- REDD fulfilled the aims of several international climate change conventions, including international commitment under the UNFCCC 2009 Copenhagen Accord and an evolution of REDD to "REDD+" at the Cancun Agreement of 2010. REDD+ goes beyond deforestation and forest degradation, and includes sustainable forest management, conservation, enhanced forest carbon stocks and improvement of livelihoods in developing countries. REDD+, therefore, aims at the enhancement of forest carbon stocks in developing countries consisting of interventions aiming at reducing greenhouse gas (GHG) emissions through forest conservation, sustainable management of forests and enhancement of forest carbon stocks with transparent national forest monitoring methodologies and carbon accounting systems. In this way REDD+ is used as a means of mitigating climate change through reduced carbon emissions from deforestation and forest degradation (FAO, 2010) and is taken as a means of increasing support for forest stewardship activities by local communities (SPRINGER AND LARSEN, 2012).

It is believed that REDD+ can promote both conservation and socio-economic welfare, including poverty alleviation, by bringing together the development of the forest - climate change nexus in African woodlands.

While forests are affected by climate change, they also play a key role in adaptation to climate change, for example, by increasing the resilience of rural communities. Forests support species to adapt to changing climate patterns and sudden climate events by providing refuge and migration corridors. Also, they indirectly support economies to adapt to climate change by reducing the costs of climate- related negative impacts.

Forest ecosystems also provide goods and services during extreme events (droughts and floods) and are key assets for reducing vulnerability to the effects of climate change. Even better known is the role forests have in climate change mitigation. An estimated 17.4% of global GHG emissions are derived from the forest sector through deforestation and forest degradation. Forests also have considerable potential to sequester carbon. This can be achieved through afforestation, reforestation, forest restoration and changes to forest management practices as well as substitution of forest products for fossil fuels or products

requiring fossil fuels in their production. This has been fully appreciated by the on-going global climate change negotiations. And this is what the African Forest Forum (AFF) aims to understand better and enhance. As the major independent but widely recognized advisory body in Africa, the AFF is equipped with a considerable convening power and policy impact in many of the African countries.

Developing appropriate adaptation and mitigation actions include the improvement of forest management to reduce vulnerability and mitigate GHG emissions through REDD+. The "Africa forests, people and climate change project" supports the emerging Climate Change Program (CCP) of the AFF to further develop the forest - climate change nexus considered key for Africa's future development.

OBJECTIVES

As stipulated in the Terms of Reference, the objectives of this study were to:

(i) review and evaluate national and sub-national REDD+ activities implemented in African woodlands;

(ii) evaluate the potential and pre-conditions for increased implementation of national and sub-national REDD+ activities in African woodlands;

(iii) identify and describe best REDD+ practices and approaches in African woodlands and evaluate their potential for up-scaling; and

(iv) identify, analyze and evaluate other relevant climate change mitigation activities in African woodlands and their potential for up-scaling.

Therefore, this document describes the existing REDD+ activities in African woodlands/savannahs and their potential for up-scaling. It also aims at improving understanding of the development of REDD+ activities and their potential in African woodlands and savannahs. The document briefly outlines the REDD+ activities in savannah and miombo woodlands of Africa with the analysis based on a desk review of publicly available information and data in addition to own professional knowledge. The experiences emerging from existing projects could provide more widely applicable solutions (DANIELSEN ET AL., 2011) and create opportunities for up-scaling. The report begins with a brief background of African woodlands and savannahs, highlighting the rates of deforestation in these ecosystems. It, then, describes the different types of carbon markets for REDD+ activities and existing REDD+ activities, and explores the potential for up-scaling. Finally, the report ends with suggestions on the future direction of the REDD+ activities in African woodlands and savannahs.

METHODOLOGY

Since REDD+ is a new and evolving concept, some of the projects that were identified in this study were originally designed as CDM projects, but are now delivering REDD+ outcomes. Projects were also selected with a view to illustrating a range of financing schemes. National and subnational REDD+ activities implemented in African woodlands were identified and analysed.

A set of 31 countries were initially identified and 15 of them had no REDD activity and 16 had information on their REDD+ related activities. The analysis was based on these in an attempt to satisfy the stated objectives. This was initiated by a critical examination of existing projects, which were, then, grouped by type of project, objectives and other features. The second step was a mapping of the location of each project.

The information collected from this study was used to provide insight on the potential and pre-conditions for increased implementation of national and subnational activities in African woodlands. The report also identified the challenges and opportunities that are faced in meeting carbon management, poverty reduction and sustainable development goals in African woodlands and savannahs. Projects with less progress were followed up by mail, but, unfortunately, most of them did not respond. This was also followed by country visits to Kenya, Mozambique, Tanzania and Zimbabwe. The countries were selected on the basis of either significant progress in the development of their REDD Preparatory Proposal (R-PPs), accreditation and type of project developer NGO/government, private organization or UN. This is because there is room to learn more from these “successful” projects.

CHAPTER 2 Overview of African woodlands and savannahs

Forest ecosystems have been identified as a cornerstone of the post- 2012 climate change agenda as they play a significant role in climate change mitigation. In addition, forests and woodlands in most countries have become national sources of wealth and growth, delivering productive and service roles. They have provided employment and livelihoods for a large proportion of the population in developing countries (CAMPBELL ET AL., 2007). In this report we analyse REDD+ activities in woodlands and savannahs of East, West and southern Africa encompassing three eco-regions or forest types: East African, Sudanian and Zambezian Eco- regions.

These woodland and savannah ecosystems are found in 31 African countries including Angola, Benin, Botswana, Burundi, Cameroon, Central African Republic, Chad, Cote d'Ivoire, Democratic Republic of the Congo, Ethiopia, Ghana, Guinea, Kenya, Liberia, Malawi, Mozambique, Nigeria, Rwanda, Sierra Leone, Somalia, South Africa, Sudan, Tanzania, Togo, Uganda, Zambia and Zimbabwe (CHIDUMAYO AND MARUNDA, 2010) (Figure 1).

The African savannahs comprise continuous grass cover mainly made up of hardy grasses (Poaceae/*Graminae*) and trees or shrubs, varying in density and frequently with twisted stems lying between 15° N and 30° S and 15° W and 40° W. ALLABY (2004) defined savannah woodland as “an area where trees and shrubs form a generally light canopy having some tall trees that are short and gnarled frequently having thick, corky, fire-resistant bark. The trees and bushes are generally deciduous even though evergreens are also present”. Generally, they can be in the form of woodland, bushland, thicket or wooded grassland (Figures 2−4). Savannahs can be divided into two distinct categories depending on soil type and nutrient status: (i) moist dystrophic savannah, consisting mainly of the miombo woodlands, which grow on nutrient poor soils (FROST ET AL., 1986) and (ii) arid eutrophic savannas (WHITE, 1983), which include a diversity of species forming a mosaic of clusters, such as *Acacia* woodlands, mopane (*Colophospermum mopane* (J. Kirk ex Benth.) J. Kirk ex J. Léonard) woodland, woodlands growing on kalahari sands dominated by *Baikiaea plurijuga* and *Pterocarpus angolensis* DC., and mixed woodlands and thickets dominated by *Combretum/Terminalia* spp., *Afzelia quanzensis* Welw. and *Pericopsis angolensis* (Baker) Meeuwen, which grow on nutrient-rich soils. Savanna woodlands located in the north, are dominated by *Khaya senegalensis* (Desr.) A. Juss., *Parkia biglobosa* (Jacq.) R.Br. ex G. Don, *Vitellaria paradaxa* Gaertn interspaced with various species of the family Combretaceae. Dominant vegetation in the Sudanian Eco-region includes *Isobelinia*, *Uapaca* among others (FAO, 1997).

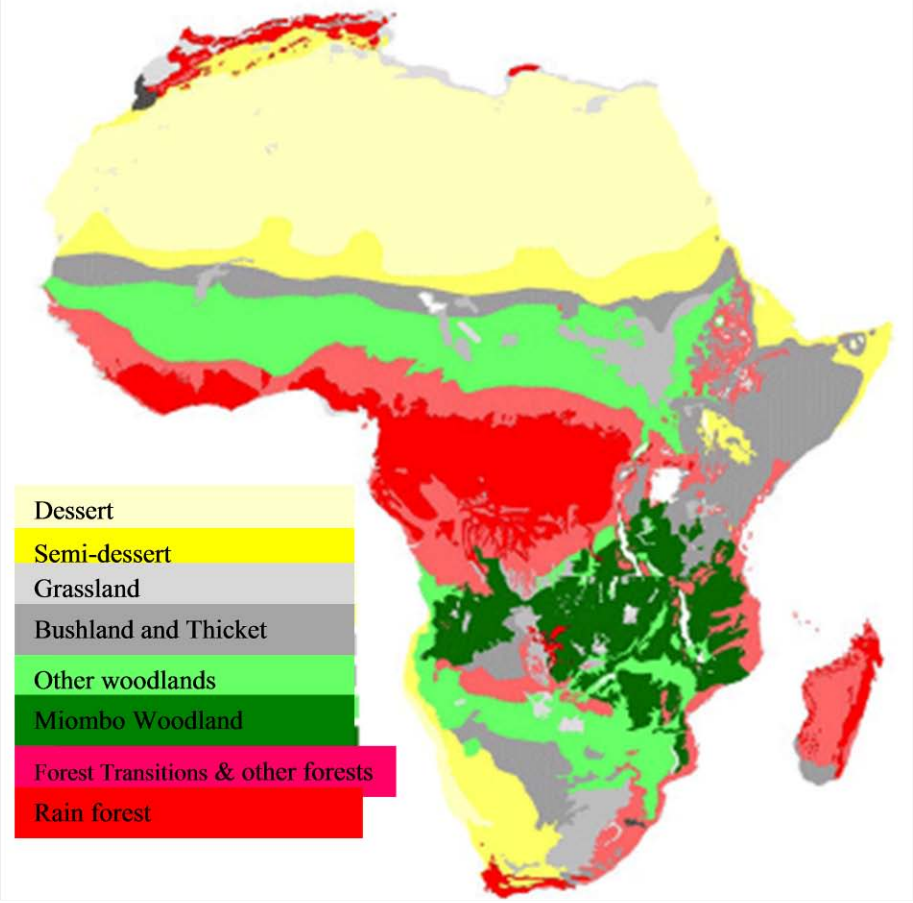

Figure 1. White's (1983) map of African vegetation (Source: http://www.geos.ed.ac.uk/homes/cryan/miombo/)

Figure 2. Some forms of African woodlands: *A.* Acacia woodlands (Rukinga, Kenya); B. Arid eutrophic savannah (Muzarabani, Zimbabwe); and C. Miombo woodlands - Gorongosa, Mozambique (Photo: L. Mujuru)

The major woodland type in Africa is the miombo whose crown cover can vary between 20 and 60% (WALKER AND DESANKER, 2004). Miombo is the vernacular term for the seasonally dry, deciduous, semi deciduous, semi evergreen or drought deciduous woodlands with some species having pre-rain leaf flush (Figure 3).

Figure 3. Miombo woodland (Marondera, Zimbabwe) (Photo: L. Mujuru).

These woodlands are dominated by species of *Brachystegia*, *Julbernadia* and/or *Isoberlinia* extending across 2.7 million km^2 of some of the world's poorest countries (CAMPBELL ET AL., 2007)

Figure 4. Varieties of miombo woodlands: A. Mozambique; B. Zimbabwe; and C. Tanzania (Photos: L. Mujuru)

The miombo woodland is, often, partitioned into wet and dry miombo woodlands with a considerable correlation between rainfall and woody biomass. In dry miombo woodlands, mean above ground woody biomass is about 55 Mg dry matter ha^{-1}, whilst in wet miombo can be up to 90 Mg dry matter ha^{-1}, and these values are lower than dry forests under comparable environments in other continents (FROST, 1996). Grass biomass decreases with increasing tree biomass, but in a non-linear complicated way. The miombo woodlands play an important role for both rural and urban populations in Africa. For example, in Tanzania, they support 87% of rural livelihoods, 90% of the national energy supply and 75% of construction materials (MILES ET AL., 2009).

DEFORESTATION AND FOREST DEGRADATION IN AFRICAN WOODLANDS AND SAVANNAHS

When forests are destroyed, over-harvested or burned (Figures 5 and 6), they become a source of CO_2 emissions (VAN BODEGOM ET AL., 2009). Deforestation is the conversion of forest area into another land use or the long-term reduction of tree cover below the minimum threshold, resulting in a decrease of forest cover (LANLY, 2003; FAO, 2010). Technically, deforestation only occurs when there is human- induced loss in crown cover from above to below a nationally defined threshold. Generally, deforestation in African woodlands and savannahs varies between 0.3 and 4% per annum. Between 1990 and 2005, an analysis of the top 20 highly deforested countries showed that half of the countries were from Africa with Zambia (4^{th}), on the top of the list of African countries followed by Nigeria, DRC, Zimbabwe, Cameroon, Ethiopia, Angola, Ghana, and Uganda (BUTLER, 2007). Localised areas could show higher rates of deforestation.

Forest degradation refers to the reduction of capacity of a forest to supply goods and services at an optimum level (LANLY, 2003; FAO, 2010). Degradation includes direct and long-lasting loss of forest carbon stocks that does not qualify as deforestation (GOFC-GOLD, 2009). Deforestation and forest degradation are caused by both anthropogenic factors and climatic factors, including recurrent droughts and flooding, and these reduce forest carbon stocks (FAO, 2010). In many parts of Africa unsustainable exploitation of timber and wood fuel constitute the main sources of forest degradation, contributing to the negative impacts of climate change. Fuelwood can however, be a better substitute of fossil fuels.

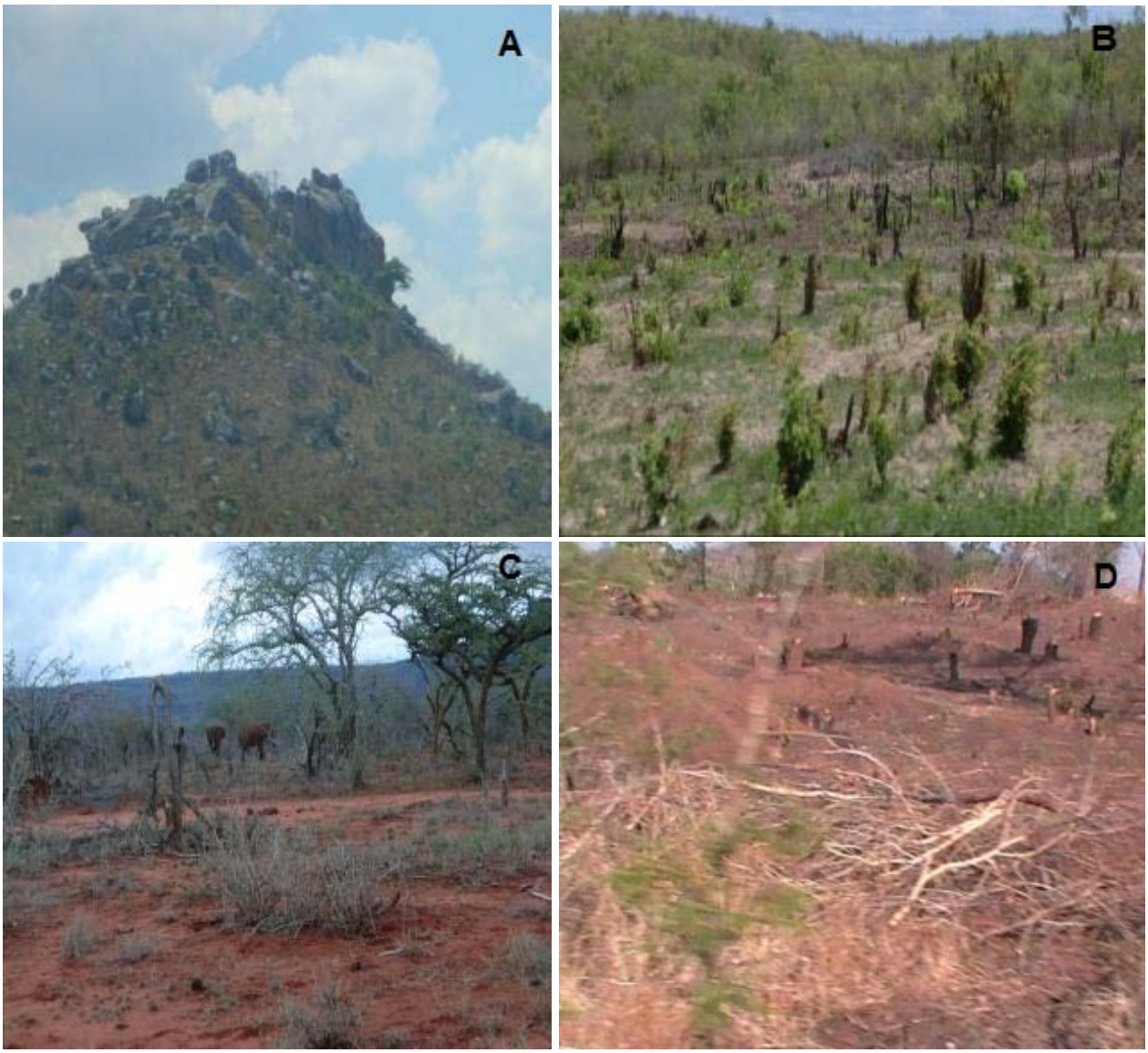

Figure 5. The faces of deforestation in woodlands: A. Clearing for wood fuel (Manicaland, Zimbabwe); B. Clearing for settlements (Manica province, Mozambique): C. Wildlife impacts (Rukinga, Kenya); and D. Clearing for agriculture (Mashonaland Central, Zimbabwe) (Photos: L. Mujuru)

Reduction of current rate of deforestation and forest degradation can result in less emissions of carbon dioxide (CO_2) and other greenhouse gases (GHGs) into the atmosphere. This can only be achieved through sustainable forest management, tree planting and rehabilitation of forests or other activities that can increase forest carbon stocks. There is, therefore, need for policies that can reduce fuelwood consumption and support maintenance or increase of carbon stocks.

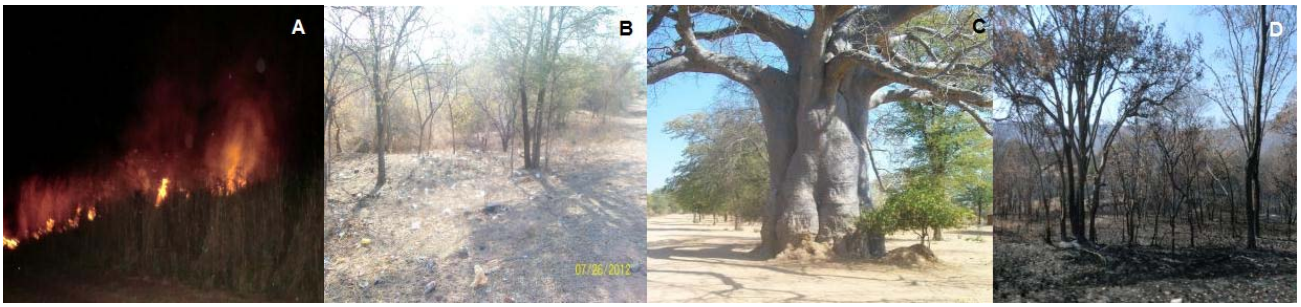

Figure 6. Forest degradation: A. Wild fire in Zimbabwe; B. Double action of fire and overexploitation (Manicaland, Zimbabwe); C. Degraded landscape (Mashonaland central, Zimbabwe); and D. Late fire (Tanzania) (Photos: L. Mujuru)

Although there are no estimates of total GHG emissions from deforestation and degradation of African woodlands (BOND ET AL., 2010), the socio-economic relations between the state, private sector and local people, coupled with the persistent poverty have hastened the rate of deforestation. Poverty, hunger and increasing demand for agricultural land have chiefly driven local communities to overexploit forest resources for their livelihoods.

Deforestation and forest degradation are driven by direct and indirect factors. The indirect factors include complex interactions of economic, demographic, political, technological and cultural factors. These operate by altering one or more of the direct factors and include the following:

- increase in rural population;
- constant poverty in communities dependent on woodland resources;
- lack of capacity to manage forest sustainably;
- gaps in institutional and regulatory instruments;
- lack of coordinated strategic forestry vision;
- land use conflicts and land tenure;
- effects of climate change and climate variability; and
- lack of capacity for assessment, monitoring and verification of forest resources.

Direct causes of deforestation include human actions that originate from land use and eventually affect land cover. Studies have shown that the major drivers of deforestation and degradation in most African woodlands and savannahs include agricultural expansion and shifting cultivation (WILLIAMS ET AL., 2008), production of charcoal and fuelwood (CHIDUMAYO, 1991), legal and illegal timber logging (CHIDUMAYO, 1995; SUNSERI, 2009), road and settlement construction and fire (Table 1). The contribution of fuel wood consumption to tree

removal however varies among and within each country. In some parts of Malawi, Zimbabwe and Zambia, tobacco curing has become the main indirect driver of fuelwood consumption with contributions from brick production (KATERERE ET AL., 1993; MALIBWI ET AL., 2010).

The majority of rural dwellers use firewood while urban dwellers in all countries except Zimbabwe, Botswana, Namibia and South Africa mostly use charcoal. Charcoal production is by far the most frequent driver of deforestation in Zambia and Mozambique while in Tanzania it ranked after shifting cultivation and logging (DELOITTE TOUCHE TOHMATSU LIMITED, 2012). In Ethiopia deforestation from energy comes second after clearing for agriculture (MINISTRY OF MINES AND ENERGY, 2010). The production of charcoal for energy has been a major cause of forest degradation driven by the reliance of 80% households on charcoal and fuelwood as an energy source, owing to no readily available alternatives. In African woodlands, charcoal production removes almost 50% of the total woody biomass although tree density can recover significantly within 12 to 29 years after clearing (CHIDUMAYO, 1991, 1993). Such recovery makes them suitable for climate change mitigation.

Contrary to earlier findings that stated that charcoal markets were limited to the wealthy who used it from exotic wood for barbecues in Zimbabwe (ATTWELL ET AL., 1989), this study found that charcoal was being produced illegally from woodlands in Mashonaland central and sold to businesses in Harare for heating despite the local bylaws prohibiting any form of charcoal production. Corruption is driving such exploitative actions.

Other key reasons for deforestation and forest degradation include the construction or improvement of roads. Commercial logging and/or mining activities, which have provided access to previously inaccessible areas, lead to establishment and/or expansion of settlements and more clearing for subsistence agriculture (DKAMELA ET AL., 2009), thus, contributing to loss of forest cover. Urban areas also depend on forest resources and their expansion threatens the existence of forest lands.

Table 1. Drivers of deforestation and forest degradation in African woodlands and savannahs

Cause of deforestation	Underlying process and countries affected
Wild fires and agriculture activities. (Slash and burn, land clearing etc)  Wild fire in Zimbabwe  Clearing for agriculture, Mozambique	▸ Conversion of forests to agriculture (through expansion of land or shifting cultivation) people typically move onto a new area of land, stump the trees and clear out the other vegetation, mostly by burning, to plant crops [1,2]. ▸ Fires escaping and turning wild during land preparation [3]. ▸ Deforestation and forest degradation due to poor farming methods/practices and timber logging [1]. Overstocking of livestock. ▸ Tobacco curing (Malawi, Zimbabwe, Zambia).
Charcoal and firewood along Lindi road, Tanzania    Firewood, Mozambique  Brick burning in Mudzi, Zimbabwe	▸ Cutting of trees for fuel wood (urban and rural) [2]. ▸ Charcoal production (over 80% in Zambia, Tanzania, Malawi, Mozambique, Kenya, DRC, Nigeria, Ghana, Cameroon) [2]. ▸ Production of charcoal mainly for urban consumption and the collection of firewood with charcoal production more pronounced in all countries except in Zimbabwe, Botswana, Namibia and south Africa [2,3,4].  Charcoal taken to Dares saalam, Tanzania.

Cause of deforestation	Underlying process and countries affected
Gorongosa, Mozambique  Lindiroad, Tanzania  **Logs are stacked in the forest or by the road sides**	▸ Legal and illegal logging to provide timber. ▸ Inadequate monitoring of timber concessions results in deforestation and forest degradation in e.g. many parts of Cameroon, Ghana, Zambia, Mozambique, Zimbabwe [3,4].
Infrastructure development (Roads, towns) Harare, Zimbabwe  Road to Lindi, Tanzania 	▸ Road construction. ▸ Mining activities. ▸ Includes road construction, urban development/expansion and other settlements.
Climate change e.g. (Fooding)	As people move to higher ground, they clear more forests.

Sources: [1] AFRICAN WILDLIFE FOUNDATION (2011); [2] CAMPBELL ET AL., (2007); [3] WILLIAMS ET AL. (2008); [4] BOND ET AL. (2010) (Photos: L. Mujuru).

CHAPTER 3 REDD+ activities in African Woodlands and Savannahs

NATIONAL AND SUB NATIONAL REDD+ ACTIVITIES IN AFRICAN WOODLANDS AND SAVANNAHS

The REDD+ activities in woodlands and savannahs link reduced emissions and forest carbon storage with financial incentives. The activities are monitored, reported and verified to enable quantification of their impacts on GHG emissions. The solution that is encompassed in REDD+ provides individuals, communities, local and national governments with rewards for conserving their forests (ANGELSEN AND ATMADJA, 2008). A credit will be awarded for positive impacts, with one credit equal to one tonne of CO_2 or its equivalent in terms of GHGs. The nature of the financial mechanism that rewards the credit is debated within the United Nations Framework Convention on Climate Change (UNFCCC). The UNFCCC's Subsidiary Body for Scientific and Technical Advice (SBSTA) requires countries to define strategies for setting national forest reference emission levels and/or forest reference levels, national forest monitoring systems and guidance on how safeguards will be addressed and respected (UNFCCC, 2011).

The process of national REDD+ activities begins with the Project Idea Note (PIN), which can be used for engaging a buyer or to seek an investor to cover the costs of a completed project design. It can also be used to identify a potential buyer willing to invest in the project design and recover the costs from the acquisition of emission reductions (ERs) when the project progresses into implementation. The development of complete project design document (PDD) however, requires significant amounts of resources and the majority of potential project developers are thus challenged (LIPPER ET AL., 2011). To date nine countries, namely Cameroon, DRC, Ethiopia, Ghana, Kenya, Mozambique, Nigeria and Uganda, Tanzania with woodlands and savannahs have submitted their readiness preparation proposals (RPP) with three in West Africa, five in Eastern and Central Africa and only one in Southern Africa (WILLIAMS ET AL., 2012).

To change the behaviour of farmers, REDD+ benefits will have to match or exceed the benefits from other land uses that are given up in favour of conservation. Opportunity cost of land in woodlands and savannahs are mainly from clearing of land for settlement, agriculture and energy. The opportunity costs are higher in countries where multiple benefits are enjoyed from forest conversion, as in Malawi, Tanzania, Kenya, Mozambique, Zambia, Nigeria, Ghana and Zimbabwe, where woodlands are used for timber, charcoal, other non-timber forest products (NTFPs) and agriculture. On the other hand, the opportunity cost of

REDD+ may be very low in areas where woodlands are not used to provide charcoal, timber or other tradable resources (BOND ET AL., 2010).

The reasoning behind REDD+ is that forests are converted to other uses, primarily agriculture, because it makes economic sense, i.e. when the returns from a converted landscape exceed the returns from the natural forest or woodland. However, DEWEES ET AL. (2010) argue that successful management of African woodlands is important for three reasons:

(i) they sequester enormous amounts of carbon;

(ii) they support livelihoods of millions of people and provide a renewable source of energy, i.e., fuelwood and charcoal; and

(iii) their successful management would contribute to poverty alleviation by supporting and strengthening local livelihood strategies.

In times of stress, the forests serve as an insurance against famine by being a source of wild foods and fruits, and other useful products (DEWEES ET AL., 2010). Against this background, REDD+ could be designed to combine carbon sequestration with poverty reduction while excluding restriction of current forest livelihood benefits.

Most of the countries implementing REDD+ projects have some small-scale private sector funding flowing into sub-national level projects based on the existing voluntary forest carbon market created in anticipation of the future development of compliance-based forest carbon markets. In countries such as Tanzania, Kenya and Cameroon, the level of private sector investment in project development is comparable to the level of donor or public funding currently flowing into the country, and these projects have provided valuable models and lessons for the national REDD+ readiness process.

The private sector in the form of project development companies or major financial firms, has entered the marketplace, as new leaders for forest carbon projects. They are building on experiences of earlier progress of non-governmental organisations (NGOs) that worked with conservation (DIAZ ET AL., 2011). Some REDD+ projects in Kenya, Zimbabwe, Malawi and Mozambique have been led by private companies. Projects are challenged for undertaking REDD+ activities in countries that do not have a national REDD+ strategy and have experienced some resistance from civil society and other parties.

Most NGOs, Governments and bilateral organizations implementing projects prefer to invest in areas where they are already working on forest conservation or land-use planning, and where they have existing relationships (CERBU ET AL., 2009). For this reason, most REDD+ pilot projects are implemented via NGOs and are already playing an important role in the

development of REDD+ policy and practice as well as raising awareness among different levels of society on the potential opportunities and risks of REDD+.

National REDD+ activities have been initiated in a few countries with woodland and savannah vegetation, the majority of projects are at sub-national and project level depending on the project developer or funder. There were only five national REDD+ programmes (DRC, Ethiopia, Ghana, Kenya and Nigeria) carried out in African woodlands and savannahs and the rest are implemented at the sub-national or project level. The projects are of various sizes and species mix, distributed on public, private and communal lands and have been developed using a variety of forest management strategies. For some countries, the national REDD+ Programme included revision of appropriate policies, legislation and strategies, development of alternative livelihoods (e.g. beekeeping), capacity building, sustainable agriculture and land use practices and the provision of alternative energy sources to reduce demand for charcoal and firewood.

The inventory of forest carbon projects shows two categories of REDD+ projects:

1) operational projects: are those that have completed transactions of carbon credits or have been validated under an offset standard; and

2) pipeline projects: referring to those projects that have yet to transact carbon credits or complete validation under an offset standard.

Eight projects are in the pipeline while seven are operational and they vary across countries, affected by land tenure systems and different drivers of deforestation and forest degradation (Table 2). They offer valuable lessons for realizing REDD+ under heterogeneous conditions.

Various sources provided additional REDD+ activities in African woodlands although most of them have not traded their carbon. Projects have life spans ranging from 4 to 100 years. More projects in woodlands are putting greater emphasis on payment for ecosystem services (PES) (36%) while others focus on avoided deforestation (20%), followed by Afforestation/Reforestation (A/R) (14%), participatory forest management (PFM) and conservation (13%), tree planting (10%) and others (7%) (http://www.forestcarbonportal.com/projects) (Table 2). All of them aim at carbon storage in forests ecosystems. Only 0.04% of the projects are complete while 20% are planned.

Table 2. The REDD+ related projects in African woodlands and savannah ecosystems.

Country	Project category						
	A/R	Cons	REDD+	A/F	PES	Others	Total
Burkina Faso (FIP)	1				-		1
Cameroon (R)	1	2	15	-	2	2	22
DRC (R and FIP)	-	-	3	-	-	-	3
Ethiopia (R)	2	3	1	-	-	-	6
Kenya (R)	4	6	3	8	17	3	41
Malawi	1	-	1	1	-	1	4
Mozambique (R)	-	-	2	-	-	-	2
Ghana (R)	-	4	5	-	-	3	12
Nigeria (R)	-	3	-	-	-	-	3
South Africa	3	1	-	1	5	1	11
Sudan (C)	1	-	-	-	-	-	1
Tanzania (R)	5	2	3	4	11	1	26
Togo (S)	1	-	-	-	-	-	1
Uganda (R)	5	-	-	5	27	1	38
Zambia (R)	-	2	1	-	-	-	1
Zimbabwe	-	-	2	-	-	-	1
Total	24	23	36	19	62	12	173
Proportion (%)	14	13	20	10	36	7	100

R = REED+ participant country, FIP = Forest investment programme, C = REDD+ candidate country, S = submitted spontaneous submission, A/R = Afforestation/reforestation, Cons = conservation includes CBFM and PFM/SFM, Others include surveys, ecotourism, fuel conservation and A/F = Agroforestry. (Sources: http://www.forestcarbonportal.com/projects; http://theredddesk.org/; http://www.rainforest-alliance.org/climate/standards; https://www.climateinvestmentfunds.org/cifnet/).

In Tanzania, REDD+ strategy development and implementation process has been initiated by nine NGOs, with funding mostly from Norwegian Government (about NOK 190 million) and the projects will end in 2013. In Zambia, REDD+ activities focused on the Measurement, Reporting and Verification (MRV) of the carbon stock based on the development of a decentralized national forest monitoring system (NFMS) while in West Africa, some activities were based on carbon assessments using GIS and remote sensing (RS). The Katoomba Group has the widest coverage with several projects in East, West and Southern Africa followed by the International Small Group Tree Planting Programme (TIST) in Kenya, Uganda and Tanzania.

Countries, such as Kenya, Zambia and Mozambique have had the advantage of receiving international funds that link poverty reduction and carbon by hosting clean development mechanism (CDM) projects and also being designated as REDD+ pilot countries (Figure 7). There are other forms of REDD+ financing apart from the UN and World Bank (WB) whose carbon trading is based on voluntary markets.

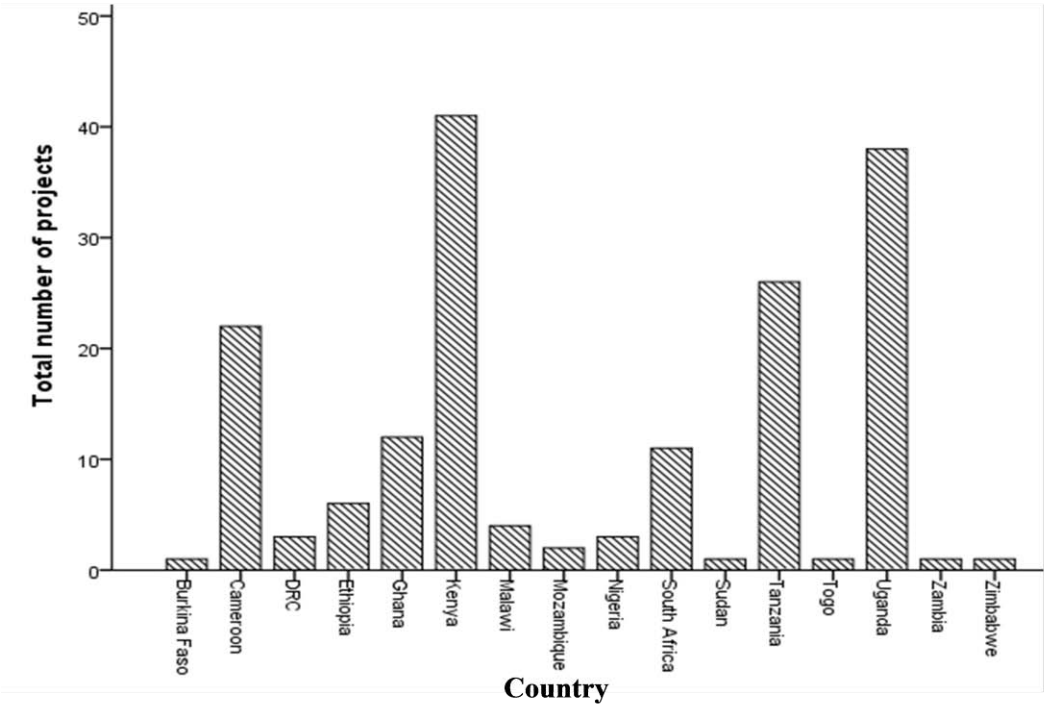

Figure 7. Total number of REDD+ related projects in African woodlands and savannahs (DRC = Democratic Republic of Congo (source: http://www.forestcarbonportal.com/projects).

CARBON FINANCE SCHEMES FOR CLIMATE CHANGE MITIGATION IN AFRICAN WOODLANDS AND SAVANNAHS

Overview of carbon markets and funding

There has been a rise in the average price for carbon offsets across the primary forest carbon markets from \$3.8/tCO_2e in 2008, to \$4.5/tCO_2e in 2009, and up to \$5.5/tCO_2e in 2010. The 2010 forest carbon market had an increase as a result of large REDD+ projects, which supplied 19.5 MtCO_2e (67%) out of the total (29.0 MtCO_2e) contracted in the primary market" (DIAZ ET AL., 2011). Most of these were from Asia and Latin America with only a few projects from Africa. This lack of REDD investment in Africa could be attributed to investor perceptions of poor governance and institutional structures, which increase the risk for REDD+ investments (GLOBAL WITNESS, 2012). One of the carbon markets is called the voluntary offsets market or Over the Counter (OTC) market and does not operate via a formal exchange. The ecosystem market place (PETERS-STANLEY AND HAMILTON, 2012) showed that 9% of OTC market share was from REDD+ activities while 4% was from forest management activities. However, only 1% of the overall market share was from Africa. Credits in this market are generally referred to as Verified (or Voluntary, depending on the source) Emissions Reductions (VERs), or simply as carbon offsets.

Carbon markets can either be based on legally binding agreements or can be voluntary market depending on the types of implementing agencies. Voluntary carbon markets include all acquisitions of carbon credits not driven by an existing regulatory compliance obligation, including transactions of credits created specifically for the voluntary markets (such as Verified Emission Reductions – VERs), as well as regulatory market offsets or payments that buyers obtain to voluntarily offset their emission. Voluntary carbon markets are divided into two: (1) the Chicago Climate Exchange (CCX) and (2) the OTC Market. The CCX is cap-and-trade system, while OTC markets are project-based carbon markets. A cap and trade system is a means by which reductions in greenhouse gas (GHG) emissions can be implemented. It involves creating a market where GHG emission allowances can be bought and sold by entities to facilitate the reduction of GHGs in a way that prevents inflexible limitations on economic activities (http://www.investopedia.com/terms/c/cap-and-trade.asp). A regulatory system that is meant to reduce certain kinds of emissions and pollution and to provide companies with a profit incentive to reduce their pollution levels faster than their peers. Under a cap-and-trade program, a limit (or "cap") on certain types of emissions or pollutions is set, and companies are permitted to sell (or "trade") the unused portion of their limits to other companies that are struggling to comply. Voluntary carbon markets also include transactions of voluntary credits in anticipation of future conformity or obligations ("pre-compliance") (PETERS-STANLEY AND HAMILTON, 2012) and contain a number of different carbon offset accounting standards with different rules, infrastructure requirements

and, in most cases, without any standards body actively approving issuance and treatment of units created. The majority of standards are linked with a third party registry provider, e.g. the Voluntary Carbon Standard Association (VCSA) based on very structured procedures for registry operations, including the designing of operational and audit procedures. The VER and OTC have had three projects.

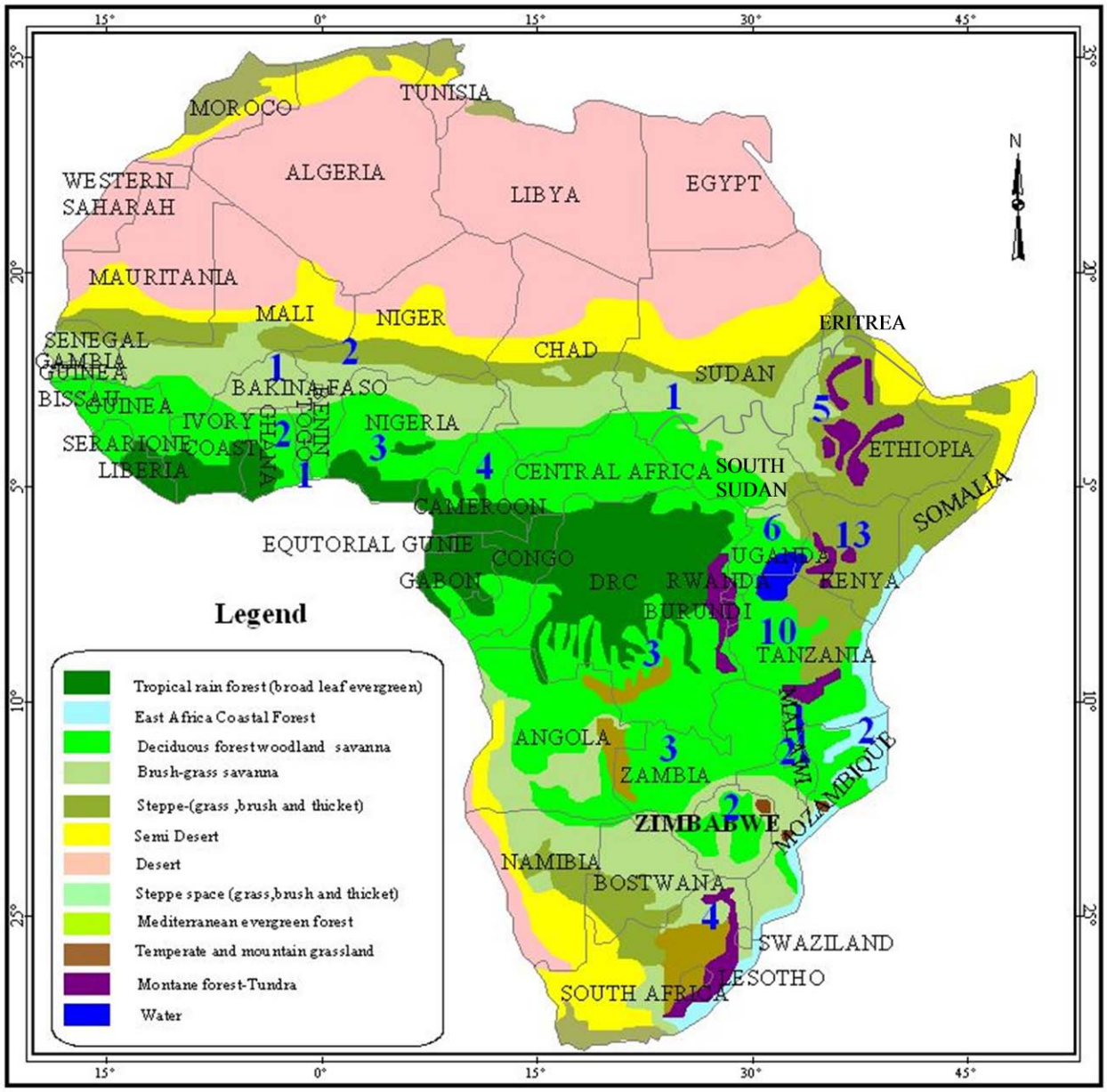

Figure 8. Vegetation map of Africa showing location of REDD+ project activities in African woodlands and savannahs. Figures indicate number of operational projects in each country (Map modified from http://www.mapsnworld.com/africa/natural-vegetation-africa.html).

The main financing schemes support projects on the basis of either or all of the following standards: UN-REDD, FIP, FCPF, Voluntary Carbon Standards (VCS), Climate, Community and Biodiversity Standards (CCBS), Carbon Fix Standards, Plan Vivo (PV) Standards and BioCarbon Funds Standards. These carbon finance standards have implication for climate change mitigation project formulation in the African continent considering the difficulties in the determination of baselines against which reductions are measured and how leakages are avoided (ANGELSEN, 2008). The standards, however, provide a platform for avoiding/mitigating adverse impacts whilst generating substantial and sustainable additional benefits for custodians of forest resources. Though there are many motivations to incorporate these standards, there is no guarantee for compliance as most international standards need to be modified to each country/project context.

Funding and associated standards

Financing of REDD+ activities in Africa has been channelled through the UNFCCC, Forest Carbon Partnership Facility (FCPF), Forest Investment Program (FIP), Bio Carbon Fund (BioCF) and the UN-REDD Programme apart from private and public funding. Standards, funding and development of REDD+ projects are primarily driven by players in developed countries, where there is demand for both offsets and a strong obligation for environmental co-benefits. Interest in environmental co-benefits is now being reflected in the engagement of environmental organisations for the development of REDD+ projects. Mechanism for funding REDD+ projects may either be an international fund that provides financial compensation for the REDD credit, or a carbon market where credits can be traded or a combination of the two.

The multilateral initiatives of the UN and the World Bank have focused on building capacity at national and regional levels. Bilateral and private funding initiatives have built readiness capacity whilst exploring ways to fund forest carbon emission reductions through results-based payments for emission reduction programs (ERPs). These include the European Forest Institute REDD+ Facility funded by the European Union (EU-REDD Facility), Norway's Forest and Climate Initiative (NCI), the Clinton Foundation, the International Tropical Timber Organization (ITTO) and the Congo Basin Forest Fund (CBFF) and some private financing.

In some countries public finances have been allocated to emission reductions. Each financing strategy (UN-REDD, FCPF, etc.) has specific standards that provide a sound basis for integrating social and environmental concerns for integrity of REDD+. A summary of the number of projects that have applied different standards is shown in Figure 9.

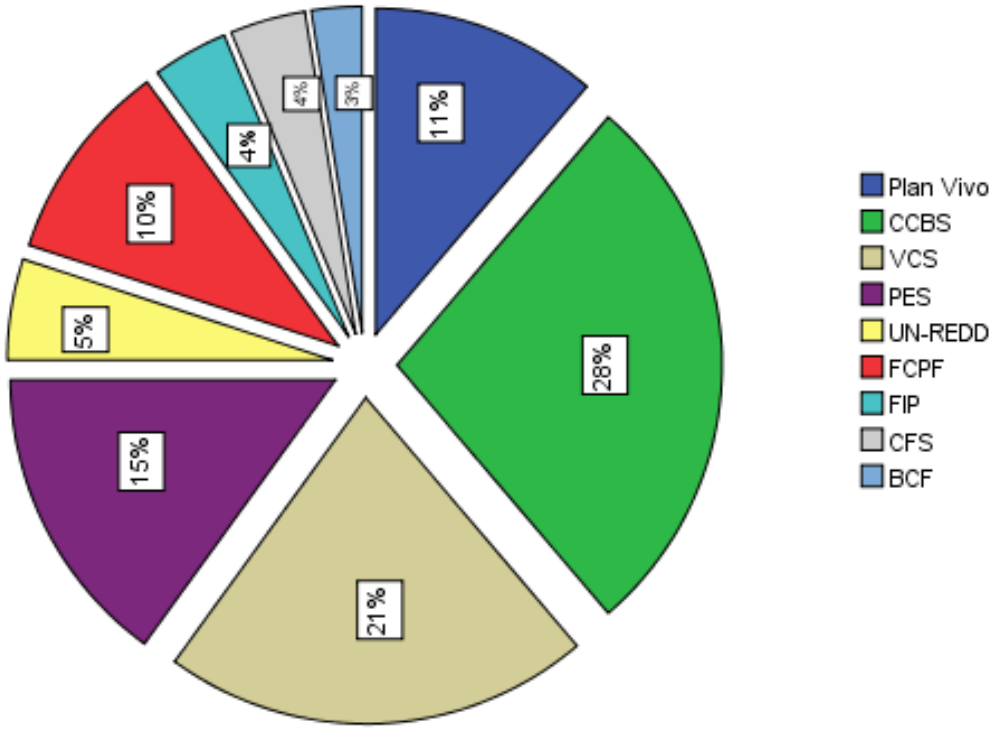

Figure 9. The distribution of projects based on verification standard. CCBS = Climate, Community and Biodiversity Standards, VCS = Verified Carbon Standard, PES = Payment for Ecosystem Services, FCPF = Forest Carbon Partnership Facility, FIP = Forest Investment Programme, CFS = CarbonFix standard and BCF = BioCarbon fund (Sources: http://theredddesk.org/markets-standards; http://www.vcsprojectdatabase.org/; http://www.planvivo.org; http://www.v-c-s.org; www.climate-standards.org/REDD+).

The UNFCC coordinates the REDD+ partnerships, which is open to all countries willing to support or undertake REDD+ actions. The Partnership included 14 countries with woodlands and savannahs and these include: Angola, Burundi, Cameroon, Democratic Republic of Congo, Ghana, Kenya, Mozambique, Nigeria, Rwanda, South Africa, Tanzania, Togo, Uganda, and Zimbabwe. The UN-REDD programme functions as the UN collaborative scheme for REDD+ activities in developing countries. The developing countries are assisted in preparing and implementing national REDD+ strategies building on technical expertise of the Food and Agriculture Organization of the United Nations (FAO), the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP). The Programme supports national REDD+ readiness efforts in partner countries through direct support for design and implementation of UN-REDD National Programmes and complementary support to national REDD+ action through common approaches, analyses, methodologies, tools, data and best practices developed through the UN-REDD Global Programme. The programme has a critical role to play both in supporting the emerging interim arrangements for REDD+ financing and coordination, and support of

the incorporation of an effective REDD+ mechanism within a post-2012 climate change agreement functioning as a multilateral, country demand-driven initiative.

UN- REDD projects in woodlands and savannahs

Fifteen African countries with woodlands have presented National Programmes to the UN-REDD Programme Policy Board and four have been allocated some funding for national programme activities, namely Democratic Republic of the Congo (DRC), Nigeria, Tanzania and Zambia. These countries receive funds to help support the development and implementation of national REDD+ strategies. Nevertheless, there are other UN-REDD Programme countries that do not receive direct support to national programmes (other partners) but engage with the Programme in several ways, including being observers to the Programme's Policy Board and participating in online interactive regional workshops and knowledge sharing activities. The countries include Benin, Cameroon, Chad, DRC, Ethiopia, Ghana, Kenya, South Sudan, Sudan, Uganda and Zimbabwe. (http://www.un-redd.org/Partner_Countries/tabid/102663/Default.aspx). There are pressures for some REDD countries to meet some of the performance terms of initial REDD+ investment packages, resulting in them being tagged as country candidates. Only three countries, namely Cameroon, Ghana and Kenya, have submitted their country profiles to the REDD+ desk (Table 3).

Table 3. Summary of number of REDD+ projects in Cameroon, Ghana and Kenya.

Phase	Kenya		Ghana		Cameroon		Total		Grand Total
	National	Sub-National	National	Sub-National	National	Sub-National	National	Sub-National	
Active	4	7	3	1	1	15	8	23	31
Completed	-	2	-	-	-	2	-	4	4
Planned	1	8	-	-	-	-	1	8	9
Total	5	17	3	1	1	17	9	35	44

The distribution of UN-REDD Projects in African woodlands and savannahs shows a concentration in East and West Africa with Kenya having the highest number of national projects (4).

Forest Carbon Partnership Facility (FCPF)

The FCPF was launched in June 2008 and is funded by the World Bank to provide a framework for piloting activities to reduce emissions from deforestation in response to the UNFCCC decision on reducing emissions from deforestation and forest degradation in developing countries. The FCPF is funded by the public sector, private sector and NGOs to support developing countries to reduce emissions from deforestation and forest degradation, coupled with conservation, sustainable forest management and enhancement of forest carbon stocks. The FCPF acts as trustee to two funds, i.e. the Readiness fund and the Carbon Funds. The former supports country readiness efforts while the latter provides payments for certified emissions reductions from REDD+ countries that have made considerable progress towards REDD+ readiness. The World Bank manages the Readiness Fund and the Carbon Fund and provides secretariat services through a facility management team (FMT) and ensures that the facility operations comply with applicable policies in the areas of safeguards, procurement and financial management.

About five REDD+ Country Participants, namely DRC, Ghana, Kenya and Tanzania are planned to qualify for the Carbon Fund based on a progress assessment by the FCPF Participants Committee. To date, the FCPF is associated with 12 countries in Africa, eight of which are also partners of the UN-REDD Programme. Only eight of the countries have woodlands and savannahs. The countries that have made progress with FCPF having woodlands include Cameroon, DRC, Ethiopia, Ghana, Kenya, Tanzania and Uganda. Burundi, Burkina Faso, Nigeria and Sudan are candidate countries. Togo submitted a spontaneous submission (http://www.forestcarbonpartnership.org/). The project in Ethiopia has had challenges of complaints submitted to World Bank Inspection Panel implicating human rights abuses in the form of forced 'villagisation' by the Ethiopian Government (HUMAN RIGHTS WATCH, 2012).

The Forest Investment Program (FIP)

The FIP is a targeted program of the Strategic Climate Fund (SCF), which is one of the two funds within the framework of the Climate Investment Funds (CIF). The FIP is a targeted program of the CIF designed to support REDD+ efforts of developing countries through the provision of scaled-up financing for readiness reforms as well as public and private investments. The fund, therefore, supports developing country efforts to reduce deforestation and forest degradation while promoting sustainable forest management, which, in turn, leads to emissions reductions and enhancement of forest carbon stocks. Only Burkina Faso, DRC and Ghana are benefiting from FIP funds. FIP resources complement other REDD+ financing mechanisms such as the FCPF, GEF and the UN-REDD programme. Stakeholders of CIF include Multilateral Development Banks, UN and UN agencies, Global Environment Facility (GEF), UN Framework Convention on Climate Change (UNFCCC), Adaptation Fund, Bilateral Development Agencies, Non-Governmental

Organizations, Indigenous Peoples, Private Sector Entities, and Scientific and Technical Experts (https://www.climateinvestmentfunds.org/cif/).

BioCarbon Fund

BioCarbon fund is a public/private initiative established in 2004 as a trust fund administered by the World Bank to purchase carbon from agriculture, forestry and other land uses (AFOLU) projects that sequester or conserve carbon in forests and agro-ecosystems. BioCarbon Fund projects generate multiple revenue streams, combining financial returns from the sale of carbon credits resulting in increased local incomes and other indirect benefits from sustainable land management practices. The fund delivers carbon finance to many developing countries through purchase of carbon that otherwise had less opportunities to participate in the Clean Development Mechanism (CDM) or to countries with economies in transition through joint implementation (wbcarbonfinance.org/).

The BCF tests and demonstrates how land use, land-use change and forestry (LULUCF) activities can generate high-quality emission reductions (ERs) with environmental and livelihood benefits that can be measured, monitored and certified while standing the test of time. BioCarbon fund aims to contribute to bottom-up rulemaking for CDM by bridging the gap between general guidelines and methodologies with their application to real-world projects. The BCF had three projects in Eastern African woodland and savannah areas (Ethiopia, Kenya and Uganda) selected on the basis of the likelihood of the project to raise the expected benefits for the local environment and communities, and the developer's track record (http://www.biocarbonfund-isfl.org/programs).

Additionally, there is provision for funding aimed at defraying project preparation costs for BioCarbon Fund for carbon sequestration projects in developing countries and economies in transition called the BioCFplus program. BioCFplus funds are also used to disseminate lessons learned and reach out to various constituents regarding the pioneering role of the BioCarbon Fund highlighting the development benefits of carbon sequestration projects (http://www.biocarbonfund-isfl.org/).

The CarbonFix Standards (CFSs)

The CarbonFix Standard was developed in 2007 to set a quality benchmark for worldwide climate forestation projects by combining criteria on sustainable forest management and CO2-fixation. The CFSs offers clear and simple standards for promoting the potential of forest carbon projects and increasing the prevalence of sustainably managed forests worldwide. CarbonFix Standards recognise the Forest Stewardship Council (FSC) for forest management, environment and socio-economic aspects and CCBA as additional environment and socio- economic aspects of the standards. The CFSs have been applied to

two projects in Eastern Africa (Ethiopia and Uganda) and one in West Africa (Togo) (http://www.carbonfix.info/Project.html).

Payment for Ecosystem Services (PES)

Payments for ecosystem services are performance-based payments that are based on the ability to reduce conversion of forest land or achieving some other quantifiable environmental benefit by integrating PES with community forest management (HARLEY ET AL., 2012). They are voluntary, conditional transactions between at least one buyer and one seller for well-defined environmental services or other appropriate land uses (WUNDER, 2005). The ecosystem services include watershed protection, biodiversity conservation and carbon sequestration. Activities for PES have been carried out and reviewed in West Africa (HARLEY ET AL., 2012) and Eastern and Southern Africa (BOND ET AL., 2008). The projects have also provided lessons for REDD+ activities especially on issues of governance and benefit sharing. Five countries have had experiences with 12 projects that focus on PES, i.e. Cameroon, Kenya, South Africa, Tanzania and Uganda (http://go.worldbank.org/ZJ6ABRH770).

The Plan Vivo (PV) standards

The Plan Vivo (PV) standards enable targeted rural communities to access carbon finance through generating carbon credits from the voluntary carbon market. In addition, PV provides standards for small scale LULUCF projects aiming at sustainable development and improvement of rural livelihoods and ecosystems. The system is “voluntary” and attempts to create simple project specific mechanisms. Plan Vivo standards ensure that the carbon credits are traceable and monitored, and the price of carbon is decided by each project based on local conditions and costs. Currently, no third party verification is required for monitoring.

In addition, PV procedures are considerably less complex compared to the other methods despite the need for more research to enhance the convenience of monitoring and verification approaches, and promote the best practices and lessons learned in project implementation. Several projects e.g. in Malawi found the PV standards too high to attain accreditation as they focus on the high socio-economic standards and livelihood co-benefits (STRINGER ET AL., 2012). Hence, some of the projects failed to be implemented. Five projects from Eastern Africa, two in West Africa and two in Southern Africa have applied the PV. Projects applying CFSs and PV have grown in recent years, attracting new projects that continue to successfully find buyers securing higher prices than those using other standards (DIAZ ET AL., 2011). Differences among them stem in part from the narrower niche and smaller portfolio of projects focused on tree planting on the one hand (CFS), and smallholder and community engagement on the other (PV). The capacity of projects to generate PV Certificates increases with capacity to scale up and engage more

communities. Plan Vivo registered projects in Africa are found in Uganda, Mozambique and Tanzania (http://www.co2offsetresearch.org/policy/PlanVivo.html).

Verified Carbon Standards (VCSs)

The Verified Carbon Standard (VCS) is one of the leading standards for voluntary carbon offsetting providing credible but simple set of criteria that will provide integrity to the voluntary carbon market. The VCSs are robust, global carbon offset standards for VER providing specific methodologies to quantify carbon emission reduction, though social and biodiversity co-benefits are not considered. Seventeen projects (from DRC, Malawi, Kenya, Tanzania, Uganda, South Africa, Zambia and Zimbabwe) have been registered under this standard (http://www.vcsprojectdatabase.org/; http://www.v-c-s.org) with more than half having more than one standard. In Tanzania, one project has been certified by both VCSs and FSC standards.

Climate, Community and Biodiversity Standard (CCBS)

The CCBS is a standard for evaluation of designs of land-based carbon mitigation projects, offering rules and guidance for project design and development at early stages. The CCBS identifies projects that simultaneously generate climate, biodiversity and sustainable development benefits. However, carbon credits are not issued under this standard. The Alliance for CCB is formed by representatives from five member organisations; CARE, Conservation International, The Nature Conservancy, Rainforest Alliance and Wildlife Conservation Society. The Alliance makes decisions about changes to the standards and the rules for their use. It also produces additional guidelines to assist interpretation and application of the standards as needed. About 22 projects have been submitted for verification under CCBS, seven of which have attained CCBS-gold standards while 11 have achieved both CCBS and VCS (http://www.climate-standards.org).

Standards such as PV and CCBS make use of existing more informal customary institutions that administer small-scale resources (PAAVOLA, 2007) relying on simple, community-based monitoring, thus, avoiding large investments in new capacity building initiatives.

The REDD+ Social and Environmental Standards (SESs)

The REDD+ SESs are a set of voluntary standards for government led programs, developed through a multi-stakeholder process and gives substantial attention to land and resource rights (DARBIN AND FRANKS, 2010). The SESs build on the experience of the existing CCBS and are designed to work for the new global REDD+ regime that will emerge out of on-going UNFCCC negotiations. The standards are designed for government-led programs implemented at both national and sub-national levels, including all forms of financing. Understanding the application of social and environmental safeguards to REDD+

will improve the sustainability of the REDD+ mechanism and positively affect its potential to deliver measurable lasting emissions reductions and enhanced removals. They also reduce exposure to legal, financial and reputational risks for the private sector, donors, investors, multiparty bodies and civil society (CAMPESE, 2011). Applicability of SESs has been tested in Tanzania (DARBIN AND FRANKS, 2010).

CHAPTER 4 Potential and pre-conditions for increased implementation of REDD+ activities in African woodlands

REDD+ has revived the global relevance and activities of the forest sector by creating an opportunity to increase the value of forests while achieving sustainable forest management (SFM). The opportunities for REDD+ stand in the fact that REDD+ can address some of the main drivers of deforestation and forest degradation at a large scale by involving several players at different levels (national, sub-national or local) in REDD+ activities. Integrated carbon management, poverty reduction and sustainable development activities represent a valuable opportunity to build multi stakeholder partnerships, share knowledge, empower local communities and integrate local-level activities into the wider carbon trading system (STRINGER ET AL., 2012).

The potential of REDD+ in woodlands and savannahs can be achieved by the recovery of the woodlands after clearing since most of the woodland species have extensive rooting systems that facilitate recovery after cutting (MISTRY, 2000). For example, data on primary production and soil carbon availability indicate that miombo woodlands can sequester 900-1600 g m^{-2} yr^{-1} of carbon (FROST, 1996). In addition, re-growth stands are highly productive ecosystems with higher growth rate (4.4-5.6 mm yr^{-1}) than uncut stands (2.3-4.8 mm yr^{-1}). They have high rates of photosynthetic processes and therefore high uptake of carbon dioxide. This, therefore, implies that even with high levels of deforestation in African countries (with six of the countries among the global top twenty), there is potential for management for carbon sequestration through coppice or regeneration management in African woodlands and savannahs (CHIDUMAYO, 1991, 1993). This has been demonstrated in Ethiopia and in Tanzania REDD+ projects that have been successfully built on existing good practices grounded on community-based forest management principles (ROHIT ET AL., 2006).

However, in most countries, the current policy framework is not sufficient to ensure the reflection of international environmental and social safeguards and standards for REDD+. In most cases, existing law and policy instruments show that some components of REDD+ standards are not “new” issues for the African continent. The existing instruments, however, provide a strong starting point for further elaboration of REDD+ specific standards (CAMPESE, 2011). In addition, projects have shown clear links between the three phases of REDD+, i.e.:

Readiness ⟶ Investments ⟶ Performance-based payments

REDD+ interventions can only be effective if they tackle the fundamental socio-economic and governance issues that have played historically significant roles in forest degradation (BEAUCHAMP AND INGRAM, 2011). The potential and pre-conditions for increased implementation of national and sub-national REDD+ activities in African woodlands and savannahs are, therefore, based on knowledge of the drivers of deforestation and forest degradation, issues of tenure, co-benefits and benefit sharing mechanisms, governance and institutional reforms, MRV, and how the issues of leakage and uncertainties are addressed.

IDENTIFICATION OF DRIVERS OF DEFORESTATION AND FOREST DEGRADATION

The forest sector and REDD+ should not be viewed in isolation but should involve other sectors, as others may call it “looking beyond the tree canopy”. However, REDD+ offers a unique opportunity for a triple action of mitigation, adaptation, and poverty alleviation. The projects evaluated show that REDD+ can enhance the management of forest resources and strengthen the adaptation potential against adverse impacts from climate change while generating positive effects of poverty alleviation through increased forest production and enhanced agricultural productivity.

Previous efforts to curb deforestation and forest degradation did not succeed as a result of failure to address the fundamental drivers of deforestation and forest degradation. Once the drivers are clearly identified and quantified, they should be followed by a clear methodology for addressing and assessing the drivers.

COMMUNITY INVOLVEMENT

Although REDD+ is still in its infancy, several lessons can be drawn from the pilot projects in African woodlands and savannahs based on the understanding that individuals and communities have an important role in delivering emissions reductions. All projects are expected to build safeguards following Social Impact Assessment guidelines and Free, Prior and Informed Decision (FPIC) procedures at early stages of development. In some countries, safeguards for community REDD+ projects are non-existent, incoherent or only appear as part of donor requirements and, hence, theoretical.

Most of the REDD+ projects are building on existing participatory/community-based forest management programmes and in protected areas with clear forest boundaries, local autonomy in designing clear and enforceable rules, including access and use of forests. Expansion of existing practices into REDD+ projects has potential of being effective as demonstrated in the Tanzanian case study where the projects are based on the positive experiences with participatory forest management (PFM) in design and implementation.

They have provisions to monitor and sanction rule violations. Benefit flows are also predictable. It is possible to capitalise on existing forest management regimes, especially those that were established without carbon finance (and had limited success). The financial benefits from carbon are likely to provide a better incentive for protection, control and sustainable utilisation of the forest resources.

A case study project in Kenya has shown the importance of building safeguards for REDD+ in the form of social impact assessment and FPIC in early stages, although for some national programmes in West Africa, safeguards for community REDD+ projects are just theoretical. There are additional benefits of engaging neighbouring communities if REDD+ projects have to succeed. The villages in Lindi, Tanzania, have formed networks with their neighbours to monitor any abuse of forest resources. Transparent information flows are very important at all scales from local to international levels.

BENEFIT SHARING

The existing market has set the application for certification of co-benefits under the CCBS as a key requirement that REDD+ projects must deliver. The other factor that can stimulate success of REDD+ initiative is the participation of all community members in decision making processes regardless of status including democratic decision- making and benefit sharing. For example, the Community Carbon Enterprise (CCE) model in Tanzania relies on clear information flow between the actors with particular reference to carbon transactions, transparent information flow, democratic decision making and honesty at all levels (KIMBOWA ET AL., 2011). There was a shift in the attitude of community members in favour of forest conservation after initial payments to villages participating in REDD+ projects. They were also ready to expand project areas in some village forest reserves.

There is need to outline accountability procedures, including potential amounts and timing of payments. The importance of co-benefits of REDD+, such as the provision of fuelwood, medicines and catchment functions arising from forest conservation at the community level (in addition to the carbon payments) should not be overlooked. This could be done by increased awareness and documentation about the contribution of service roles of forest conservation (KIMBOWA ET AL., 2011). Accountability should be clearly spelled out in the local bylaws to avoid selfish incidences as happened in Tanzania where, in one village, the Village Chairperson ran away with some TZS 504,000.00 (about US$323.00), and in another case the project officers were not faithful. Effective benefit sharing mechanisms are needed to ensure equitable compensation of forgone opportunity costs.

MEASURING, REPORTING AND VERIFICATION (MRV)

All countries need a reliable and credible system of MRV changes in carbon stocks. The MRV methods can be too technical at some level and, hence, the involvement of experts in

the process cannot be overruled. Although village members in all projects are involved in taking measurement on various tree parameters as part of forest inventory and carbon assessment, preceding calculations of carbon stocks requires more advanced skills. Attention should therefore be paid to securing long-term technical assistance in all project sites on MRVs. There is need for more uniform knowledge of MRV and leveraging of carbon markets at the local level. The success of REDD+ depends on design of methodologies and procedures that are more workable and less complicated than the experiences of the previous CDM projects. Countries need assistance to build institutional capacity for national REDD+ monitoring and verification so that implementation of REDD becomes easier and more accurate.

TENURE AND RIGHTS

There are tenure risks and opportunities that are likely to be generated by REDD+ initiatives within each country or location. Some of these are addressed through international REDD+ frameworks that provide tools for tenure recognition as communities increasingly become key authorities for forest management practices. In some cases, conditions for security of tenure in communities forms the basis for equitable and effective REDD+ initiatives (ANGELSEN AND WERTZ-KANOUNNIKOFF, 2008) since REDD enables communities to have rights to carbon sequestered in their forests.

About 98% of forests in Africa are under government ownership, 0.4% owned by community and indigenous people, 1.6% designated for use by communities and indigenous people and 0.1% owned by individuals and firms (SUNDERLIN ET AL., 2008). In South Africa, 10% of areas have formal entitlements while the rest are under customary tenure (HATCHER AND BAILEY, 2011; ALDEN WILEY, 2011A). Ghana has family lands covering 18 million ha while Tanzania has some village land areas covering 60 million ha. In some parts of Mozambique, formal community areas cover 7 million ha (ALDEN WILEY, 2011B). There is, however, a global shift towards “tenure transition”, which has been demonstrated by way of declining state ownership of forest land and increasing devolution to individuals, communities and enterprises (SUNDERLIN ET AL., 2008). The transition from constitutional rights to the effective realisation of rights entails associated responsibilities and benefits that support institutional and governance frameworks at various levels (CRONKLETON ET AL., 2011). Such transition is favourable for REDD+ projects.

In countries, such as Malawi, Zambia and Zimbabwe, areas that could potentially contribute to REDD+ activities could fall short of tenure condition unless there is adequate recognition of the indigenous, informal or customary rights. In all project sites, except the Kenyan case study, the project areas are owned and controlled by states and generally reflect a historical process of expropriation of lands under colonial regimes, regardless of underlying customary rights. The Tanzania forest Act has, however, provided for community rights over

forest land, and this has contributed to some progress in REDD+ although the issue of carbon rights is not addressed. Cameroon also recognises community forests. Studies by DAVIS ET AL. (2008) and DOOLEY ET AL. (2008) showed that issues of tenure in REDD+ readiness preparation processes were insufficient and generally underfunded. In terms of land tenure, REDD+ projects on privately owned and managed lands have been more successful for both profit and non-profit project developers.

GOVERNANCE ISSUES

There is a need to put in place solid governance structures important for the coordination and collaboration activities of both governmental and NGOs to facilitate the implementation of REDD+. Good governance can avert corruption and deliver transparent information on GHG emissions and removals from the forest and other related sectors (MBOW ET AL., 2012). Conflict resolution has been one of the most persistent challenges in forest governance, even before carbon markets were unveiled. For REDD+ projects, there is need for resolution of conflicts concerning land and carbon rights of local peoples. In some project sites, boundary conflicts have emerged and have been resolved by intervention of government departments.

There has been increased activity of the development of projects in areas with communal or customary ownership and tenure. Most of the successful forest carbon projects have focused on projects where legal environments are relatively stable and ownership and land tenure are clear. Encouraging the resolution and clarification of land rights in areas of conflict holds direct potential for improving forest governance and conservation as well as offering expanded opportunities in the forest carbon markets. This creates a more stable legal environment needed by project developers/investors for creating larger-scale carbon finance. Funding sources and delivery structures need good governance and institutional structure, including adequate human and institutional capacity to function effectively.

There is a need for each country to have an objective and comprehensive assessment of their laws and governance structures in order to identify the areas that need governance reforms. This is because the success of REDD+ in all communities depends on the availability of well-defined governance agreements and enforceable land rights and tenure for carbon.

CHAPTER 5 Best REDD+ practices and approaches and their potential for up- and out-scaling

CRITERIA FOR BEST REDD+ PROJECTS

Best REDD+ projects should be built on grounds of several factors (Figure 10) including:

(i) incentives - countries create incentives to reduce emissions and enhance carbon capture through direct payments for performance, indirectly by changing policies, or both;

(ii) institutions - countries need to develop institutions, either by setting up new ones or by reforming existing institutions, to manage the flow of information and benefits; and

(iii) information - countries establish reliable systems to collect information about changes in forest carbon stocks, thus, secure cash flows from carbon sales (ANGELSEN ET AL., 2009).

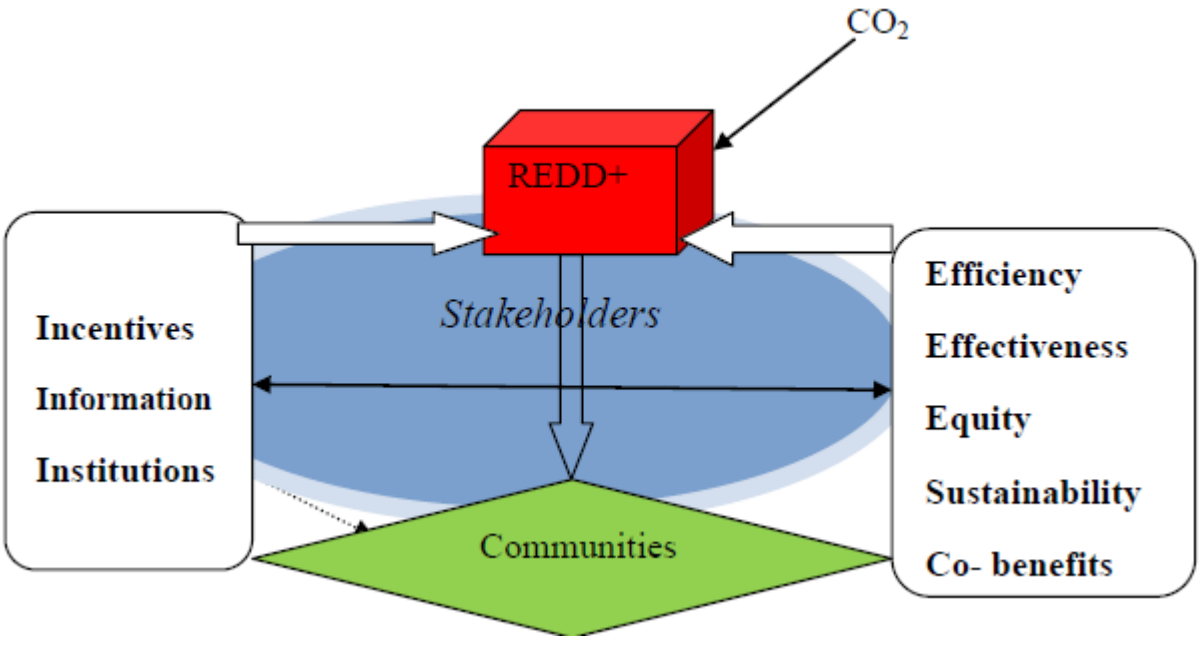

Figure 10. Conceptual framework of important components of successful REDD+ projects.

If initial multi-stakeholder dialogue and awareness raising are conducted in advance, stakeholders are more supportive and have greater trust in the process, which increases the likelihood of REDD+ success.

In addition, good projects should be:

(i) effective - tackling fundamental socio-economic and governance challenges that have historically played significant part in forest degradation (BEAUCHAMP AND INGRAM, 2011);

(ii) efficient - aligning project development costs with expected carbon funds and livelihood benefits by considering social, technical and institutional benefits;

(iii) equitable - demands fair treatment (SCHROEDER AND PISUPATI, 2010). Potential effectiveness and sustainability of REDD+ initiatives will develop from their ability to alleviate poverty and promote fair access to livelihood opportunities and benefits as well as institutional and capacity development required to achieve stated goals;

(iv) sustainable - stresses on the potential of communities to reduce reliance on external support (HARLEY ET AL., 2012); and

(v) co-benefits - clearly outlined.

Effectiveness goes beyond carbon to include the creation of improved livelihood opportunities and considerations of institutional effectiveness and local governance capacity. Existing REDD+ activities demonstrate that forest activities can improve livelihoods of local communities while maintaining environmental sustainability in the form of biodiversity conservation, avoided deforestation, protection of watersheds and, above all, reduce GHG emissions. Most of the woodlands are found on areas of high conservation value where they are protecting watershed areas and biodiversity.

Supporting the ultimate goal

The best REDD+ practices should be used as the bases to drive the implementation activities focusing on reducing carbon emissions and/or increasing forest carbon stocks. The emission reduction goal should be backed by measurable and verifiable data collection methodologies, which should include the carbon as well as the social and other non-carbon benefits.

Community involvement

Community involvement from initial stages provides a platform for learning and gives greater opportunities for up- and out- scaling and ensures continuity and sustainability of existing projects as communities obtain livelihood benefits. This has been built on traditional

models of participatory forest management (PFM), community-based natural resources management (CBNRM) and Joint forest management (JFM). These approaches allow communities to become interested and engaged in project activities thus creating long-term project support within the community. Assessment of projects in Tanzania show that community involvement is associated with improved conservation. The same communities have sensitised and trained neighbouring communities to ensure that they also reduce or avoid deforestation and forest degradation and formed networks to monitor forest resource use.

Transparent benefit sharing mechanisms

Benefit sharing agreements are likely to provide a stronger incentive for the protection of forests as long as the issues of transparency are taken care of (Boxes 1 and 2). Implementation of CCE in Tanzania has resulted in the reduction of carbon emissions in addition to increased availability of other goods and services. The benefit sharing process has resulted in different communities deciding on different strategies to share their money. For example, one community decided to divide the funds to everyone in the community, including the newly born children, others decided not to have any individual shares but channelled everything to community development. Payments as a result of REDD+ projects provide incentives for the rural populations to reduce the rate of deforestation and, in this way, develop adaptation strategies that reduce vulnerability while alleviating poverty.

Availability of carbon markets

Markets should be available for the captured carbon and for goods produced from alternative livelihood strategies. Projects that have developed alternative livelihood strategies have gained greater success (e.g. the clothing factory in Kenya) than those that are solely dependent on carbon sales. Some projects have experienced difficulties in finding markets for the carbon and without alternatives; they have pressure for payments from communities. Projects should provide visible and sustainable benefits as early as possible to gain initial acceptance. Successful implementation of REDD+ will require strengthening the capacity of local communities to manage their forest carbon assets allowing them to benefit fully from evolving carbon markets and other funding schemes although maintaining the sustainability of the forest and security of livelihoods and economic benefits from the forest area can be a challenge.

Carbon finance is likely to encourage the establishment of more forest management agreements, which can provide incentives for avoiding deforestation and forest degradation. It has led to more projects in areas which were not likely to be conserved without carbon finance.

National policies should support project activities

In most of the projects, national policies and decisions have presented significant barriers to the success of forest conservation activities. Projects that are in countries that have made significant progress in policy reviews have had greater success. To ensure conservation of forest resources, governments need to review all non-forest policies (e.g. mining, energy and agriculture) to support forest conservation. There is needed to strengthen community tenure systems, making it an essential component of REDD+ preparations and strategies.

Given the complexity of the drivers of deforestation and forest degradation, a cross-sectorial approach has been implemented in some countries, and this has recorded reasonable success. Countries that have shown positive impacts of the REDD+ processes have activities based on a single national REDD+ readiness plan, showing clearly the complementarities of all projects either at national or sub-national levels.

Box 1. Tanzania Forest Conservation Group and MJUMTA- Lindi project (source: DELOITTE TOUCHE TOHMATSU LIMITED, 2012)

This project is run by 36 villages covering 215,000 ha and has received a five-year financial assistance from the Government of Norway. The project was initiated in 2009, implemented by the Tanzania Forest Conservation Group (TFCG) and the Community Forest Conservation Network of Tanzania (MJUMITA), and the villages have already taken part in dispensing REDD payments among themselves. These were direct and equitable incentives to promote sustainable forest management through participatory carbon and social impact assessments at the village and site levels. In each village, participants had significant control over how payments were distributed and formalised through their village bylaws. There were different income generation levels depending on each village's level of deforestation and community engagement. Payment distribution plans varied for each village with some villages paying every individual, including children (Mkanga I), and others channelling all the money to development. A report by Deloitte AS (DELOITTE TOUCHE TOHMATSU LIMITED, 2012) has stated criticism over the payments sighting that the money was not creating the intended development benefits. However, in many cases within the project area, villages have opted for a mixture that includes direct payments to individuals and payments to community development projects. Some villages have pre conditions for receiving payments and these are embedded in their community bylaws. The payments of carbon finance improved relationships between the communities (trust) and their project partners apart from project ownership. Although the national REDD+ strategy in Tanzania acknowledges community ownership for forest resources, the issue of carbon is not mentioned as a forest product. The issue is likely to be addressed at national level since the Executive Director of TFCG participates in national REDD debates. Village members participate in taking measurement on various tree parameters as part of forest inventory and carbon assessment in one of the villages in Lind rural project site. The MUJIMTA facilitates the sourcing of carbon markets for the projects.

Box 2. Rukinga and Kasigau REDD+ Projects - Wildlife Works, Kenya (source: KORCHINSKY ET AL., 2011)

In this project, a group of ranches form the Rukinga and Kasigau projects, which occupy a fraction of land that forms a corridor between the Tsavo East and Tsavo West National Parks to the East of the Marungu range. The project was verified under VCS and CCB standards and expects to generate one million credits annually. The success of the project is based on security of land tenure and the investment in social capital by Wildlife Works, which has been in the area since 1997. The project has succeeded to incorporate neighbouring ranches, and this has generated income from carbon credits in addition to projects supporting alternative and sustainable livelihoods for affected communities. About 400 jobs have been created worth about 39 million Kenya Shillings annually. The benefit sharing model differs from the one used in Tanzania. The distribution of carbon money is shared by giving a third each for community trust fund, land owners and for operational costs. Utilisation of the trust fund follows specific guidelines beginning with carbon committee in each location forwarded to the disbursement committee for further assessment and approval. About 40 - 50% of the trust money goes to bursaries for secondary school (1,000) and university (29). Experience has shown that the high level of skills and accuracy needed (± 15%) for MRV poses a challenge for communities to do MRV by themselves. In order to maintain verified status, the project components are assessed annually. Other critical areas include the issue of security mainly against poachers and charcoal makers (personal communication).

CHALLENGES OF REDD+ ACTIVITIES IN AFRICAN WOODLANDS AND SAVANNAHS

Payments for reduced deforestation and forest degradation have been theoretically proposed as the easiest answer to managing land use change problems (ANGELSEN AND ATMADJA, 2008). Yet, practically, there are numerous challenges and problems to be overcome in its implementation. The major one has been the idea of making communities understand the relationship between climate change and carbon emissions and link this with carbon trading and carbon markets. In addition, in some communities, it has been difficult to manage community expectations, for example in Ethiopia, they had unrealistic expectations of the level of income that would be generated through carbon sales (RINAUDO ET AL., 2008). This means that future projects will need extensive investment for community education and regular follow ups. In Zimbabwe and Mozambique, communities are disappointed by the lack of payments as the developers struggle to find markets for the carbon. Such projects may need assistance to find the right markets for their carbon.

Most countries with experience of JFM or PFM face some administrative challenges mainly emanating from the inefficiencies of their respective Forest Acts. Only Cameroon, Ghana, Mozambique and Tanzania have statutory instruments that recognise community forests. The rest of the countries have Forest Acts that have no reference to community participation or benefit-sharing schemes. However, conflicts still exist between statutory and customary laws on land administration, resulting in lack of clarity over tree and carbon rights with some

cases where landowners do not control the trees that grow on their lands. People are, therefore, often not motivated to protect trees especially on communal land. Several examples of institutional inefficiency have undermined development policies and aspirations. For example, in most countries, mining and agriculture legislation do not support REDD+ activities in forests, causing a need for review of the laws in favour of conservation and protection of forests. Mining activities in most countries have caused a potential source of deforestation and forest degradation (PUTZEL ET AL., 2011) caused by both domestic and foreign mineral investment objectives. These have gained precedence over forest conservation even when safeguards are explicitly included in the rules and regulations.

Monitoring, reporting and verification of changes in land use and the stability of the change is a challenge. This is because measurement must be against a credible reference baseline for which payments for reduced deforestation and forest degradation can be made, and finding the appropriate baselines for each location has been a challenge. Obstacles to the formulation of a baseline and the eventual establishment of accurate REDD+ monitoring systems include a lack of understanding of the drivers of deforestation and inefficiencies in coordination among institutions involved in land-use planning, among other factors. There is lack of suitable selection criteria and procedures to use for establishing the reference levels and development of a MRV system specific for woodlands and savannahs. There seems to be good progress in MRV at project site levels but there is limited progress in accounting for national projects.

There is need for maximum participation of all stakeholders in project preparation and implementation and strengthening national teams. In addition to the baseline challenge there is also a challenge of the estimation of the costs of implementation and transaction. Transaction costs are incurred by the communities as a result of a REDD+ transaction i.e. costs associated with verifying that the action taken has resulted in a reduction of emissions. Implementation costs of REDD+ are the costs directly associated with the actions leading to reduction of deforestation, e.g. the strengthening of land tenure for communities, monitoring and scouting to prevent outsiders, illegal harvesting of timber and payment of opportunity costs to landowners (FISHER ET AL., 2011).

In Cameroon, there has been minimal involvement of indigenous people or local communities in the initial development of the REDD+ programme. Attempts to strengthen community ownership of land have been made, but this has instead led to amplified logging activities in some remote forest areas (EZZINE DE BLAS ET AL., 2009). This has yielded unexpected results.

There are also challenges of controlling external policy factors and some institutional processes, which make it difficult to estimate the potential sustainability of most REDD+ projects. Many of the challenges, including competing claims and conflict among social

groups and between urban and rural people, trade-offs between food production and environmental protection, conflicting demands on forests, corruption, poor capacity, and a lack of political commitment are somehow external to the forest sector (VAN BODEGOM ET AL., 2009) but need to be addressed.

Determination of social and environmental risks can be a challenge, which can be addressed by designing ways of how to successfully overcome the political and economic drivers of deforestation, such as corruption. The legal and policy issues on carbon rights, coupled with prevention of leakage and the determination of the levels of payments, have become challenges.

CHAPTER 6 Other relevant climate change mitigation activities and their potential for up- and out-scaling

Apart from the REDD+ initiative, there are several forest carbon offset projects that are classified based on their specific methods of reducing GHG emissions or increasing carbon sequestration (DIAZ ET AL., 2011), which are described below.

AFFORESTATION/REFORESTATION (A/R)

This entails the planting of trees on areas without forest cover, capturing additional carbon in new tree biomass and other carbon pools, and this has been a basis for CDM projects. The emissions reductions occur as a result of additional sequestration. This practice involves the application of silvicultural techniques that promote sustainable forest management. Specifics may include village and family woodlots for sustainable land management, agroforestry, planting of fruit trees and enhanced livestock management.

AGROFORESTRY

This may be a part of the A/R or can be a special option by itself and can contribute to emissions reductions through additional sequestration and/or avoided emissions. The land is managed using a combination of agricultural and forestry approaches, consequently sequestering additional carbon in trees and/or soil and reducing carbon emissions when compared to business-as-usual agricultural practices. At the same time, agroforestry increases plant cover more than contained in natural forests. Agroforestry can be in the form of protection of existing trees in agricultural land, creation of agro-forestry parks, soil fertility enhancement and soil erosion control, other on farm tree planting activities, fruit tree planting and livestock management. Trees include both native and exotic species. Agriculture has been one of the key drivers of deforestation in all countries and is likely to benefit from agroforestry practices that have potential to increase soil fertility at minimal costs. This would reduce the need to open up more forests for crop production. In this way, agroforestry activities can help to strengthen small holder forest management initiatives while mitigating climate change as they not only have the potential to sequester and store additional carbon in above ground biomass, but, even more, so significantly increase the soil organic carbon.

IMPROVED FOREST MANAGEMENT (IFM)

Improved forest management is aimed at management of existing forest areas to increase carbon storage and/or to reduce carbon losses from harvesting or other silvicultural treatments. In these forests, emission reductions may occur through additional sequestration and/or avoided emissions. The management activities would mainly be undertaken within forest reserves, mainly by means of fire management and forest protection. This will result in the protection of natural woodlands and savannahs, and their biodiversity supporting the livelihood of adjacent communities while operating as carbon sinks.

PARTICIPATORY FOREST MANAGEMENT (PFM)

Studies by ZEHABU AND JAMBIYA (2008) showed that PFM in Tanzania led to locally driven improvements of large areas of forests and woodlands across different parts of the country and resulted in increased forest biomass and forest carbon stocks. This alternative has allowed reliable protection, sustainable regeneration and improved use of forest products in accordance with systematically implemented forest management plans. Specific actions include fire management and fire protection, regular patrols/control and enrichment planting. This may require the decentralisation of forest management down to the local level.

FARMER MANAGED NATURAL REGENERATION (FMNR)

This is a cheap technique which has been used successfully to regenerate degraded natural forests in Humbo, Ethiopia (BIRYAHWAHO ET AL., 2012). Regeneration is solely done by selection and pruning of existing tree stumps and utilises natural seed sources and existing live remnants of the root systems of cut trees, as the source of the new forest. Silvicultural operations include removal of woody weeds and unwanted species, pruning and training of the plants to re-establish the natural vegetation. The method is highly effective in areas where sufficient seed and root systems are available apart from being inexpensive and easy to replicate. Tree planting is only done in areas without living tree stumps and on designated woodlot areas outside of the forest boundary.

Communities have already commenced sustainable harvesting of hay and firewood. This form of management can be implemented in any type of woodland and is known to provide early benefits. Realisation of these early and substantial benefits has increased community enthusiasm and commitment for the project resulting in additional local people joining the cooperatives. There is need for strong legal framework to support this initiative.

ALTERNATIVE LIVELIHOODS

Several programmes have developed alternative livelihood options to complement programmes, such as PFM and joint forest management (JFM). Alternative livelihood development strategies have been suggested as a means of enabling rural people to shift from subsistence livelihoods through projects, such as fisheries and beekeeping. The projects help to decrease the amount of deforestation and forest degradation in line with REDD+ objectives by shifting local economies away from activities that damage forests, such as unsustainable charcoal production and firewood vending. Initiatives with such a focus have met with varying success, e.g. in Kenya Wildlife Works have established a clothing factory, and in Tanzania they have started bee-keeping projects. Some projects in Mozambique and Zimbabwe have suffered some resistance due to lack of immediate benefits from REDD+ as there are currently no markets for the carbon generated and operational alternative livelihood strategies.

Other options include projects that reduce deforestation and improve livelihoods, and these include the introduction of fuel efficient stoves and sustainable charcoal. For example, TFCG and MJUMITA are launching a separate sustainable charcoal project linked with funding from the Swiss Agency for Development (DELOITTE TOUCHE TOHMATSU LIMITED, 2012) and Cooperation while in Kenya the same will be done by Wildlife Works. Production of charcoal, mainly for urban consumption, and the collection of firewood provide an income for many rural communities, therefore, successful implementation of REDD+ should create alternative livelihoods and alternative energy sources/fuels.

FOREST/WOODLAND EXCLOSURE SYSTEM

This is a forest rehabilitation system based on indigenous knowledge, which has been used successfully in Eritrea and Ethiopia (TEKETAY ET AL., 2010). It was applied for the purpose of sustainable resources utilisation and centred on rotation and temporary protection techniques. The system was found effective in sustaining the production capacity of natural vegetation and securing continuous supply of fodder resources and other products to the growing livestock and human population. In Eritrea, the government forest and woodland exclosure policy has been inspired from that popular approach for natural resources management (GHEBRENDRIAS, 2001).

NATIONAL FOREST PROGRAMME

REDD+ can be embedded into National Forest Programmes (NFPs) supported by FAO, and NFPs have partnership with governments and local organisations focusing on overview and analysis of existing policies, laws (rules and guidelines that are set up by the social institutions to govern behavior) and legislation (statutory law) related to forest and natural

resources in each country. There is potential to make REDD+ part of the national programmes in which trees are embedded with community enterprises in the form of projects, such as beekeeping to supplement income through sale of honey and beeswax. Sustainable charcoal making is being investigated. This holds great potential for scaling-up and-out REDD+ enabling the protection, control and sustainable utilisation of forest resources within specified legal obligations.

CAPACITY BUILDING

In support of REDD+ initiatives some organisations have just focused on capacity building for local populations in order to assure their full participation in forest management and reverse soil degradation and, hence, stop deforestation. In some of the counties with woodlands and savannahs, capacity building initiatives have been implemented in Botswana, Ghana, Malawi, Namibia, Nigeria, South Africa, Tanzania and Zambia through the CD-REDD II project, which is a partnership led by the Coalition for Rainforest Nations with Johan Heinrich von Thunen Institute (vTI) and funded by German International Cooperation (GIZ), The UN-REDD, Norwegian Government, SIDA and AfDB have contributed immensely to capacity building for REDD+ activities in other countries.

CHAPTER 7 Conclusions

African woodlands and savannahs are potential carbon sinks with the capacity to conserve biodiversity while at the same time ensuring livelihoods for local communities although threatened by deforestation and forest degradation, resulting from agricultural and energy production (charcoal and wood fuel), mining, construction and urban development. Charcoal and wood fuel use, logging as well as poor agricultural and land use practices will, ultimately, continue to threaten forests unless alternative energy sources are utilised, alternative livelihoods are sought and sustainable agricultural methods are employed on farmlands. Urban and peri-urban energy demand increases demand for and price of fuelwood and charcoal, eventually, leading to deforestation unless alternative energy supply is provided (e.g. Ghana, Kenya, Malawi, Nigeria, Tanzania, Zambia and Zimbabwe).

Pilot REDD+ experiences show the dual importance of REDD+ in sustainable community forest resource management and mitigation of GHG emissions. Community projects in all countries managed their forests more sustainably than they were prior to the commencement of REDD+ activities. Some of the community members have expressed positive views about REDD+ projects and are confident that projects have the potential to provide longer-term benefits for participating households. There is need for training and capacity building, information sharing and collaboration across ministries and sectors to help bridge the gap between policy and field implementation. There is an urgent need for assistance to all countries to formulate their REDD+ strategies necessary for the private sector to operate effectively. Additional revenue streams are needed to improve community livelihoods as some authors express fears that REDD+ revenues may not be able to cover both opportunity, transaction and implementation costs.

Although there are some positive results of REDD+, there is a need for proper identification and quantification of the actual drivers of deforestation and forest degradation before any project is implemented. As REDD+ continues, national strategies to address the drivers of deforestation and forest degradation need to be integrated with other land use systems and clearly reflected in institutional platforms for synchronisation. There is need for improved knowledge on forest status and trends to support the reasons for site-specific and context-driven execution of REDD+. There should be clear methodologies to address the identified drivers of deforestation and forest degradation. There may be need for AFF to assist in developing tools for effective stakeholders engagement and building capacity for monitoring deforestation and forest degradation.

REDD+ programmes should respect social and environmental safeguards and apply them throughout the REDD+ processes. However, the success of REDD+ may need alteration of some development practices to ensure sustainability of the forest, agriculture and environmental sectors. Roles for government and communities within REDD+ will need to

be clearly defined as well as principles outlining utilisation of future REDD+ financing. Governments should also be encouraged to increase their investment in sustainable forestry since such investments are likely to yield significant future returns through REDD+ though REDD+ strategies are financially intensive and technically challenging, and, hence, need to be supported continually.

There is a need for coordinated and regulated administrative efforts that should be communicated to all stakeholders to promote sustainable utilisation of forest products. Woodlands and savannahs should be managed for multiple outputs although the silviculture of managing for multiple outputs is poorly understood.

CHAPTER 8 Key Findings and Recommendations

- African woodlands and savannahs are potential carbon sinks with capacity to conserve biodiversity while at the same time ensuring livelihoods for local communities. Deforestation and forest degradation in these woodlands and savannahs is mainly a result of agriculture production, energy production (charcoal and wood fuel), mining, construction and urban development. Pilot REDD+ experiences show the dual importance of REDD+ in sustainable community forest resource management and mitigation of GHG emissions. Community projects in all countries managed their forests more sustainably than they were prior to the commencement of REDD+ activities.
- Governments of countries with woodlands and savannahs need to make commitments to make appropriate policy and institutional changes that will transform land-use dynamics, forest governance, and the flow of resources to local communities. REDD+ objectives should be embedded into national and local government policy and legislation including strengthening of institutions responsible for forest resources with mechanisms for regulation. To respond to the several challenges of REDD+ activities efficiently, effectively, and equitably, the governments should make the necessary transformational changes transparently. To ensure conservation of forest resources, governments need also to review all non-forest policies (e.g. mining, energy and agriculture) to support forest conservation.
- Funding is needed for training and capacity building, information sharing and collaboration across ministries and sectors, to help bridge the gap between policy and field implementation. This investment is important throughout the project life, from the initiation of ideas and policies to the implementation, monitoring and evaluation phases. There is an urgent need for assistance to all countries to formulate their REDD+ strategies necessary for the private sector to operate effectively. In addition, nations may need assistance in collaboration and cooperation across the continent in order to improve their negotiation capacities. Additional revenue streams are needed to improve community livelihoods as some authors express fears that REDD+ revenues may not be able to cover both opportunity, transaction and implementation costs.
- Charcoal and wood fuel use, logging as well as poor agricultural and land use practices will, ultimately, continue to threaten forests unless alternative energy sources are utilised, alternative livelihoods are sought and sustainable agricultural methods are employed on farmlands. Urban and peri-urban energy demand increases fuelwood and charcoal prices and demand eventually leading to deforestation unless alternative

energy supply is provided (e.g. Ghana, Kenya, Malawi, Nigeria, Tanzania, Zambia and Zimbabwe).

- Although there are some positive results of REDD+, there is need for proper identification and quantification of the actual drivers of deforestation and forest degradation before any project is implemented. As REDD+ continues, national strategies to address the drivers of deforestation and forest degradation need to be integrated with other land use systems and clearly reflected in institutional platforms for synchronisation. There is need for improved knowledge on forest status and trends to support the reasons for site-specific and context-driven execution of REDD+. There should be clear methodologies to address the identified drivers of deforestation and forest degradation. There may be need for AFF to assist in developing tools for effective stakeholders engagement and building capacity for monitoring deforestation and forest degradation.
- REDD+ programmes should respect social and environmental safeguards and apply them throughout the REDD+ processes. The scope, goals and functioning of REDD+ processes should be clearly communicated to all stakeholders ensuring that a wide audience is included in raising awareness and capacity-building activities. The processes illustrate the critical importance of ensuring effective vertical and horizontal communication at national, district and community levels in order to effectively manage misconceptions and unrealistic expectations. There is need for greater involvement of locals in order to reduce the chances of REDD+ contradicting with community priorities. The channels of communication should be clearly identified indicating clear roles for each participating group. Some countries may need assistance for continuous financial and technical support for learning and knowledge- sharing activities.
- Success of REDD+ have been evident in areas were the developers have built social capital. It is, therefore, important to build on existing partnership, institutions, structures and personnel. The benefit sharing experiences have demonstrated that the projects can deliver real benefits to communities, households and individuals. However, some communities lack robust mechanisms to hold their village councils responsible, generating lots of suspicion. The communities tend to allocate very little to community development projects as they fear that the funds would be embezzled. Therefore, ensuring the informed consent of community members should be an on-going process that requires obligations to transparency, participation and accountability at all stages. It may be important for all countries to strengthen ties with academic stakeholders who can develop simple monitoring procedures and methodologies for future processes. The communities will benefit from the new methodologies for understanding carbon storage. Improvement of field monitoring methodologies can make carbon monitoring a logical extension of existing competencies in all countries. There is need for continuous assistance in development of forest management plans and capacity building in order for communities to achieve stated objectives with solid quantifiable benefits. To ensure

sustainability, countries may need to promote environmental education (covering topics on climate change and REDD+) at all levels.

- The success of REDD+ may need alteration of some development practices to ensure sustainablity of the forest, agriculture and environmental sectors. Roles for government and communities within REDD+ will need to be clearly defined, as well as principles outlining utilisation of future REDD+ financing. Governments should also be encouraged to increase their investment in sustainable forestry since such investments are likely to yield significant future returns through REDD+ though REDD+ strategies are financially intensive and technically challenging, and, hence, need to be supported continually. The utilisation of forest products must be based on coordinated and regulated administrative efforts, which are communicated to all stakeholders.

Woodlands and savannahs should be managed for multiple outputs although the silviculture of managing for multiple outputs is poorly understood. This becomes more complicated as the management plans need to accommodate multiple stakeholders managing woodlands and savannahs for different outcomes. Some of the community members have expressed positive views about REDD+ projects and are confident that projects have the potential to provide longer-term benefits for participating households.

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Important websites

https://www.climateinvestmentfunds.org/cifnet/

www.climate-standards.org/REDD+www.forestcarbonpartnership.org

http://www.forestcarbonportal.com/projects

http://www.envirotrade.co.uk/html/projects_gorongosa.php

http://www.investopedia.com/terms/c/cap-and-trade.asp

http://www.planvivo.org.

http://www.rainforest-alliance.org/climate/standards

http://www.tist.org/

http://www.un-redd.org/Home/tabid/565/Default.aspx

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http://go.worldbank.org/ZJ6ABRH770

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