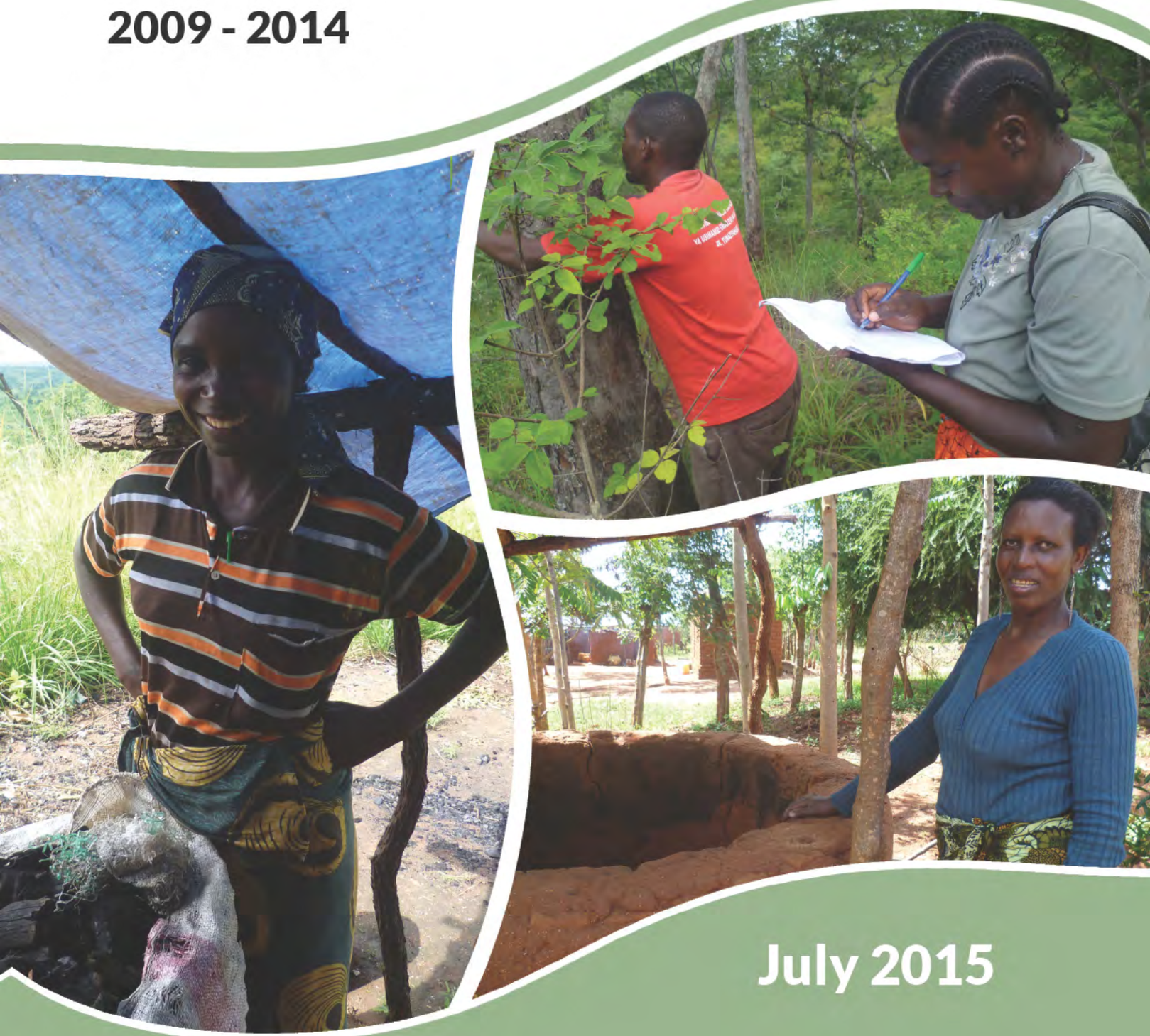
THE UNITED REPUBLIC OF TANZANIA

NORWEGIAN EMBASSY

Lessons learned from the implementation of REDD+ Pilot Projects in Tanzania

2009 - 2014



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Mambo tuliyojifunza kutoka kwenye utekelezaji wa miradi ya majaribio ya MKUHUMI Tanzania

2009 – 2014

Preface

This report was prepared for the Royal Norwegian Embassy in Tanzania by Niras Finland, as a component of a larger REDD+ Lessons Learnt Assignment, commissioned by the embassy late 2014. The overall purpose of the assignment was to identify and extract lessons from the REDD+ pilots for the use of REDD+ practitioners and policy makers. The assignment consisted of three outputs: 1) REDD+ Pilot Project Reviews, 2) REDD+ Lessons Learned report and 3) REDD+ Communication materials.

This report is the second output of the assignment. It extracts and synthesizes lessons from across the seven completed REDD+ pilot projects, implemented in Tanzania by NGOs over the period of 2009-2014. Conclusions of the lessons are followed by recommendations to policy makers and practitioners.

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Acronyms and abbreviations

3Es	Effectiveness, efficiency and equity
AAC	Annual allowable cut
ARKFor	Advancing REDD in the Kolo Hills Forests
ALOS	Advanced land observation satellite
AWF	African Wildlife Foundation
BAU	Business as usual
CARE	Care International
CBFM	Community-based forest management
CBFiM	Community-based fire management
CCBA	Climate Community and Biodiversity Alliance
CIFOR	Centre for International Forestry Research
CO2	Carbon dioxide
COFMA	Community forest management agreement
DBH	Diameter at breast height
D&D	Deforestation and forest degradation
FMU	Forest Management Unit
FSC	Forest Stewardship Council
FPIC	Free prior and informed consent
GIS	Geographic information system
GPS	Global positioning system
GHG	Greenhouse gases
HIMA	Hifadhi ya Misitu ya Asili
ICT	Information communication technology
IGA	Income generating activity
IUCN	International Union for Conservation of Nature
JFM	Joint forest management
JGI	Jane Goodall Institute
JMA	Joint management agreement
JUHIBEKO	Jumuiya ya Hifadhi ya Mazingira Tarafa za Bereko na Kolo, Inter Village Council in Kondoa
JUMIJAZA	Jumuiya ya Uhifadhi wa Misitu ya Jamii Zanzibar, aggregation entity
JUWAMMA	Jumuiya ya Watunzaji wa Msitu wa Masito, aggregation entity
LiDAR	Light detection and ranging
LULC	Land use/ land cover
MCDI	Mpingo Conservation and Development Initiative
MLHSD	Ministry of Lands and Human Settlements Development (MLHSD)

MJUMITA	Tanzania Community Forest Conservation Network
MODIS	Moderate resolution imaging spectro-radiometer
MRV	Measurement, reporting and verification
NA	Not available
NAFORMA	National Forest Resources Monitoring and Assessment
NGO	Non-governmental organisation
NCMC	National carbon monitoring centre
ODK	Open data kit
OECD/DAC	Organisation for Economic Co-operation and Development-Development Assistance Committee
PAM	Policies and measures
PD	Project description
PDD	Project design document
PFM	Participatory forest management
PLUM	Participatory land use management
REL	Reference emission level
REDD	Reducing deforestation and forest degradation
RS	Remote sensing
RNE	Royal Norwegian Embassy
SCC	Shehia conservation committee (Zanzibar)
SIS	Safeguard information system
tCO2e	Tonnes of CO2 equivalent
TFCG	Tanzania Forest Conservation Group
TNRF	Tanzania Natural Resource Forum
TZS	Tanzania shilling
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States dollar
VCS	Verified Carbon Standard
VER	Verified emission reduction
VLFR	Village land forest reserve
VLUP	Village land use plan
VNRC	Village natural resource committee
VSLA	Village savings and loans association
WCS	Wildlife Conservation Society
WWF	Worldwide Fund for Nature
ZWBS	Zanzibar Woody Biomass Survey

Executive Summary

This document summarises key lessons learned in the implementation of seven REDD+ pilot projects in Tanzania between 2009 and 2014. The projects, implemented by Tanzanian and international NGOs, were designed to test local approaches to implementing REDD+ across a range of social, institutional, tenure and ecological conditions. Funding was provided by the government of Norway through the Royal Norwegian Embassy (RNE). A number of projects tested trial payments with a view to testing benefit sharing systems in anticipation of financing from sale of carbon on the international carbon market. The lessons presented in this document have been derived from final reviews undertaken for all seven projects (www.norway.go.tz/News_and_events/Climate-Change/) with a review of literature generated by the projects themselves. Implementing agencies participated in a two-day synthesis workshop at which key lessons and themes were identified and discussed. Lessons are clustered under the eight themes summarised below:

1. The feasibility and viability of REDD+ within Tanzania

Tanzania presents many challenges from a REDD+ perspective in terms of its relatively low average forest carbon stocks, complex and locally-based drivers of forest degradation, its size and inaccessibility. Furthermore, low prices and demand for carbon offsets threaten the viability of voluntary market carbon projects. Low capacity within Tanzania on MRV as well as the absence of suitable methodologies for measuring forest degradation limits the effectiveness of REDD+ projects. Project approaches, working at a relatively low geographical scale are, in general, not economically viable in terms of their ability to cover establishment and recurrent costs from carbon sales. Working at larger scale (jurisdictional and national) may help to overcome this barrier as total carbon stocks in forest and woodland are high. Tanzania has a unique legal framework that provides for decentralised decision-making and management of natural resources and ensures that local actions can be taken effectively and important non-carbon benefits generated. High levels of variability across the country in terms of local deforestation rates, deforestation drivers and tenure regimes means that project site selection is a key factor in determining the viability of local actions.

2. Addressing drivers of deforestation and forest degradation

After detailed studies on local drivers of deforestation and forest degradation (D&D), pilot projects experimented and tested a range of tools and approaches for addressing the drivers with varying degrees of success, effectiveness and efficiency. Identifying the models and approaches that can be upscaled is a crucial part of achieving emission reductions and other REDD+ results under a national or jurisdictional approach. Pooling resources and creating partnerships with non-forestry organizations and institutions is an effective approach to addressing the agriculture and energy drivers in a strategic and cost-efficient way. Innovative work done by one of the implementing organisations – Mpingo Conservation and Development Initiative (MCDI) – has resulted in the development of a new Verified Carbon Standard (VCS) methodology for use in miombo and dry woodlands where fire is a major driver of forest degradation. Participatory forest management (PFM, which in turn emphasises the creation of local incentives for sustainable forest management), community based fire management and conservation agriculture appear to be the most effective approaches in addressing D&D drivers in the Tanzanian context.

3. Strengthening land and forest tenure

Tanzanian law provides villagers with legal tenure over customary land as well as the mandate to determine how land and natural resources are managed within their "village areas" (the land that surrounds village settlements). However, tenure rights over forests on village lands are guaranteed only after either a village land, community or private forest reserve is established through the community based forest management (CBFM) process. Clarifying, formalising and strengthening communal as well as individual land tenure was a major focus of a number of pilot projects and often seen as a precondition for addressing many deforestation drivers. At the same time, this support resulted in important non-carbon benefits (co-benefits) that in many cases were seen locally as of greater value than other benefits generated by the project.

4. Adapting participatory forest management to a REDD+ context

The use of PFM as a principal tool for addressing local D&D drivers within the context of REDD+ has generated useful lessons and experiences that are different from those in previously used and more established approaches to implementing community forestry in Tanzania. Externally defined objectives of reducing carbon emissions, which call for large areas of forest to be protected, may conflict with local demands for expanding agricultural production due to growing demands for land. Such trade-offs need to be negotiated in a participatory and inclusive manner. Harvesting of trees on village land, outside village forest reserves (leakage) require careful management, supported by village land-use planning processes. Demand under REDD+ for "permanence" is providing impetus for the extension of joint forest management (JFM) agreements up to 30 years in duration, which provides increased tenure security for local communities. Fragmented sites managed under PFM require the establishment of aggregating entities to be able to present larger volumes of carbon to the international voluntary carbon market. Alternatively, working at a larger scale, such as jurisdictional or national levels, should be initiated to achieve economies of scale and savings in efficiency.

5. Consultation, stakeholder engagement and consent

Although the Tanzanian governance framework requires participation of local people before a project can proceed, this is not necessarily applied through a participatory process of securing consent. Standards of participation are currently weakly regulated or monitored in Tanzania.[1] The inclusion of a requirement to respect the right to free prior informed consent (FPIC) as part of the Climate Community and Biodiversity Alliance (CCBA) validation for REDD+ appears to have stimulated and incentivised more conscious practices and facilitation of participation and community decision making. Pilot projects have experimented over a continuum of approaches and although only one project explicitly included FPIC in its original design, at least three others integrated FPIC practice into their implementation through an adaptive learning process around achieving voluntary standard (both VCS and Plan Vivo). Obtaining consent within the context of a REDD+ pilot project generated important benefits including changing project designs to be more responsive to local needs. This did, however, also result in delays and additional up-front costs.

1 For example - local government planning, land allocation, land use planning, EIA, and community forest management processes all require by law application of participatory processes.

6. Payment modalities and benefit sharing arrangements

Tanzanian REDD+ pilot projects have experimented with a range of local-level benefit sharing arrangements, both in the way benefits are disbursed, but also in the way in which benefits are calculated and shared. Cash payments, made at the individual level, have high transaction costs but they show success in building accountability, generating local support and reducing the risk of the local elite capturing most benefits. Performance-based (rather than effort, or input-based) payments appear to have triggered greatest local action and incentives for reducing deforestation. Benefit sharing systems work best when the final recipients design them and opportunities for elite capture are minimised. Communities can and do make sensible decisions on how revenues should be shared and used, when they get support to develop a transparent, equitable and participatory system.

7. Measurement, monitoring, reporting and verification (MRV)

REDD+ pilots have experimented with a variety of approaches to MRV, all of them combining highly technical, remote sensing (RS) approaches with community based forest carbon monitoring models. Piloting of participatory forest carbon monitoring has been successful and Tanzanian REDD+ pilots demonstrated that communities are capable of undertaking complex and technically demanding MRV tasks when sufficient training and incentives are applied. Due to the dependence on contracted external expertise, challenges with un-tested technology, the absence of national standards and a national body for guiding MRV and hosting collected carbon data, some REDD+ pilot projects have not achieved their objectives of building a sustainable MRV system. No project has been able to feed data to national level forest carbon monitoring because the National Carbon Monitoring Centre (NCMC) is yet to become operational. Lack of data sharing from the National Forestry Resources Monitoring and Assessment of Tanzania (NAFORMA) on the mainland and the late implementation of Zanzibar Woody Biomass Survey (ZWBS) prevented the projects doing comparative studies between datasets. The creation of different MRV approaches (and in particular forest stratification and data analysis protocols) has meant that comparison of datasets and results between projects is methodologically challenging (see Annex 1 and 2).

8. Getting projects to market

The technical challenges associated with developing validated and verified project descriptions and documents (PD) were grossly under-estimated by project implementers. As a result, the process has taken significantly more time, funding and capacity than originally anticipated. Falling prices coupled with limited demand in the global carbon market threaten the viability and sustainability of project-based approaches.

RECOMMENDATIONS TO NATIONAL LEVEL POLICY MAKERS

Upscaling REDD+ from project to landscape level

• Jurisdictional programmes should be created to take advantage of, and create economies of scale from higher cumulative volumes of carbon and to create policy impacts engaging effectively with local governments. Working at a broader landscape level also reduces risks of leakage.

• Strengthening the legal role and mandate of village governments in managing and using trees on village lands, outside village land forest reserves, will enable landscape approaches to REDD+.

• REDD+ as a concept should be promoted to include the 'plus-activities' – such as sustainable forest management and the creation of sustainable income streams from forest use.

Safeguards

• In accordance with requirements of countries to develop the "four pillars" of REDD+ readiness defined by UNFCCC, safeguards should be operationalized through the establishment of a safeguard information system (SIS). As part of this, FPIC guidelines should be produced for Tanzania in line with international best practice and experiences to date gained from pilot project implementation. The Vice President's Office should play a role in monitoring safeguards and the use of FPIC. In Zanzibar the COFMA Guidelines should include FPIC.

Service provision

• Public and private service provision has to be developed through targeted capacity building, the establishment of cost-effective participatory practices (land-use planning, forest management planning) and learning by doing.

• It is necessary to develop sufficient in-country capacity on remote sensing, forest inventory, analysis of data and verification.

• Support should be directed to build conflict resolution capacity in local government (village, ward and district levels).

Addressing D&D

• The guidelines issued by National Land Use Planning Commission on land use planning process should be revised to promote greater attention to balancing forest conservation and emission reduction with the growing needs for agriculture. Consequently, the plans should be linked into external sources of REDD+ results based payments that are anticipated in the event of a compliance market being created. Budgets should be set aside to facilitate land use planning by local and central governments across priority, forested landscapes.

• To address agriculture drivers, advocacy messages should focus on the fact that the expansion of shifting cultivation in dispersed areas leads to expensive service delivery and undermines the value of forests and associated services. The intensification of agriculture will bring sustainable benefits including gains in economic, social and environmental welfare.

• Climate smart agriculture, entailing the principles of conservation agriculture needs to be mainstreamed in the Ministry of Agriculture, local government and NGOs.

• The piloting of community based fire management (CBFiM) should be up-scaled to national level and included in different guidelines. Different stakeholders should test the CBFiM to generate lessons for finding the most cost-effective methods.

Role of NCMC

• An operational NCMC is needed to host and share the collected data from REDD+ projects and NAFORMA; the field data should become accessible via Web-based portal. This data can help to create e.g. local tree height curves to replace tree height measurements (as in TFCG/MJUMITA case).

• Coordinating the active use of the data to ensure it is analysed and used to its full potential is an important function for the NCMC.

• National guidance (or standards) is needed on project level MRV that reflects international best practice and links to national approaches being developed.

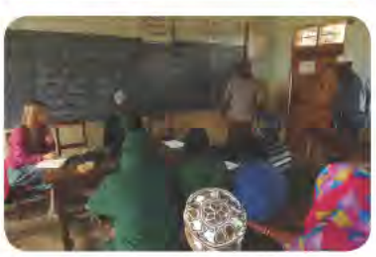
• New open-source tools, such as the "Open Foris" package used in NAFORMA and ZWBS, could benefit the current data management and should be organized under NCMC to ensure harmonized approach for all databases.

• The role of NCMC in MRV capacity building should be determined.

• The comparison of biomass and carbon stock estimates from the REDD+ projects should be conducted and new local allometric equations created.

• There is a need for the harmonisation of forest classification systems so that all project maps are comparable, and can be "nested" within the national MRV systems. National capacity to undertake land use / land cover (LULC) classification and detection of forest cover changes using remote sensing data should be created.

RECOMMENDATIONS TO REDD+, FORESTY AND LAND SECTOR PRACTIONERS (in Tanzania and elsewhere)



Site selection

• REDD+ projects should invest sufficient time and financial resources in undertaking site selection before beginning field activities. Parameters important for ensuring project viability include variables such as the nature and intensity of D&D drivers, population density, area of natural forest, land and forest tenure, biodiversity and poverty levels.

• Projects should concentrate in areas where there is a strong political will at local and local government level to support project interventions. If possible, identify areas where there is likelihood of developing also other benefits from wildlife or timber management, watershed services, hunting and tourism; and where other professional partners are working on agriculture, IGA, energy or family planning programmes.

• Consider large JFM areas where degradation has been increasing but where there are possibilities to raise revenues by creating forest management units (FMU) to sell carbon, practice low impact logging and share the revenue with the adjacent communities. There is scope to make long-term agreements to support the sense of security.

Understanding and addressing D&D drivers

• At the site level, undertaking detailed diagnostic studies to confirm and assess the drivers of D&D is an important element of project start-up.

• Planning a co-ordinated response to drivers is necessary and in many cases will require skills beyond the core competencies of implementing agencies.

• Participatory land-use planning provides a valuable framework for agreeing and regulating future land-use decision-making.

Land and natural resource tenure

• Investing in strengthening land and forest tenure and management is a necessary element of addressing local drivers of D&D. This investment should be viewed not only as an important pre-condition for generating emission reductions, but also as a valued co-benefit. In countries such as Tanzania, where a strong policy framework provides for legal means to secure forest and communal land tenure, projects should adopt and adapt existing approaches such as participatory forest management and village land use planning (VLUP).

• Projects working with participatory forest management within the context of REDD+ need to look for a broader and more integrated approach to managing forest resources at a landscape level, if the effects of leakage are to be avoided. This will involve participatory discussions at community level that take into account forest management more generally and the impact of activities such as slash and burn agriculture on forested land outside community protected areas.

• When creating aggregation entities, ensure that sufficient time and investment is given to building the capacity and sustainability of such institutions.

Consent and consultation

• Projects need to invest sufficient time in securing FPIC before embarking on project activities. While this may involve longer start up times, it will ensure greater security and reduction of risks with regard to implementation while improving participation by different social groupings in the community.

Gender

• Greater attention to gender is needed at the project level. This includes using gender analysis when planning and designing interventions as well as monitoring of gender impact with regard to how the carbon and non-carbon benefits of project activities are distributed. The impacts need to be reflected in the implementation strategies. When planning how communal funds generated from REDD+ dividends should be used, the needs and priorities of women should be equally balanced with those of men. Paying individual dividends ensures that both men and women receive benefits.

Benefit sharing

• Communities should be given the full mandate to determine the form in which carbon benefits are received and used. Benefit sharing systems work best when they are designed by the final recipients and opportunities for elite capture are minimised. A transparent, equitable and participatory process should be supported through which decisions can be negotiated and made. This should include options to obtain individual cash-based payments or community based payments. Where cash or community based payments are made to community level institutions, measures should be put in place to ensure transparency and accountability to avoid the risk of elite capture

MRV

• MRV at project level needs to co-ordinate, to the extent possible, with national level carbon monitoring and reporting arrangements.

• Where possible, projects should encourage that community members themselves collect and gather primary data, while ensuring that their work is recognized and rewarded in either monetary or non-monetary ways.

• Projects should take advantage of the NAFORMA national tree species list as well as open-source tools that have been applied by pilot projects in MRV.

• Portable digital data collection technology and a cloud storage system can be applied to a wider scale if a reliable power supply for recharging can be provided, such as solar panels, and network coverage and internet connections are available.

• Greater investment in capacity development will be needed if these tools are to be used effectively.

Getting projects to market

• Projects seeking to market verified emission reductions (VER) need to identify potential buyers at an early stage in project implementation and involve the buyers in project design to increase communication and ownership.

• To mitigate against uncertainties related to the marketing and sale of carbon credits, REDD+ projects should seek to generate multiple revenue streams from forest management including sustainable harvest and sale of timber and non-timber forest products (timber, charcoal, honey). Gender roles in forest use and harvesting tend to be very strongly defined – and as such, gender analysis and measures to address gender inequality are needed to ensure that final outcomes, such as the benefits from multiple benefit streams, are balanced and equitable.

Muhtasari

Andiko hili linatoa muhtasari wa mambo muhimu ambayo miradi saba ya majaribio ya MKUHUMI (REDD+) imejifunza katika utekelezwaji nchini Tanzania kati ya mwaka 2009 na 2014. Miradi, iliyotekelezwa na asasi zisizo za kiserikali (NGOs) za Tanzania na za kimataifa, ilibuniwa ili kujaribu namna za ndani ya nchi za utekelezaji wa MKUHUMI katika mazingira tofautitofauti ya kijamii, kitaasisi, namna za umiliki na ya kiikolojia. Fedha zilitolewa kwa baadhi ya miradi kwa ajili ya malipo ya majaribio kwa nia ya kujaribia mfumo wa ugawanaji faida kwa matarajio ya fedha zitakazotokana na mauzo ya kaboni katika soko la kimataifa la kaboni. Ufadhili ulitolewa na serikali ya Norway kupitia Ubalozi wa Ufalme wa Norway nchini Tanzania. Masomo (lessons) yaliyowasilishwa kwenye andiko hili yametokana na mapitio ya mwisho yaliyofanyika kwa miradi yote saba, yakiambatana na mapitio ya maandiko yaliyozalishwa na miradi husika. Mamlaka zilizotekeleza miradi zilishiriki katika warsha tangulizi ya siku mbili ambapo masomo na mada muhimu ziliainishwa na kujadiliwa. Masomo yame-

1. Uwezekano wa kutekelezeka na ustawi wa MKUHUMI nchini Tanzania

Katika mtazamo wa MKUHUMI, Tanzania ina changamoto nyingi hasa kwa kuwa na wastani mdogo wa kiwango cha hifadhi ya kaboni, visababishi tata na vya kiasili vya uharibifu wa misitu, ukubwa wake na ugumu wa kufikia kila eneo. Zaidi ya hapo, udogo wa bei na uhitaji wa kaboni (carbon offsets) vinatishia uwezekano wa miradi ya soko huria la kaboni. Uwezo mdogo wa mambo ya uperembaji, uwasilishaji wa taarifa, na uhakiki (Monitoring, Reporting and Verification – MRV) pamoja na ukosekanaji wa njia muafaka za kupima uharibifu wa misitu nchini Tanzania ni kizuizi katika ufanisi wa miradi ya MKUHUMI. Kwa ujumla, utekelezaji kupitia miradi inayofanya kazi katika eneo dogo la kijiografia, haina faida kiuchumi hasa katika uwezo wa kufidia gharama za uanzishwaji na za uendeshaji kupitia mauzo ya kaboni. Utekelezaji katika eneo kubwa (ngazi za mamlaka na kitaifa) unaweza kusaidia kuondokana na kikwazo hiki kwa kuwa majumuisho ya hifadhi ya kaboni katika misitu na mapori ni makubwa. Tanzania ina mfumo wa kisheria wa kipekee ambao unagatua madaraka ya ufanyaji maamuzi na usimamizi wa maliasili na kuhakikisha kuwa vitendo vya ngazi za chini za utawala vinachukuliwa kikamilifu na manufaa muhimu yasiyo ya kaboni yanazalishwa. Kiwango kikubwa cha kutofautiana nchini kote kuhusiana na kasi ya uharibifu wa misitu kwa maeneo husika, visababishi vya uharibifu wa misitu na namna za umiliki wa ardhi inamaanisha kuwa uchaguzi wa eneo la mradi ni jambo muhimu katika kutambua ustawi wa shughuli kwa eneo husika.

2. Ushughulikiaji wa visababishi vya uharibifu wa misitu na ukataji miti ovyo

Baada ya kufanya tafiti za kina kuhusiana na visababishi vya uharibifu wa misitu na ukataji miti ovyo katika maeneo husika, miradi ya majaribio ilifanya majaribio na kupima namna na mbinu mbalimbali za kushughulikia visababishi zikiwa na kiwango cha kutofautiana cha mafanikio, tija na ufanisi. Utambuzi wa modeli na mbinu ambazo zinaweza kuendelezwa mahala kwingine ni suala muhimu katika kufanikisha punguzo la uzalishaji wa gesi na matokeo mengine ya MKUHUMI kwa utekelezaji wa kitaifa ama katika mamlaka. Kuunganisha rasilimali na kujenga ushirikiano na mashirika na taasisi zingine nje ya misitu ni njia yenye tija ya kushughulikia visababishi vya uharibifu wa misitu na ukataji miti ovyo vinavyotokana na mahitaji ya kilimo na nishati kwa namna ya kimkakati na iliyo nafuu. Kazi ya ubunifu iliyofanywa na mojawapo ya mashirika – Mpingo Conservation and Development Initiative (MCDI)- imesababisha uandaaji wa njia mpya ya VCS kwa ajili ya matumizi katika misitu ya miombo na mapori ya sehemu kame ambayo kisababishi kikubwa cha uharibifu wa misitu ni moto. Usimamizi Shirikishi wa Misitu (Participatory forest management (Usimamizi ambao kwa upande mwingine unasisitiza uundwaji wa motisha za ndani kwa ajili ya usimamizi endelevu wa misitu), usimamizi wa jamii wa moto na kilimo hifadhi vimejitokeza kuwa ni mbinu zenye ufanisi zaidi katika kushughulikia visababishi vya uharibifu wa misitu kwa mazingira ya Tanzania.

3. Kuimarisha umiliki wa ardhi na misitu

Sheria ya Tanzania inavipatia vijiji umiliki wa kihalali wa ardhi ya kimila pamoja na mamlaka ya kuamua namna ambavyo ardhi na maliasili zinasimamiwa ndani ya ''maeneo ya vijiji'' vyao (ardhi inayozunguka makazi ya vijiji). Hata hivyo, haki za umiliki wa misitu katika ardhi ya vijiji ni za uhakika tu baada ya kuanzisha aidha hifadhi ya misitu ya ardhi ya kijiji, misitu ya jamii ama ya watu binafsi kupitia mchakato wa usimamizi wa msitu wa jamii (community based forest management - CBFM). Kufafanua, kurasimisha na kuimarisha haki za umiliki wa ardhi kijamii pamoja na wa watu binafsi lilikuwa ni mojawapo ya shabaha kuu katika miradi mingi ya majaribio na mara nyingi ilionekana kuwa ni sharti la awali ili kushughulikia visababishi vingi vya uharibifu wa misitu. Wakati huohuo, msaada huu ulisababisha manufaa muhimu ya ziada ya kaboni (co-benefits) ambayo kwa kiasi kikubwa yalichukuliwa katika maeneo husika kuwa ni yenye thamani zaidi kuliko manufaa mengine yaliyozalishwa na miradi.

4. Kutumia Usimamizi Shirikishi wa Misitu katika mazingira ya MKUHUMI

Matumizi ya Usimamizi Shirikishi wa Misitu (USM) kama nyenzo kuu ya kushughulikia visababishi vya uharibifu wa misitu vya maeneo husika katika mazingira ya MKUHUMI umeweza kuzalisha mambo muhimu ya kujifunza na uzoefu wa tofauti na ilivyokuwa katika mbinu za awali, zilizoenea zaidi, za utekelezaji wa shughuli za misitu kwa jamii nchini Tanzania. Malengo ya kupunguza uzalishaji wa kaboni ambayo yamefafanuliwa nje ya wanajamii husika (ambayo yanatoa wito wa ulinzi kwa eneo kubwa la misitu) yanaweza kupingana na mahitaji ya wenyeji ya kuongeza uzalishaji katika kilimo kutokana na mahitaji ya ardhi yanayoongezeka na mabadilishano hayo yanapaswa kujadiliwa kwa njia shirikishi na ya uwakilishi wa wahusika. Uvunaji wa miti katika ardhi ya kijiji, nje ya eneo la misitu ya hifadhi ya kijiji (leakage) unahitaji usimamizi wa makini, unaosaidiwa na utaratibu wa upangaji wa matumizi ya ardhi ya kijiji. Mahitaji ya MKUHUMI ya hali ya "Kudumu" (permanence) yanatoa msukumo wa uongezwaji wa mikataba ya Usimamizi wa Pamoja wa Misitu (joint forest management – JFM) mpaka kufikia kipindi cha miaka 30, ambayo inaongeza hali ya usalama wa umiliki wa ardhi kwa jamii za vijijini. Maeneo madogo yaliyogawanyika chini ya USM yanahitaji uanzishwaji wa chombo kitakachokuwa kinafanya majumuisho na kuweza kuwasilisha ujazo mkubwa wa kaboni katika soko kubwa la hiyari la kimataifa. Kwa namna nyingine, utekelezaji katika ngazi kubwa (kama vile za mamlaka ama kitaifa) unapaswa uanzishwe ili kufanikisha uchumi wa kuchangia gharama (economies of scale) na kuokoa gharama katika hali ya ufanisi.

5. Mashauriano, ushiriki wa wadau na ridhaa

Ijapokuwa mfumo wa utawala wa Tanzania unaongelea ushiriki wa wadau wenyeji kabla mradi haujaendelea, hali hii si lazima ifanyike katika mchakato shirikishi wa kupata ridhaa. Nchini Tanzania, udhibiti wa viwango vya ushiriki ama ufuatiliaji wake kwa sasa ni hafifu[2]. Ujumuishaji wa mahitaji ya kuheshimu haki ya uhuru wa kufahamishwa na kuridhia (free prior and informed consent – FPIC) kama sehemu ya uhakiki kwa viwango vya CCBA kwa ajili ya MKUHUMI vinaonekana kuchochea na kuhamasisha vitendo vyenye ufahamu zaidi na uwezeshaji wa ushiriki na ufanyaji maamuzi wa jamii. Miradi ya majaribio imejaribu mbinu mbalimbali. Ijapokuwa ni mradi mmoja tu uliweka suala la FPIC katika ubunifu wake wa awali, angalau miradi mingine mitatu iliunganisha suala la FPIC katika utekelezaji wake kupitia mchakato wa kubadilisha mbinu kwa kujifunza ili kufikia viwango vya hiari vya mashirika ya Verified Carbon Standard (VCS) na Plan Vivo. Kitendo cha kupata ridhaa katika miradi ya majaribio ya MKUHUMI kulizalisha manufaa mengi yakiwemo ubadilishaji wa ubunifu wa mradi na kuwa wa uwajibikaji zaidi kwa mahitaji ya jamii husika. Hali hii hata hivyo, ilisababisha uchelewaji na ongezeko la gharama za muda wa ziada.

2 Kwa mfano – upangaji katika serikali za mitaa/vijiji, ugawaji wa ardhi, upangaji wa matumizi ya ardhi, tathmini ya athari za kimazingira, mchakato wa usimamizi wa misitu wa jamii vyote kisheria vyote hivi huhitaji matumizi ya mchakato shirikishi.

6. Namna za ufanyaji malipo na mipango ya kugawana manufaa.
Miradi ya majaribio ya MKUHUMI ya Tanzania imefanya majaribio ya namna mbalimbali za njia za wenyeji za ugawanji manufaa, kwa namna ambavyo manufaa hugawanywa, lakini pia kwa namna ambayo manufaa hukokotolewa na kugawanywa. Malipo ya fedha tasilimu, yaliyofanyika kwa ngazi ya mtu binafsi, yana gharama kubwa za uendeshaji. Hatahivyo malipo hayo yanaonyesha mafanikio katika kujenga uwajibikaji, kuzalisha upokelewaji wa shughuli za mradi na wenyeji na kupunguza hatari ya faida nyingi kuchukuliwa na watu maarufu vijijini. Malipo kwa kuzingatia utendaji (kuliko kuzingatia jitihada,) yanaonyesha kuwa yamechochea matendo makuu na motisha ya kupunguza uharibifu wa misitu. Mifumo ya ugawanaji manufaa hufanya kazi vizuri zaidi ikiwa imeundwa na wapokeaji wa mwisho na ikiwa fursa za kuchukuliwa na watu maarufu zimepunguzwa. Jamii zinapopata msaada wa kuandaa mchakato wa wazi, usawa na shirikishi, zinaweza na huwa zinafanya maamuzi ya busara ya namna ambavyo mapato yanapaswa yagawanywe na yatumike.

7. Upimaji, ufuatiliaji, utoaji taarifa na uhakiki
Miradi ya majaribio ya MKUHUMI imefanya majaribio kwa namna mbalimbali za Upimaji, Ufuatiliaji, utoaji taarifa na uhakiki (measurement, monitoring, reporting and verification-MRV), yote ikiunganisha njia za kitaalamu za hali ya juu za picha za angani (remote sensing) na modeli za jamii za ufuatiliaji wa kaboni. Majaribio ya ufuatiliaji shirikishi wa kaboni umekuwa wa mafanikio na miradi ya Tanzania ya majaribio ya MKUHUMI imedhihirisha kuwa jamii zina uwezo wa kufanya mambo magumu na ya kitaalamu ya MRV ikiwa zinapatiwa mafunzo na motisha za kutosheleza. Baadhi ya miradi ya majaribio ya MKUHUMI haijaweza kufanikiwa katika malengo ya kujenga mfumo endelevu wa MRV kutokana na utegemezi wa kuajiri wataalamu wa nje, changamoto za teknolojia ambayo haijajaribiwa, kukosekana kwa viwango vya kitaifa na chombo cha kuongoza mambo ya MRV na kuhifadhi takwimu zilizokusanywa. Hakuna mradi ambao umeweza kujaza takwimu kweye ngazi ya ufuatiliaji wa kitaifa wa kaboni ya misitu kwa kuwa Kituo cha Taifa cha Ufuatiliaji wa Kaboni (National Carbon Monitoring Centre - NCMC) bado hakijaanza kufanya kazi. Kutokuwepo kwa ushirikishanaji wa takwimu kutoka kwenye miradi ya ufuatiliaji wa masuala ya misitu ya 'National Forestry Resources Monitoring and Assessment (NAFORMA) kwa upande wa Tanzania Bara na ucheleweshaji wa utekelezaji wa mradi wa 'Zanzibar Woody Biomass Survey (ZWBS) vilizuia miradi ya majaribio kufanya tafiti za ulinganifu kati ya takwimu zilizokusanywa. Utengenezaji wa namna mbalimbali za MRV (na hasahasa utabakishaji msitu 'forest stratification' na itifaki za uchambuzi wa takwimu 'data analysis protocols') umemaanisha kuwa ulinganifu wa takwimu zilizokusanywa na matokeo kati ya miradi unatoa changamoto za kimbinu.

8. Ufikishaji wa miradi katika soko
Watekelezaji wa miradi ya majaribio ya MKUHUMI hawakuchukulia kwa uzito mkubwa changamoto za kitaalamu zinazohusiana na uandaaji wa andiko la maelezo ya mradi (Project Description) lililohakikiwa na kuthibitishwa. Matokeo yake, mchakato wa uandaaji umechukua muda mrefu sana, fedha na utaalamu kuliko ilivyotarajiwa awali. Kushuka kwa bei pamoja na kupungua kwa mahitaji katika soko la kimataifa la kaboni vinahatarisha ustawi na uendelevu wa utekelezaji wa MKUHUMI kupitia miradi.

Hitimisho na Mjadala

Miradi ya majaribio ya MKUHUMI ilichaguliwa ili kujaribu namna mbalimbali za utendaji katika ngazi za chini ambazo zingesababisha kuwa na utayari wa MKUHUMI na matokeo yanayotegemea utendaji. Wakati miradi ya majaribio ya MKUHIMI inazinduliwa mwaka 2008 na 2009, MKUHUMI ulikuwa haujafanyiwa majaribio na ulikuwa ni dhana ambayo ilikuwa ikieleweka kwa ufinyu sana nchini kwa mazingira ya Tanzania na ya dunia. Sera za kinchi, miongozo ama vigezo kuhusiana na MKUHUMI nchini Tanzania havikuwepo na mwongozo wa kimataifa ulikuwa ni mdogo sana. Hii ilimaanaisha kuwa taasisi za kijamii ilibidi zitumie mbinu ya 'kujifunza-kwa-kufanya', ambayo ilisababisha gharama kwa ujumla kuwa kubwa na kupunguza ufanisi ukilinganisha na kama majaribio yangefanyika leo. Kwa kuangalia nyuma, mahitimisho ya ujumla yanajitokeza:

• Nchi ya Tanzania imefunikwa zaidi na uoto wa mapori makavu ambayo ina kiwango kidogo cha kaboni kwa eneo. Kutokana na historia ya shughuli za makazi na mwenendo wa uvunaji, mapori ya asili yanakumbana na kiwango tofauti cha uharibifu. Miradi ya MKUHUMI inawezekana tu kifedha (kwa waandaaji wa mradi na jamii pia) katika maeneo ambayo bado yana kiwango kikubwa cha msitu, lakini ambayo uharibifu wa misitu na ukataji miti ovyo bado unaendelea. Maeneo makubwa kwa ulinganifu yanapaswa kujumuishwa ili kuzalisha mapato makubwa kutokana na kupunguza uzalishaji wa kaboni. Hivyo, uchaguzi wa eneo la mradi ni suala muhimu katika kuhakikisha ustawi wa mradi. Mbinu zinazofanya kazi katika ngazi ya juu ya mamlaka na kitaifa zina uwezekano mkubwa wa kuweza kuzalisha kiwango kikubwa cha fedha kutokana na kuepushwa kwa uharibifu wa misitu, ijapokuwa utata na visababishi vya uharibifu vinavyotegemea eneo la mradi vitapelekea ufanyaji kazi katika kiwango kikubwa kuwa wa gharama na wenye changamoto zaidi.

• Uzalishaji wa gesi kutoka kwenye matumizi ya ardhi nchini Tanzania una sababishwa kwa kiasi kikubwa na uharibifu wa misitu wa taratibu unaoendelea, na si ufyekaji wa moja kwa moja (deforestation) kutokana na uvunaji mdogo, kaya binafsi zinazovuna misitu kwa ajili ya biashara na mahitaji ya kawaida na kilimo kilichoenea cha ufyekaji-na-uchomaji. Mapungufu katika mbinu (Methodological gaps) yanamaanisha kuwa tathmini ya ukataji miti (degradation) ina uhitaji mkubwa wa kitaalamu na ni ghali kuliko matukio ya uharibifu wa misitu (deforestation scenarios). Mradi mmoja (wa shirika la MCDI) umeweza kuandaa na kujipatia uithinishwaji wa mbinu mpya ya VCS inayojikita katika kupunguza uzalishaji wa gesi unaotokana na usimamizi wa mioto katika misitu ya mapori ya miombo.

• Manufaa ya ziada ya kaboni yaliyozalishwa na miradi ya Tanzania ya muhimu (kama si muhimu zaidi) kama yale ya kaboni (malipo tasilimu) yamesababisha matokeo muhimu katika utawala, jamii, yanayohusiana na umiliki wa ardhi, kitaasisi na ya kiuchumi kwa watu wa maeneo husika. Zaidi ya hapo, miradi mingi imesaidia jamii masikini za vijijini kuwa na ustahimili na kupunguza hali ya mazingira ya uhatarishi kwa matukio yaliyo nje ya uwezo wao kama vile yale ya mabadiliko ya tabianchi. Upatikanaji wa mikataba ya muda mrefu na serikali juu ya usimaizi wa pamoja wa misitu imekuwa pia ni manufaa muhimu yasiyo ya kaboni kwa makundi ya jamii katika miradi miwili (mradi wa AWF na wa CARE).


• Usimamizi Shirikishi wa Misitu (USM) wa kupitia MKUHUMI kwa muktadha wa utekelezaji wa miradi ya majaribio umekuza mijadala juu ya mambo mbalimbali ya kisera kuhusiana na USM ambayo awali yalikuwa yakichukuliwa kama vikwazo. Eneo mojawapo ambalo limeongelewa sana kupitia utekelezaji wa miradi ya majaribio ni suala la ugawanaji wa mapato na swali kuu ya ulinzi wa misitu (protection) dhidi ya matumizi endelevu. Kwa kuwa USM ulikuzwa sana na serikali na asasi za kiraia kwa malengo ya uhifadhi wa misitu, uzalishaji wa manufaa makubwa kwa jamii ulikuwa ni jambo la ziada baada ya malengo ya kurejesha ukuaji na kuhifadhi misitu. Kwa namna hiyo, miradi mingi ya majaribio ya MKUHUMI ilianza mijadala na jamii juu ya uhifadhi na ulinzi wa misitu kwa namna ambazo zinazuia ama kupunguza matumizi ya wenyeji. Kwa upande wa mradi wa shirika la JGI, hatua hizi za awali zilijidhihirisha kuwa hazikubaliki na wanajamii waliweka wazi kuwa baadhi ya matumizi endelvu yatahitajika ili jamii iweze kuunga mkono shughuli za mradi, hasa kwa ajili ya matumizi ya nyumbani ya kuni na mazao mengine ya misitu. Zaidi ya hayo, ulinzi madhubuti ungeweza kusababisha uharibifu wa misitu katika maeneo mengine (leakage) ya jirani yenye kiwango kidogo cha ulinzi. Cha kuvutia zaidi, ni katika eneo la mradi wa shirika la MCDI pekee ambapo mipango iliandaliwa kwa ajili ya uvunaji endelevu wa kibiashara wa mazao ya misitu (mbao). Katika maeneo mengine, uvunaji wa kibiashara wa mazao ya misitu ulionekana kuwa ni mgumu, wa hatari, na wenye uwezo wa kuzalisha gesi nyingi, na kufanya ugumu katika kuuelezea. Kwa ujumla, utekelezaji wa MKUHUMI umekuza kiwango cha mijadala miongoni mwa watendaji pamoja na watunga sera ndani ya nchi juu ya uhitaji wa manufaa ya moja kwa moja katika ngazi ya jamii ili kudumisha uvutiwaji na uhitaji wa USM. Mafanikio ya kupunguza uharibifu wa misitu na ukataji miti ovyo hayataweza kufikiwa nchini Tanzania kama malengo ni ulinzi na uhifadhi wa misitu tu – lakini malengo yanapaswa kuwa ni uvunaji endelevu/usimamizi wa misitu. Asasi za kiraia za uhifadhi, ambazo awali zilikuwa zimeridhika na wazo la jamii kukubaliana na ulinzi pekee wa misitu katika usimamizi wa misitu zinaendelea kushinikiza haja ya kuzalisha manufaa ya kutosha kwenye ngazi ya vijiji husika.

• MKUHUMI umesaidia kupeleka mbele mchakato wa kisheria katika maeneo yote ya usimamizi wa ardhi na maliasili. Hii inajumuisha masuala ya muda wa mikataba ya USM (ambayo kwa muktadha wa MKUHUMI muda umeongezwa ili kuhakikisha hali ya kudumu), upangaji shirikishi wa matumizi ya ardhi, ubora wa mchakato wa ushirikishwaji unaotumiwa kufikia na kudhihirisha ridhaa na uhusishwaji wa wasimamizi wa mistu katika ngazi za vijiji katika tathmini za misitu na ufuatiliaji. Suala hili linawakilisha maboresho makubwa katika "sera na hatua" (policies and measures - PAMs) ambazo ni za umuhimu mpana nje ya MKUHUMI na kwa kiasi kikubwa zinaendana na mbinu za hali ya bila kujutia "no-regrets" ambazo zinajadiliwa

• Miradi ya majaribio imetoa fursa ya kutathmini utendaji wa shughuli ambazo tayari zimeanza na zimefanyiwa majaribio nchini Tanzania kwa muktadha wa sekta husika. Kwa lengo kubwa la MKUHUMI, mbinu za ushirikishaji zaidi na mtambuka zinahitajika. Mbinu hii inapaswa ihimize utumiaji wa mikakati ya usimamizi wa misitu katika muktadha mpana wa umiliki wa ardhi na maliasili, ngazi ya utendaji wa shughuli katika uwanda mpana (landscape level), kilimo, nishati na utawala wa serikali za mitaa. Msisitizo wa miradi ya majaribio katika kujaribu na kujifunza imetengeneza mfumo wa kutafakari, uchambuzi na kujikosoa. Kama matokeo ya kufanya kazi katika sekta za ardhi na nishati, masuala yanayohusiana na gharama, na suala la ukubwa wa eneo, ufanisi na gharama za kufanya shughuli mbadala (opportunity cost) yameweza kuongelewa. Mambo haya hayakuweza kujitokeza kwa undani sana katika mijadala ya uharibifu wa misitu na ukataji miti ovyo na usimamizi wa ardhi mpaka kufikia hapa karibuni.

• Visababishi vya uharibifu wa misitu na ukataji miti ovyo vimeshughulikiwa kikamilifukwa wakati ambapo shughuli mbalimbali za ziada zimehamasishwa – kama vile kuunganisha mchakato wa upangaji shirikishi wa matumizi ya ardhi na kilimo endelevu. Miraji imeweza kufanikiwa zaidi ilipoamua kujenga ushirika na taasisi zenye ujuzi wa msingi wa kushughulikia shughuli nje ya zile za misitu (kama vile kilimo, masoko na mfumo wa thamani ya bidhaa).

• Ujengaji uwezo wa kiasi kikubwa unahitajika ndani ya taasisi zinazotekeleza, pamoja na wasimamizi katika ngazi ya jamii juu ya mambo ya mbinu za kutathmini kaboni ili mfumo wa upimaji, ufuatiliaji, utoaji taarifa na uhakiki (MRV) uweze kufanya kazi kikamilifu katika miradi ya MKUHUMI. Katika ngazi ya jamii, suala hili linajumuisha teknolojia rahisi, zinazoweza kutumika na za gharama nafuu zinazohakikisha ukusanyaji sahihi wa takwimu zinazoweza kutumika katika kusaidia kufanya maamuzi katika ngazi hii, pamoja na kulisha mifumo ya MRV iliyo migumu katika ngazi za juu. Uwezo wa kitaalamu wa taasisi zinazotekeleza mambo ya picha za anga (remote sensing), upimaji misitu, uchambuzi wa takwimu na uthibitishaji vinahitajika. Bila kuwa na chombo cha kitaifa kinachofanya kazi, chenye wajibu wa kuweka viwango na mbinu katika ngazi ya taifa, mambo ya MRV kwenye miradi yanaweza kukosa uratibu na takwimu zisifae kwa majumuisho ya miradi yote.

• Dhana ya uhuru wa kufahamishwa na kuridhia (free prior and informed consent – FPIC) imeonyeshwa kuwa yenye faida za wazi katika miradi, katika kuongeza hali ya umiliki kwa jamii zinazoshiriki, kupunguza hatari za uchelewaji au kukataliwa kwa shughuli zinazopendekezwa katika hatua za mbele za utekelezaji na kujenga uwezo wa jamii wa kuelewa na kujadili namna yao ya maendeleo. Hata hivyo, mchakato wa FPIC ni wa gharama na unaohitaji muda mrefu na mwezeshaji mwenye ujuzi. Wafanyakazi wanatakiwa kufundishwa kikamilifu juu ya mantiki na mbinu kuu zitakazotumika.



MAPENDEKEZO KWA WATUNGA SERA KATIKA NGAZI YA TAIFA

Upanuzi wa utekelezaji wa MKUHUMI kutoka kiwango cha mradi kuwa cha uwanda mpana

• Programu za kimamlaka zianzishwe ili kunufaika na kujenga uchumi wa kuchangia gharama (create economies of scale) kutoka kwenye ujazo mkubwa wa kaboni uliokusanywa na kuleta madhara kisera kwa kushirikiana kikamilifu na serikali za mitaa. Pia, utekelezaji wa MKUHUMI katika kiwango cha uwanda mpana (landscape level) husaidia kupunguza uhamaji wa shughuli za uharibifu kwenda maeneo mengine (leakage)

• Kuimarisha majukumu na mamlaka ya kisheria ya serikali za vijiji katika kusimamia na kutumia miti iliyopo kwenye ardhi za vijiji, ambayo iko nje ya misitu ya hifadhi katika ardhi ya vijiji, itasaidia utekelezaji wa MKUHUMI katika uwanda mpana (landscape level).

• MKUHUMI kama wazo unapaswa kuhamasishwa ili kujumuisha 'shughuli za ziada' (the plus activities) – kama vile usimamizi endelevu wa misitu na uundwaji wa njia endelevu za kujipatia kipato kutoka kwenye matumizi ya misitu.

Utoaji wa huduma

• Utoaji huduma kwa umma na kwa watu binafsi unapaswa kuendelezwa kupitia kujenga uwezo uliokusudiwa, uanzishwaji wa shughuli za ushirikishaji za gharama nafuu (upangaji wa matumizi ya ardhi, upangaji wa usimamizi wa misitu) na kujifunza kwa kutenda.

• Ni muhimu kujenga uwezo wa kutosha nchini wa mambo ya picha za angani (remote sensing), upimaji misitu (forest inventory), uchambuzi wa takwimu na uthibitishaji.

• Msaada unapaswa kuelekezwa katika kujenga uwezo wa kutatua migogoro katika serikali za mitaa (kijiji, kata na wilaya)

Kinga (Safeguards)

• Kwa mujibu wa mahitaji ya nchi ya kuandaa 'nguzo nne' za utayari wa MKUHUMi kama zilivyoelekezwa katika Mkataba wa Umoja wa Mataifa wa Mabadiliko ya Tabianchi (United Nations Framework Convention on Climate Change- UNFCCC), kinga zinapaswa kutekelezwa kupitia uanzishaji wa mfumo wa taarifa za kinga (safeguard information system). Kama sehemu ya hili, mwongozo wa FPIC kwa Tanzania unapaswa kuandaliwa kwa kuzingatia mambo mazuri ya kimataifa na uzoefu uliopatika mpaka sasa kupitia utekelezaji wa miradi ya majaribio. Ofisi ya Makamu wa Rais inapaswa kutekeleza jukumu la ufuatiliaji wa kinga na matumizi ya FPIC. Kwa upande wa Zanzibar, miongozo ya usimamizi wa misitu ya jamii (community forest management-COFMA) inapaswa kujumuisha FPIC.

Kushughulikia visababishi vya uharibifu wa misitu na ukataji miti ovyo

• Miongozo iliyotolewa na Tume ya Taifa ya Mipango ya Matumizi ya Ardhi juu ya mchakato wa upangaji matumizi ya ardhi inapaswa kupitiwa tena ili kukuza kipaumbele katika kuweka uwiano wa uhifadhi wa misitu na upunguzaji wa uzalishaji wa gesi kutokana na uhitaji mkubwa wa kilimo. Kwa sababu hiyo, mipango inapaswa kuunganishwa na chanzo cha nje cha malipo yanayotokana na matokeo ya utekelzaji wa MKUHUMI yanayotarajiwa pale ambapo soko la kisheria (compliance market) litakapokuwa limeundwa. Bajeti zinapaswa kutengwa ili kuwezesha upangaji wa matumizi ya ardhi kwa serikali za mitaa na serikali katika kanda za misitu zilizopewa kipaumbele.

• Ili kushughulikia visababishi vya uharibifu wa misitu vinavyotokana na shughuli za kilimo, ujumbe wa uchechemuzi (advocacy) unapaswa kulenga katika hali halisi kuwa, kupanuka kwa kilimo cha kuhamahama katika maeneo yaliyotawanyika, hufanya ufikishwaji wa shughuli za ugani kuwa ghali na hushusha thamani ya misitu pamoja na huduma zinazoendana na misitu. Uboreshwaji wa shughuli za kilimo utaleta manufaa endelevu yakiwemo ya ongezeko la kiuchumi, kijamii na ustawi wa mazingira.

• Kilimo kinachozingatia tabianchi (climate smart agriculture), kinachohitaji kanuni za kilimo hifadhi kinahitaji kupenyezwa katika Wizara ya Kilimo, serikali za mitaa na asasi zisizo za kiraia.

• Majaribio ya usimamizi wa jamii wa moto (community based fire management - CBFiM) unapaswa kuenezwa katika ngazi ya taifa na kujumuishwa kwenye miongozo mbalimbali. Wadau mbalimbali wanapaswa kujaribu usimamizi wa jamii wa moto ili kuzalisha mafunzo (lessons) kwa ajili ya kutafuta njia zenye gharama nafuu.

Utoaji wa huduma

• Utoaji huduma kwa umma na kwa watu binafsi unapaswa kuendelezwa kupitia kujenga uwezo uliokusudiwa, uanzishwaji wa shughuli za ushirikishaji za gharama nafuu (upangaji wa matumizi ya ardhi, upangaji wa usimamizi wa misitu) na kujifunza kwa kutenda.

• Ni muhimu kujenga uwezo wa kutosha nchini wa mambo ya picha za angani (remote sensing), upimaji misitu (forest inventory), uchambuzi wa takwimu na uthibitishaji.

• Msaada unapaswa kuelekezwa katika kujenga uwezo wa kutatua migogoro katika serikali za mitaa (kijiji, kata na wilaya)

Majukumu ya Kituo cha Taifa cha Ufuatiliaji wa Kaboni (NCMC)

• Inahitaji NCMC inayofanya kazi ili kuhifadhi na kushirikisha takwimu zilizokusanywa katika miradi ya MKUHUMI na NAFORMA. Takwimu za maeneo zilizokusanywa zinapaswa zipatikane kupitia mfumo wa tovuti (Web-based portal). Takwimu hizi zinaweza kusaidia katika kuandaa, kwa mfano, grafu za kimo cha miti ya maeneo husika ili kuchukua nafasi ya upimaji wa kimo cha miti (kama ilivyo katika mradi wa shirika la TFCG/MJUMITA).

• Kuratibu matumizi ya kikamilifu ya takwimu ili kuhakikisha kuwa zinafanyiwa uchambuzi na kutumiwa kikamilifu ni kazi muhimu ya NCMC.

• Mwongozo wa kitaifa (au viwango) unahitajika kwa ajili ya mambo ya MRV kwenye ngazi ya miradi ambayo inaakisi vitendo vizuri vya kimataifa na kuunganishwa na utaratibu wa kitaifa ambao uko kwenye maandalizi.

• Programu mpya za wazi (New open-source tools) kama vile kifurushi cha "Open Foris" kilichotumika katika miradi ya NAFORMA na ZWBS, vinaweza kunufaisha hali ya sasa ya usimamizi wa takwimu na inaweza ikapangwa chini ya NCMC ili kuhakikisha mbinu zinazowiana kwa ajili ya takwimu zote (dataset).

• Jukumu la NCMC katika kujenga uwezo wa MRV lazima libainishwe.

• Ulinganifu wa tongamotaka na makadirio ya kiwango cha hifadhi ya kaboni kutoka kwenye miradi ya MKUHUMI lazima yafanyike na kanuni mpya za 'allometric equestion' ziandaliwe.

• Kuna haja ya kuoanisha mfumo wa utengaji wa misitu ili ramani zote za miradi ziweze kulinganishika, na ziweze kupachikwa (nested) katika mfumo wa kitaifa wa MRV. Ni muhimu kujenga uwezo wa kitaifa wa kufanya utengaji wa matumizi ya ardhi/uoto wa ardhi (land use/ land cover – LULC classifcation) na kung'amua mabadiliko ya uoto ardhini kwa kutumia takwimu za picha za angani (remote sensing).

MAPENDEKEZO KWA WATENDAJI KATIKA IDARA ZA MKUHUMI, MISITU NA ARDHI (KWA TANZANIA NA MAHALA KWINGINEKO)

Uchaguzi wa eneo

• Miradi ya MKUHUMI inapaswa kutumia muda mrefu na rasilimali za fedha katika kutafuta eneo la kufanya mradi kabla ya kuanza kwa shughuli za mradi. Vigezo muhimu vya kuhakikisha ustawi wa mradi vinajumuisha sifa mbalimbali asili na uzito wa visababishi na viwango vya uharibifu wa misitu na ukataji miti ovyo, idadi ya watu katika eneo, eneo la msitu wa asili, umiliki wa ardhi na misitu, kiwango cha bioanuwai na cha umasikini.

• Miradi inapaswa ijikite katika maeneo ambayo yana utashi mkubwa wa kisiasa katika vijiji na serikali za mitaa ili kusaidia shughuli za mradi. Kama ikiwezekana, miradi itambue pia maeneo ambayo kuna uwezekanao wa kuendeleza manufaa mengine kutoka kwenye wanyamapori ama usimamizi wa mbao, vyanzo vya maji, uwindaji na utalii; na katika maeneo ambayo wataalamu wengine washirika wanafanya kazi kwenye mambo ya kilimo, shughuli za kujipatia kipato, nishati ama programu za upangaji wa familia.

• Maeneo makubwa ya Usimamizi Shirikishi wa Misitu ambapo uharibifu umekuwa ukiongezeka lakini kwenye uwezekano wa kuongeza mapato kwa kuanzisha kitengo cha usimamizi wa misitu (forest management units) ili kuuza kaboni yafikiriwe pamoja na kufanya uvunaji usio na madhara na gawana mapato na jamii zilizo pembezoni mwa misitu. Kuna wigo wa kuandaa mikataba ya muda mrefu ili kusaidia hali ya usalama.

Kuelewa na kuvishughulikia visababishi vya uharibifu wa mistu na ukatatji miti ovyo

• Katika ngazi ya taifa, ufanyaji wa tafiti za kina za kichambuzi ili kuhakiki na kutathmini visababishi vya uharifbifu wa misitu na ukataji miti ovyo ni jambo la muhimu wakati wa kuanza kwa mradi.

• Upangaji wa namna iliyoratibiwa ya kufanyia kazi visababaishi vya uharibifu wa misitu na ukataji miti ovyo ni muhimu na mara nyingi huhitaji ujuzi zaidi ya nyanja kuu za ubobeaji wa taasisi zinazotekeleza mradi.

• Upangaji wa matumizi ya ardhi unatoa mfumo muhimu wa kukubaliana na kusimamia maamuzi ya baadaye ya matumizi ya ardhi.

Ridhaa na mashauriano

• Miradi inapaswa kutumia muda mwingi katika kujipatia ridhaa kupitia utaratibu wa FPIC kabla ya kujikita kwenye shughuli za mradi. Wakati jambo hili linaweza kuhitaji muda mwingi wa kuanzia, litahakikisha usalama wa hali ya juu na upunguzwaji wa hatari katika utekelezaji na wakati huo likiboresha ushiriki wa makundi mbalimbali ya katika jamii.

Umiliki wa ardhi na maliasili

• Kuwekeza katika kuimarisha umiliki wa ardhi na misitu na usimamizi wake ni sehemu muhimu ya kushughulikia visababishi vya asili vya uharibifu wa misitu na ukataji miti ovyo. Uwekezaji huu usitazamwe tu kuwa ni kigezo muhimu cha awali kwa ajili ya kufikia upunguzwaji wa uzalishaji gesi, lakini pia kama faida ya thamani ya ziada ya kaboni. Katika nchi kama Tanzania, ambapo mfumo wa kisera unaelekeza utaratibu wa kisheria wa jamii kujipatia umiliki wa misitu na wa ardhi, miradi inapaswa kuchukua na kufuata mbinu zilizopo kama vile Usimamizi Shirikishi wa Misitu na Upangaji wa Ardhi ya Kijiji.

• Miradi inayofanya kazi na Usimamizi Shirikishi wa Misitu katika mtazamo wa MKUHUMI inahitaji iangalie namna pana na inayohusisha zaidi usimamizi wa maliasili za misitu katika ngazi ya uwanda mpana (landscape level), ili kuepusha athari za kuhama kwa shughuli za uharibifu katika maeneo mengine (leakage). Hali hii itahitaji mjadala shirikishi katika ngazi ya jamii ambao una usimamizi wa ujumla wa misitu na athari za shughuli kama za kilimo cha ufyekaji na uchomaji moto katika maeneo ya ardhi ya misitu iliyopo nje ya eneo la hifadhi ya jamii.

• Wakati wa kuunda vyombo vya pamoja (aggregation entities), kuna umuhimu wa kuhakikisha kuwa muda wa kutosheleza na uwekezaji unatolewa ili kujenga uwezo na uendelevu wa tasisi hizo.

Jinsia

• Uzingatiaji mkubwa wa mambo ya jinsia unahitajika katika ngazi ya miradi. Hii inajumuisha matumizi ya uchambuzi wa kijinsia wakati wa kupanga na kubuni shughuli pamoja na kufuatiia athari za kijinsia katika namna ambavyo ugawanaji wa manufaa ya kaboni na yale ya ziada ya kaboni yatokanayo na shughuli za mradi unafanywa. Athari zinapaswa kuakisiwa katika mikakati ya utekelezaji. Wakati wa kupanga namna ambavyo fedha za jamii zitokanazo na gawio katika MKUHUMI zinapaswa zitumike, mahitaji na vipaumbele vya wanawake ni lazima viwiane na vile vya wanaume. Mgao wa malipo kwa mtu binafsi huhakikisha kuwa wanaume na wanawake wote wanapokea manufaa.

Ugawanaji wa manufaa

• Jamii zinapaswa zipewe mamlaka yote ya kuamua namna ambavyo manufaa ya kaboni yanapokelewa na kutumiwa. Mifumo ya ugawanaji manufaa hufanya kazi vizuri zaidi ikiwa imeundwa na wapokeaji wa mwisho na ikiwa fursa za kuchukuliwa na watu maarufu zimepunguzwa. Mchakato wa wazi, wa usawa na shirikishi unapaswa kuwezeshwa ili kukubaliana na kufanya maamuzi. Makubaliano haya ni lazima yajumuishe chaguo la kupata malipo ya kifedha kwa mtu binafsi ama malipo ya jamii. Malipo tasilimu ama ya kijamii yanapofanyika kwenye ngazi ya taasisi za kijamii, hatua zinapaswa kuwekwa ili kuhakikisha uwazi na uwajibikaji ili kuepusha hatari ya fedha kuchukuliwa na watu maarufu.

Upimaji, Ufuatiliaji, utoaji taarifa na uhakiki (MRV)

• MRV katika ngazi za miradi unahitaji uratibu, katika kiwango kinachowezekana, na ufuatiliaji na mipango ya utoaji wa taarifa za kaboni kitaifa.

• Pale inapowezekana, miradi inapaswa kuhamasisha wanajamii wenyewe waweze kukusanya takwimu za msingi, na kuhakikisha kuwa kazi yao inatambulika na inapata tunzo ama kwa njia za kifedha au zisizo za kifedha.

• Miradi inapaswa kunufaika na kuwepo kwa takwimu za orodha ya aina za miti kutoka kwenye mradi wa NAFORMA pamoja na mifumo ya wazi (open-source tools) ambayo imeshawahi kutumiwa na miradi ya majaribio katika mambo ya MRV.

• Teknolojia za kisasa za kukusanya taarifa (Portable digital data collection technology) na uhifadhi mfumo wa uhifadhi wa takwimu (cloud storage system) vinaweza kutumika kwa mapana ikiwa kuna upatikanaji wa chanzo cha uhakika cha nishati kwa ajili ya uchajishaji, kama vile umeme wa jua (solar panels), na upatikananji wa mtandao na uunganishwaji wa intaneti unapatikana.

• Uwekezaji mkubwa katika kujenga uwezo utahitajika ili vifaa hivi vitumike kikamilifu.

Ufikishaji wa miradi katika soko

• Miradi inayotafuta soko la kuuza kiwango cha upunguzaji wa kaboni kilichothibitishwa (verified emission reductions - VER) inahitaji kuwatambua mapema wanunuzi watarajiwa katika hatua za awali za utekelezaji wa mradi na kuwahusisha wanunuzi katika usanifu wa mradi ili kuongeza mawasiliano na hali ya umiliki.

• Ili kukabiliana na hali isiyotabirika ya masoko na uuzaji wa amana za kaboni, miradi ya MKUHUMI inapaswa iangalie namna za kuzalisha vyanzo mbalimbali vya kujipatia manufaa kutoka kwenye usimamizi wa misitu ikiwamo uvunaji endelevu na uuzaji wa mbao na bidhaa zisizo za mbao (mkaa na asali). Majukumu ya kijinsia katika matumizi ya misitu na uvunaji huwa yanafafanuliwa kwa kina – na hivyo, uchambuzi wa kijinsia na jitihada za kushughulikia ukandamizaji wa kijinsia vinahitajika ili kuhakikisha kuwa matokeo ya mwisho, kama vile faida kutokana na vyanzo mbalimbali, vinakuwa na uwiano na usawa.

1. Introduction and Background

Like many developing countries, Tanzania has been moving towards a process of REDD+ readiness, supported strongly by the Norwegian government and other international agencies. The support has been principally targeted at two levels: at national level, support has aimed at developing the structures and institutions necessary to receive results based financing, such as developing a national REDD+ strategy and action plan, developing social and environmental safeguards and provisions for monitoring, measuring, reporting and verifying carbon stocks. At sub-national level and in parallel to national efforts, the Norwegian government has supported NGO pilot projects across the country. These pilot projects were the testing ground for REDD+ in Tanzania, in the hope that emerging practical experience would feed into and inform the evolving national REDD+ readiness process. Pilot projects were expected to contribute to one or more of the following four outcome areas:

- **Building local REDD+ readiness:** The aim was to build REDD+ readiness process es, including the establishment of the necessary local institutional arrangements for carbon stock monitoring, accounting, marketing and financing.

- **Policy testing:** Combined with research, communications and advocacy interventions, the pilot projects were set up to allow the testing of different REDD+ policies with a view to informing future policy development at a national level. These included benefit sharing, participatory monitoring, local governance and ways to address the D&D drivers.

- **Delivering REDD+ results:** In addition to supporting REDD+ readiness, projects were also expected to deliver REDD-related results, such as measurable improvements in forst condition, emission reductions from reduced deforestation, as well as social and environmental benefits from improved forest management. Projects were encouraged to include "front-loaded" REDD+ financing within their budgets to test payment and benefit sharing arrangements in the expectation of making longer-term carbon sales through the voluntary carbon market

- **Supporting broad stakeholder involvement:** By ensuring a wide geographic spread of projects across the country, it was envisaged that pilot projects would help to ensure sufficient diversity in terms of stakeholder perceptions, experience and in volvement during the REDD+ readiness phase.

In February 2009, the Royal Norwegian Embassy (RNE) in Tanzania and National REDD+ Task Force launched the pilot project process. More than 40 concept papers were received in response to a call for applications and out of these, a total of nine were selected for financial support. By the end of 2014, seven REDD+ pilot projects were completed according to plans.[3] One of the seven completed pilot projects, implemented by Worldwide Fund for Nature (WWF), was fundamentally different from others as it mostly aimed at creating detailed carbon baseline data and building capacity of Tanzanian professionals in MRV. The seven completed projects designed to deliver REDD+ results are presented in Table 1.

3 Two pilot projects, implemented by the Wildlife Conservation Society of Tanzania and the Tanzania Traditional Energy Development Organisation were discontinued due to financial reporting and audit concerns. These two projects are not included in the following analysis.

NGO, project title	Target group, Tenure, Drivers of D&D	Primary interventions	Outcomes
African Wildlife Foundation (AWF) / **Advancing REDD in the Kolo Hills Forests (ARKFor)**	• 18 villages, 60,380 people • District/central government forest reserves; village land forest reserve (VLFRs); village land • Conversion of land to agriculture; charcoal; firewood	• Community Based Forest Management (CBFM) and Joint Forest Management (JFM) • Making village land use plans (VLUP) • Sustainable agriculture • Fuel efficient stoves and kilns, improved brick making • USD 63,000 trial payments to 18 villages	• 12,832 ha of forests under PFM (11,006 JFM, 1,826 CBFM) • VLUPs in 18 Villages • Plan Vivo Project Document (PD) under validation • 26,153 tCO_2e / annum reduced emissions (not verified) • JFM agreements for 30 years • Four VLFRs legally established • JUHIBEKO– aggregating entity (AE)
The Jane Goodall Institute (JGI) **Building REDD readiness in the Masito-Ugalla Ecosystem Pilot Area**	• 13 villages, 62,000 people; • General land • Agricultural expansion; grazing; charcoal production; forest fires; illegal logging	• PFM • Community based fire management (CBFiM) • Sustainable agriculture • Beekeeping, poultry • USD 200,000 in trial payments (seven villages, JUWAMMA)	• community management of 90,489 ha of miombo woodland • 55,000 t CO_2e reduced emissions / annum (not verified) • Established JUWAMMA – AE for 7 Villages
Mpingo Conservation & Development Initiative (MCDI) **Combining REDD, PFM and FSC Certification in S-E Tanzania**	• 10 villages, 17,829 people • VLFRs; village land • Fire; conversion of land to agriculture	• CBFM • Sustainable timber harvesting • CBFiM	• 96,112 ha under CBFM • 27,600 t CO_2e reduced emissions (not verified) • 10 VLFRs • VCS early burning methodology developed and approved
Tanzania Forest Conservation Group (TFCG) and Community Forest Conservation Network of Tanzania (MJUMITA) **Making REDD Work for Communities and Forest Conservation in Tanzania**	• 27 villages, 49,025 people • VLFRs; village land • Shifting cultivation; unsustainable forest harvesting and logging; charcoal production	• CBFM,VLUP • Conservation agriculture • Beekeeping; energy saving stoves; village savings and loans associations (VSLA) • USD 459,836 in performance related trial payments to 49,025 individuals	• 151,867 ha of forests under CBFM • VCS CCBA PD for Lindi site, validated and verified • 39,896 t CO_2e reduced emissions verified in Lindi from 2012 to 2013 • 27 VLFRs • 27 VLUPs • Verified carbon units for sale
CARE Tanzania Hifadhi ya Misitu ya Asili (HIMA) / **Piloting REDD in Zanzibar through Community Forest Management**	• 45 Shehias, 113,845 people • Community Forest Management Areas (COFMAs) • Clearance of land for agriculture and settlement; firewood and charcoal	• Establishing COFMAs • Assisted natural regeneration • Improved cook stoves • Conservation Agriculture; • Income Generating Activities (IGA) • USD 270,000 cash benefits to 40 communities	• 82,754 ha of forested land in 45 established COFMAs • VCS CCB PD, under validation and verification • 581,252 t CO_2e reduced emissions (not yet verified) • JUMIJAZA (AE) established
Wildlife Conservation Society **(WCS) REDD Readiness in Southwest Tanzania**	• 40 Villages, 70,000 peoplePeopleProtected areas; forest reserve; village land • Agriculture; firewood; illegal logging	• Woodlots, Indigenous reforestation • Environmental education • Beekeeping • Improved cook stoves	• 50,000 people reached with environmental education • Land cover change maps for 1984 – 2011 • 250 ha woodlots established
WWF - **Enhancing the Capacity to Deliver Short and Long Term Data on Carbon Stocks Across the Country**	• Tanzanian national MRV system	Contribution of core data to the Tanzanian national MRV system: • Establishing of baseline carbon plots in seven vegetation types • LiDAR Technology further tested, soil carbon survey • Future scenario modelling • Capacity building, dissemination and communication	• 128 one-hectare permanent carbon monitoring plots established and assessed; • 522 soil samples collected and analysed; • Land use/cover change map under two scenarios for 2025, and mean carbon stock for each class reported.

Table 1 - Complete project overview

Pilot projects were strategically selected to ensure a wide geographic and agro-ecological coverage of the country (Figure 1).

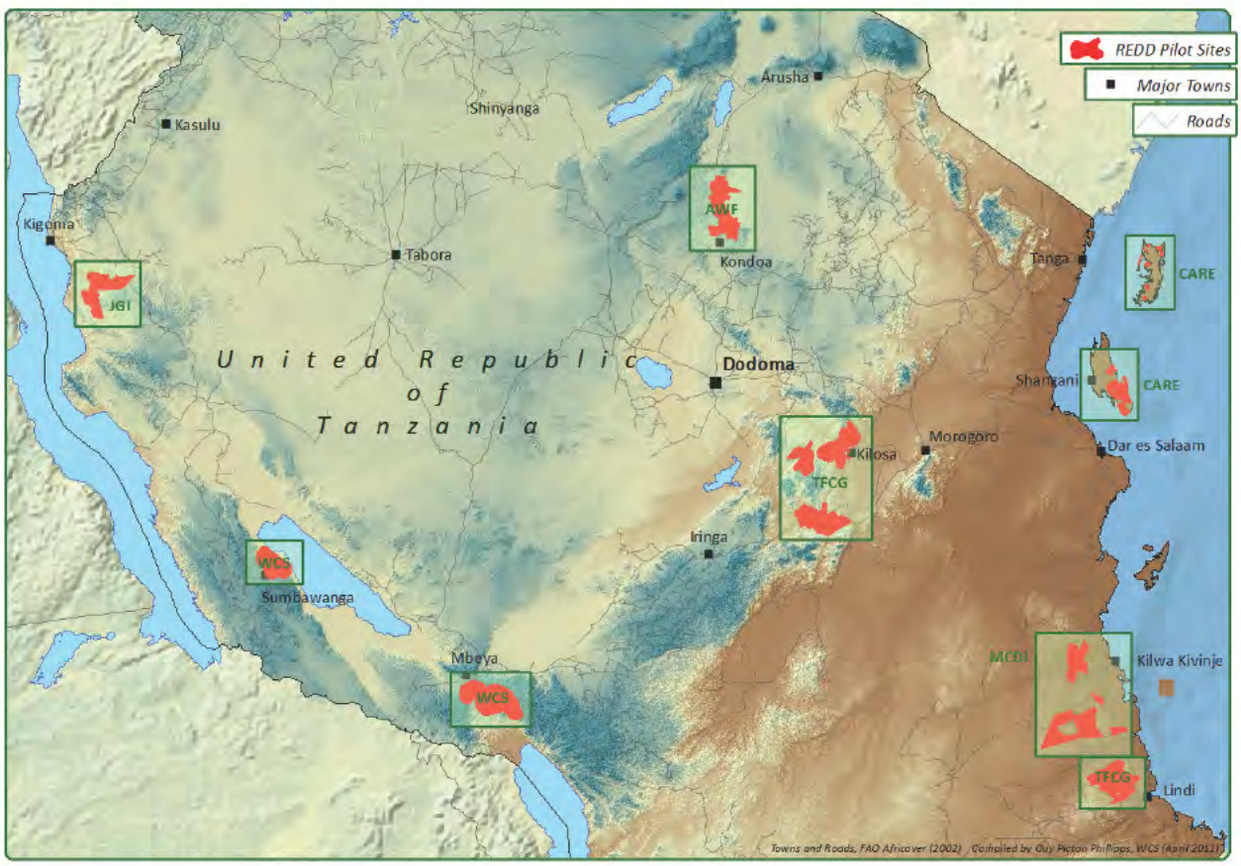


Figure 1: Map of REDD+ pilot projects in Tanzania (Source: WCS)

When the REDD+ pilot projects were launched in 2009, REDD+ was still in its infancy. Awareness and understanding of REDD+ within the government and civil society was extremely limited. The work of the national REDD+ task force was just beginning and no national strategy had been put in place. At the global level, many of the guidelines and policy discussions on issues such as safeguards, MRV, carbon baselines and accounting procedures had yet to take place. As such, international NGOs (and national NGOs with international partners) were seen as solid starting points for piloting field level REDD+ activities, given their access to international networks and emerging global policy discussions.

The RNE commissioned external final reviews of six of the seven pilot projects in between January to May 2015. The JGI project was reviewed in 2014 separately because it closed in 2013. Given the strong focus on learning, policy testing innovation and experimentation that was implicit within the pilot project approach, the RNE also commissioned a study on lessons learned from the seven pilot projects. The study findings are presented in this report.

2. Methodology

Lessons learned, within the context of development assistance, are defined by OECD/DAC as follows:

"Generalizations based on evaluation experiences with projects, programs, or policies that abstract from the specific circumstances to broader situations. Frequently, lessons highlight strengths or weaknesses in preparation, design, and implementation that affect performance, outcome, and impact." [4]

Given the explicit focus of the pilot projects with regard to learning and informing, many of them have already undertaken internal reviews of lessons learned [5]. Cross-project reviews of lessons learned have also been conducted to a lesser extent by the Tanzania Natural Resources Forum and International Union for Conservation of Nature (IUCN), although these were undertaken when the projects were in their early stages.[6] In total, 12 publications have been produced that seek to identify and describe lessons learned from Tanzania's experiences in implementing REDD+. This review of lessons learned differs from previous ones conducted in three key ways:

- It takes place after all projects have been completed
- It is written by an independent team
- It places the Tanzanian experiences within a wider, global context of emerging experiences from other sub-national implementation initiatives.

As such, lessons are provided that answer two key questions:

- What unique aspects of Tanzanian political, legal or ecological situation pro vide valuable lessons / experiences that are of use to both Tanzanian as well as international audiences engaged in REDD+?
- What unique aspects of the Tanzanian pilot project experience provide useful lessons and experiences to other REDD+ practitioners working on similar initiatives but in different countries?

The three main audiences for this report are:

- Tanzanian government authorities and policy makers
- NGO and private sector agencies working in Tanzania involved in the imple mentation of REDD+, forestry and other land sector programmes
- Individuals and organisations working on REDD+, forestry and land sector at international level (donors, international agencies, implementing organisations).

The following lessons learned were gathered and compiled using three main methods:

- Reviewing the findings and conclusions of the final review of pilot projects
- Reviewing literature and documentation already produced by pilot projects
- Reviewing global literature and lessons relating to emerging experiences with REDD+ pilot projects and the evolution of REDD+ more generally
- A two-day workshop with participating NGOs to identify and explore lessons learned, held in Dar es Salaam in March 2015.

4 OECD/DAC. 2004. Evaluation and aid effectiveness. Glossary of key terms in evaluation and results based management. DAC Working party on aid evaluation. Paris, France.

5 See for example: Jarrah, R. 2014. HIMA – piloting REDD in Zanzibar. Review of lessons learned April 2010 to March 2014. CARE International in Tanzania.

6 See for example: Tanzania Natural Resources Forum. 2011. REDD Realities: Learning from REDD pilot projects to make REDD work. Arusha, Tanzania

3. Lessons learned

3.1 Introduction

In the following section, lessons learned are presented within the context of eight cross-cutting areas that were found to be relevant for most or all of the pilot projects – and also for a regional or international audience with an interest in REDD+ and reducing emissions from the land sector. These eight cross-cutting themes are:

1. The feasibility and viability of REDD+ within Tanzania
2. Addressing drivers of deforestation and forest degradation
3. Strengthening land and forest tenure
4. Adapting participatory forest management to a REDD+ context
5. Consultation, stakeholder engagement and consent
6. Payment modalities and benefit sharing arrangements
7. Measurement, monitoring, reporting and verification
8. Getting projects to market

3.2 The feasibility and viability of REDD+ within Tanzania

Summary of key messages:

• The REDD+ pilot projects have been able to demonstrate that REDD+ is feasible in Tanzania. While forest and climate change policy and legislative frameworks for REDD+ in Tanzania are favourable, isolated projects face difficulties in addressing larger issues such as energy and agriculture policy drivers or poor forest governance. This has been accentuated by the limited institutional support from central government.

• Low capacity within Tanzania on MRV as well as the absence of suitable methodologies for measuring forest degradation limits the effectiveness of REDD+ projects. More capacity building is needed especially in the areas of remote sensing and inventory design, data analysis and verification.

• The operational feasibility of REDD+ at project level is challenging due to the size of the country, the remoteness of villages in the forested parts of the country, relatively low carbon stocks and complex, locally-based nature of drivers of D&D. Furthermore, low prices and weak demand for carbon offsets threaten the business case for implementing agencies. The range of co-benefits – social, environmental, institutional and governance related – does improve the viability of actions.

• The average carbon stocks (per hectare) in predominant Tanzanian forest types are low. However, due to large areas, the total carbon stocks in forest and woodland are high, which makes landscape and jurisdictional level approaches more attractive than isolated carbon projects.

• High levels of variability across the country in terms of local deforestation rates, deforestation drivers and tenure regimes mean that project site selection is a key factor in determining the viability of local actions.

National and international context: Different tools have been produced to assess the feasibility of REDD+ in particular in terms of financial viability, but also the technical and operational feasibility of REDD+ interventions. In Tanzania, several of the pilot projects conducted a specific feasibility study to evaluate the project for its activities´ potential to increase carbon sequestration and reduce emissions, checking the project against the eligibility guidelines of VCS and evaluating the potential net income from the project with the inclusion of carbon sales. The situation has, however, considerably changed from 2009 following the downward trend of both demand and carbon prices. In Asia and Latin America, deforestation is driven largely by large scale, commercial food, oil and fibre production (such as beef, soya, plantation forestry, rubber and palm oil). In Africa, however (and in particular, sub-Saharan Africa), forest degradation predominates, driven by more locally-derived actions such as fuel wood collection, subsistence agriculture, charcoal production and livestock grazing. [7, 8] This is in turn caused by the activities of numerous individuals harvesting forests for timber, charcoal and firewood, as well as a slash-and-burn agriculture, which takes place in forested landscapes. Measures to address forest loss must therefore work at a sufficiently local level to engage with rural farmers and forest users. In the same time, as stated by a CIFOR study from 2014, many of the REDD+ activities are likely to have a relatively low carbon impact per unit area but can have significant cumulative effects over large areas.[9]

Lessons from Tanzania

The findings of forest inventories as well as forest and climate change policies both in mainland Tanzania and in Zanzibar emphasise the importance of addressing D&D, but single REDD+ pilot projects have found it difficult to address ex-sector policies without a strong institutional collaboration with the central government. The Tanzanian and Zanzibar climate change strategies, Zanzibar environmental policy and the national REDD+ strategy provide a framework for implementing REDD+ in Tanzania. Forestry is not a union matter and therefore separate policies are prepared by the two entities; both of them now have new draft forest policies, which also emphasise the opportunities created by REDD+. The rapid annual population growth (2.7%) and high dependency on wood for energy (more than 90%) maintain the continued high rate of D&D in Tanzania. The recent Zanzibar Woody Biomass Survey (ZWBS) [10] recommends issuing an administrative order for total protection of all indigenous forests including mangroves for ten years because of dramatic degradation of natural forests and biodiversity. Current energy and agriculture policies and programmes do not necessarily support REDD+; on the contrary, national programmes such as “Kilimo Kwanza” (agriculture first) and “Big Results Now”, focusing on increasing agricultural production and national revenue, enhance unsustainable use of forest resources and conversion of forest and woodland to agriculture.

The institutional feasibility of REDD+ was not well developed when pilot projects were starting which has made it difficult to have proper guidance and support. The REDD+ task force had several duties but the focus on drafting the national REDD+ strategy and conducting a participatory national process reduced the time and energy they could allocate to the pilot projects. The NGOs wanted to align with the national standards, but in the absence of a constant interlocutor they continued to work mostly individually developing their own MRV and social and biodiversity safeguards and finding about the kind of standards to apply. The interaction between the Vice-President´s Office, (the main national body vested with the responsibility of developing and co-ordinating REDD+), and the implementing NGOs responsible for pilot projects never developed beyond information sharing and occasional coordination events.

7 Kissinger, G., M. Herold and V. de Sy, 2012. Drivers of Deforestation and Forest Degradation: A Synthesis Report for REDD+ Policy makers. Lexeme Consulting, Vancouver Canada

8 Streck, C and M. Zurek. 2013. Addressing Agricultural Drivers of Deforestation. Opportunities for Catalytic Donor Interventions. Climate Focus. Washington DC.

9 G Salvini, M Herold, V De Sy, G Kissinger, M Brockhaus and M Skutsch. 2014. How countries link REDD+ interventions to drivers in their readiness plans: implications for monitoring systems.

10 The Revolutionary Government of Zanzibar, 2013. Zanzibar Woody Biomass Survey.

Local government, forestry and land laws all provide a favourable environment within which to establish decentralised approaches to managing forest resources. However, the actual processes were slower, more expensive and, in some cases, less participatory than envisaged. As seen in other sub-Saharan countries, forest loss in Tanzania is largely caused by forest degradation. The agents of forest degradation are generally small scale farmers expanding agricultural production through extensive systems of slash and burn agriculture. As such, any measure to address these drivers must work at this level, by empowering the local level actors to manage forests more effectively while improving agricultural practices. 46% (22 million ha) of all forests and woodlands in Tanzania are found on village land [11] and therefore under the authority of elected village governments.[12] The Forest Act (2002), drawing in turn on the Local Government Act (1982), and Village Land Act (1999) recognises this and provides village governments with the mandate and necessary incentives to claim and manage forests on village land. The availability of these enabling laws means that transaction costs for REDD+ projects in Tanzania should be arguably less than in other similar sub-Saharan countries with a less favourable legal environment. Nevertheless, the process of preparing and getting approval for village land use plans, village land forest reserves and community forest management areas was less participatory, rather expensive and much slower than initially envisaged by the piloting NGOs. In most project areas, the establishment of local structures for natural resource governance and handing over of the law enforcement responsibility to village governments paved way to changes in village administration and helped in addressing corruption and illegal activities. National legislation provides for collaborative management between the government and communities (joint forest management), which makes REDD+ feasible also for government forest reserves while sharing benefits with communities.

Costs of working at community level in remote parts of the country are high and there is still an absence of suitable methodologies for measuring forest degradation. In countries such as Tanzania, the cost of working at community level in remote, poor and inaccessible parts of the country are high. Approved methodologies under VCS for measuring and reporting on forest degradation are currently unavailable or prohibitively expensive and better tools are needed to assess forest loss through degradation. MCDI identified that fire was the biggest driver accounting for greatest levels of forest degradation.[13] Unable to find any suitable methodology that could measure and report on forest degradation through fire, the project produced a new methodology under VCS, which has recently been approved (Text Box 1). In Zanzibar, HIMA's project partner Terra Global Consulting, had to develop a new methodology to address the challenges encountered, such as difficulties to get cloud-free images and address the high fragmentation in the land use land cover (LULC) pattern. The "Tool for Calculating Deforestation Rates Using Incomplete Remote Sensing Images" is still under assessment.[14] This has both cost and time implications, and without the support from a flexible funding agency, this would have been well beyond the financial means of any national NGO. Even after five years of piloting and constant effort on capacity building, the skills in NGOs and government agencies to conduct remote sensing, forest inventory design, data analysis and verification are insufficient

11 Village land is a category of rural land that is administered by village governments

12 Ministry of Natural Resources and Tourism. 2014. NAFORMA. Final Report. Government of Tanzania

13 Verified Carbon Standard. 2015. VCS Methodology: VM0029 Methodology for Avoided Forest Degradation through Fire Management. Version 1.0. Sectoral Scope 14.

14 http://www.v-c-s.org/methodologies/in-development

Average carbon stocks (per hectare) in forests are low and the historically low carbon prices on the international market threaten the feasibility of market-based approaches for REDD+ in Tanzania. The cumulative carbon stocks in larger areas offer better prospects from a feasibility perspective. Multiple co-benefits are critical in making communities interested in REDD+. Woodlands occupy 44.7 million hectares (or 92%) of the total forest area of Tanzania (calculated to be 48.1 million hectares).[15] The average growing stock in woodlands is relatively low, estimated to be around 55.1 m3/ ha. The associated carbon stocks in Tanzanian woodlands are assessed to be 17.5 tC/ha15 [16] comparing unfavourably with more well-stocked forests in rainforest nations such as Indonesia, Democratic Republic of Congo and Brazil, where carbon stocks are generally in the region of 120 – 140 tC/ha . Given the prevailing low carbon prices on the international voluntary market (currently around 3 – 5 USD/tonne), the overall financial viability of market-based approaches is questionable given the high transaction, opportunity and institutional costs required to implement project level REDD+ activities in Tanzania. The TFCG/MJUMITA project calculated that they would need to sell carbon above a threshold price of USD 7/tCO2e if they were to pay communities at a minimum rate of USD 3.25/ tCO_2e, as well as maintain (and expand) current levels of support to communities[17]. As indicated preliminarily by pilots in other countries, working at a larger, sub-national jurisdictional scale would create economies of scale, help in managing leakage from the project areas and also facilitate policy reform and institutional collaboration.[18] Pilot projects in Tanzania generated a number of co-benefits, which were highly appreciated by the communities, thereby increasing their viability. These include the security of land tenure, improved availability of water, increased biodiversity and enhanced power over decisions on natural resource management.

The viability and business case for REDD+ projects varies significantly across Tanzania and as such, site selection is a critical aspect of project planning. Tanzania is a diverse country and covers a range of agro-climatic conditions, forest types and population densities. As such D&D drivers vary significantly across the country in both their nature as well as intensity. Given this high variability, different sites have very different potential (and viability) for implementing REDD+ interventions[19]– something that was clearly demonstrated by different pilot projects. TFCG/MJUMITA, with support from Forest Trends had the most thorough site selection process, which used both pre-screening as well as selection criteria to identify those areas with highest potential for generating greatest impacts[20]. Criteria included factors such as area of unreserved forest (suitable for inclusion with village-managed forest reserves); biodiversity; carbon density; leakage risks; population density (ratio of community size to available forest area); deforestation levels and opportunity costs. Despite this very thorough process, new threats have emerged during the project in one of the two project sites – namely an influx of migrants from nearby areas, who are clearing land and planting tobacco, something that was unforeseen when initial site selection was taking place. MCDI initially assumed that the biggest D&D driver in their project area was charcoal production and therefore designed a project based around sustainable charcoal production. However, after a careful study, it became clear that at current levels commercial charcoal production was a minor factor. In fact, it was found that fire was the biggest driver of forest change in Kilwa district and as such, a different approach was needed to address REDD+[21]. The JGI project identified a large area of contiguous miombo woodland, shared between 15 villages. However, disagreements over tenure of the forest (specifically whether it would be managed by district or village governments) resulted in long delays, disputes and ultimately the project being delayed well beyond its funding period.

15 Ministry of Natural Resources and Tourism. 2014. NAFORMA. Final Report. Government of Tanzania.

16 FAO. 2010. Global Forest Resources Assessment. Rome, Italy.

17 MJUMITA. 2014. MJUMITA Community Forest Project (Lindi). Project Design Document (PD) For Full Validation Using the Climate, Community and Biodiversity (CCB) Project Design Standards Third Edition

18 Fishbein, Greg, and Donna Lee. 2015. Early Lessons from Jurisdictional REDD+ and Low Emissions Development Programs. FCMC/USAID. Arlington, VA.

19 Munishi PKT 2011 Forest Management Practices that are Suitable for Implementation of Reducing Emissions from Deforestation and Forest Degradation (REDD+) Schemes. Report submitted to UN-REDD and the Ministry of Natural Resources and Tourism.

20 Forest Trends, 2010. Report 1: Review of Criteria for selection sites for the TFCG/MJUMITA Project: "Making REDD Work For Communities And Forest Conservation In Tanzania". East And Southern Africa Katoomba Group.

21 Ball, S. and Makala, J. 2014 Making REDD+ work for communities and forests: three shared lessons for project designers. Gatekeeper Series, No 155. IIED, London.

3.3. *Addressing drivers of deforestation and forest degradation*

Summary of key messages:

• After detailed studies on local drivers of D&D, pilot projects experimented and tested a range of different tools and approaches for addressing the drivers with varying degrees of success, effectiveness and efficiency.

• Identifying the models and approaches that can be up-scaled is a crucial part of achieving emission reductions and other REDD+ results under a national or jurisdictional approach.

• Pooling resources and creating partnerships with professional non-forestry organisations and institutions is an effective way to addressing the agriculture and energy drivers as well as developing income-generating activities in a strategic and cost-efficient way.

• Innovative work done by one of the implementing organisations – MCDI – has resulted in the development of a new VCS methodology for use in miombo and dry woodlands where fire is the main driver of forest degradation.

• Participatory forest management, which in turn emphasises the creation of local incentives for sustainable forest management, community based fire management and conservation agriculture appear to be the most effective approaches in addressing deforestation drivers in the Tanzanian context.

National and international context: A comparative study[22] conducted in 46 countries showed that globally, commercial agriculture is the most important direct driver of deforestation, followed by subsistence agriculture while timber extraction and logging drives most forest degradation. Other important drivers of degradation are fuelwood collection and charcoal production, uncontrolled fire and livestock grazing. A 2012 synthesis report confirms that the most important underlying or indirect drivers at a global level are economic growth based on the export of primary commodities and an increasing demand for timber and agricultural products in a globalising economy.[23] In REDD+ readiness plans, many countries identify weak forest sector governance and institutions, lack of cross-sectoral coordination, and illegal activity (related to weak enforcement) as critical, indirect drivers. Population growth, poverty and insecure tenure are commonly cited. The Tanzanian national REDD+ strategy identifies charcoal and firewood harvesting, illegal logging, forest fires and agricultural expansion as the top drivers of D&D, with weak law enforcement, poor forest governance, conflicting policies and market failures as indirect drivers.[24]

A study made by CIFOR in 2014 in 48 REDD+ countries on monitoring of direct and enabling interventions to address drivers of D&D[25] found that the most commonly identified direct interventions are sustainable forest management, fuel wood efficiency / cook stoves, agroforestry, protected areas strategies and afforestation or reforestation. Agricultural intensification, permanent agriculture, plantations establishment and management and livestock rangeland management area among widespread interventions.

22 L. Verchot, . Angelsen, M. Brockhaus, N. De Sy, M. Herold, N. Hosonuma, M. Kanninen, K. Korhonen-Kurki, A. Larson, A. Ravikumar, A. Wijaya. 2014. REDD+ in landscapes: drivers of deforestation, institutions and jurisdictions. Presentation made at workshop on REDD+ implementation and SFM, 6-7 February 2014. Tokyo, Japan.

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

24 United Republic of Tanzania. 2013. National Strategy for Reduced Deforestation and Forest Degradation (REDD+). Vice Presidents Office. Dar es Salaam, Tanzania

25 G Salvini, M Herold, V De Sy, G Kissinger, M Brockhaus and M Skutsch. 2014. How countries link REDD+ interventions to drivers in their readiness plans: implications for monitoring systems.

Concerning enabling interventions, the most common are stakeholder involvement (including CBFM), tenure and rights regularisation and policy and governance reform. Usually a combination of interventions is needed to address the drivers: for instance, agricultural intensification should be combined with zoning, protected areas or rehabilitation of degraded lands to prevent further forest clearing and backed up by support at policy levels.[26]

Lessons from Tanzania

The National Forest Inventory (NAFORMA) estimated in 2014 that current harvesting in Tanzania exceeds the annual allowable cut (AAC) by 19.5 million m3 and that the main drivers of forest degradation are the growing energy needs of an expanding population coupled with agricultural expansion. Increasing woody biomass in plantations, the promotion of agroforestry practices and reducing slash and burn agriculture (through conservation agriculture, for example) offer some remedial actions. These must, however, be implemented together with measures to reduce wood consumption – such as the promotion of improved stoves, improved efficiency in wood processing, increased use of waste material as well as a shift in energy patterns. Enhancement of carbon stocks has been a common aspect of many pilot projects. CARE International and WCS supported planting of fast growing exotic species for fuelwood and pole production, while AWF promoted wood production through agroforestry. Regeneration of mangroves through planting was assisted in Zanzibar and conservation agriculture was promoted in a number of projects including JGI, TFCG/MJUMITA and CARE International. Most pilot projects successfully facilitated building local organisations and institutions to plan and manage the use of village land and community forests as an enabling intervention. This had a significant impact on improving security of land tenure and control over the common property forests (see Section 3.4). All projects worked on PFM apart from WCS.

At the local level, drivers are complex, multi-sectoral and inter-linked. The most important drivers identified by the pilot projects include agriculture (both slash-and-burn and the opening of new permanent agricultural areas), biomass energy (charcoal and firewood), fire and commercial brick production. Overall, the final project evaluations identified that projects had little success in addressing energy drivers (charcoal and firewood) for a range of reasons. The projects had inadequacies in strategies, interventions, capacities and budgets. Many drivers (such as agriculture and energy) are beyond the forestry sector and addressing them requires skills outside the core competencies of conservation NGOs. Interestingly, although all the projects identified population growth as an important driver of deforestation, only JGI implemented family planning and reproductive health activities, which were funded separately. Despite the complexity, a key lesson learned from TFCG/MJUMITA as well as MCDI projects was the need to first understand and prioritise different drivers and then work on the key driver in a focused manner. Focusing on multiple drivers is complex and can result in overall loss of efficiency. The creation of new partnerships between conservation NGOs and external service providers was a valuable approach in increasing local effectiveness.

Almost all the pilot projects in Tanzania conducted studies to identify deforestation drivers and agents, but only MCDI´s studies resulted in a major change in approach. The pilot projects mostly focused actions on activities and drivers that had been defined already in the original project document. However, the MCDI project redirected its emphasis due to the findings of research conducted to identify deforestation drivers (Text box 1).

[26] Skutsch, M and McCall, M. 2010. Reassessing REDD: governance, markets and the hype cycle. An editorial comment. Climatic Change

Text Box 1: Cost-effective approaches for addressing fire in miombo woodlands
Originally, MCDI aimed to address the two drivers of shifting cultivation and charcoal production as these were initially considered to be of primary importance. Further study revealed, however, that in Kilwa District population pressure was still low and that forest cover change was primarily driven by wildfires, which occur every 1-3 years at the peak of dry season. The annual forest carbon loss through wild fires exceeds the emissions caused by shifting agriculture by 60 %. The project now concentrates on the introduction of fire management through early burning, practised by village natural resource committees (VNRC). This is a relatively low cost intervention with the potential for scaling up to other areas of the country facing similar conditions.
Given the absence of any approved methodology for reporting on the impact of fire management to reduce forest degradation in dry miombo forests, MCDI together with partners went on to develop a new methodology under VCS. After a considerable period of international peer review, the methodology has been approved and is now available for other projects working under similar conditions throughout Southern African miombo forests.

Income generating activities (IGAs) and environmentally-friendly enterprises designed to compensate for lost revenues from forest use were promoted with limited success by almost all the projects. The IGAs included activities as diverse as beekeeping, vegetable growing, butterfly rearing, crab fattening, woodstoves, nurseries, tree planting and improved brick and charcoal making. As only little attention and time were given to learn from previous experiences to design effective approaches, the results were not encouraging. In particular, the business-side and marketing of products could have been given more consideration. The lesson learned was that specialist partners (including from the private sector) are needed for designing and implementing IGAs with a focus on quality production and strong links to markets. Monitoring and evaluation of the results is needed to redesign the activities and implementation strategy when needed.

Success in addressing the agriculture drivers has been mixed, requiring intensive and costly local level actions, supported by strong institutional and governance arrangements. Up-scaling implementation will be difficult without extensive collaboration with agriculture research and extension organisations. Agriculture within the Tanzanian context drives D&D through slash-and-burn practises and the conversion of forests to permanent farming areas. It was identified as the most important driver across the country. Projects have addressed this driver through participatory land-use planning, improved agricultural extension services and increased enforcement of local by-laws that control the use of village land and forest. Land-use planning to zone the village area has achieved a significant change in land-use patterns in the AWF villages in Kondoa. By-laws are now enforced to regulate the number of cattle, to restrict grazing from erosion-prone areas and to regulate the use of village forests. However, concerns have been raised that displaced cattle may simply shift overgrazing, erosion and degradation to other environmentally sensitive areas. TFCG worked on conservation agriculture by training and supporting farmers, identifying viable and cost-effective approaches with the potential to increase yields and then providing training and extension to support its scaling up. In Zanzibar, land is limited and it is of crucial importance to address agricultural productivity if emissions are to be reduced. In mainland Tanzania demands for new agricultural land is growing for both subsistence crops such as maize but also for sesame, which is an increasingly popular cash crop due to growing international markets.

A key aspect of addressing drivers is that local governance arrangements are established to oversee, regulate and monitor local level actions. Community land-use planning teams, village forest management committees or COFMAs in Zanzibar, village governments, local bylaws and transparent planning processes have all been critical ingredients in the process.

3.4. *Strengthening land and forest tenure*

Summary of key messages:

• Tanzanian law provides villagers with legal tenure over village land as well as the mandate to determine how land and natural resources are managed within their "village area" (the land that surrounds village settlements and which is administered by village governments).

• Tenure rights over forests on village lands are guaranteed only after either a village land, community or private forest reserve is established through the CBFM process. The trees and forests outside the reserved village forests are officially under the government management but are de facto open access because of the limited resources for government law enforcement.

• Clarifying, formalising and strengthening communal as well as individual land tenure was a major focus of many pilot projects and often seen as a precondition for addressing many deforestation drivers.

• Support provided by REDD+ pilot projects to strengthening communal land and forest tenure resulted in important non-carbon benefits (co-benefits) that in many cases were seen locally as of greater value than carbon benefits.

National and international context: Evidence from across the world indicates that strong indigenous/local tenure is associated with positive land and forest management outcomes that are at least as good or better than outcomes for areas owned/managed by the state (such as government forest reserves or national parks).[27, 28] Other factors that have been shown to support improved forest management outcomes include community-level management (local involvement/autonomy in rule-making); strong and established local institutions; positive economic incentives to justify investments in forest management; support from NGOs; and supportive national policy. There is also significant circumstantial evidence that tenure insecurity is a significant driver of deforestation and degradation[29]. Furthermore, research has shown that when land rights are well established, farmers have a clear incentive to manage their land in a sustainable and productive way. Insecure property rights diminish farmers' incentive to invest in the land they use (for example for planting, or protecting trees) since they must bear the uncertainty of whether or not they will be able to recoup their investment. [30]

Lessons from Tanzania

Village land use planning (VLUP) proved to be an effective tool for developing community-wide agreements on how current and future economic activities, such as agriculture, could be balanced with forest conservation and management. Guidelines already exist in Tanzania for VLUP and have been promoted by the National Land Use Planning Commission within the Ministry of Lands as a tool to help communities

[27] Naughton-Treves, L. and C. Day. (Eds.) 2012. Lessons about Land Tenure, Forest Governance and REDD+. Case Studies from Africa, Asia and Latin America. Madison, Wisconsin: UW-Madison Land Tenure Center.

[28] Stevens, C., Winterbottom, R, Springer, J and Raytar, K. 2014. Securing Rights, Combating Climate Change. How Strengthening Community Forest Rights Mitigates Climate Change. World Resources Institute and Rights and Resources Institute. Washington DC.

[29] Seymour, F. La Vina. T and Hite, K. 2014. Evidence linking community-level tenure and forest condition: An annotated bibliography. Climate and Land Use Alliance.

[30] Streck, C., Burns, D. and Guimaraes, L. 2012. Towards Policies for Climate Change Mitigation: Incentives and benefits for smallholder farmers. CCAFS Report No. 7. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), Copenhagen, Denmark

plan future land use as well as demarcate and formalise the boundaries of their village area. Typically a small team of district staff works together with a corresponding team of elected villagers to identify and propose areas for agriculture (and agricultural expansion), forest conservation, grazing and settlement. The output of the process is a plan, which reflects the interests as well as the current and future land use needs within the village. The demarcation and registration of village boundaries ensures that the village area is defined and management responsibility for land tenure adjudication is vested in the village government. Village land certificates, issued by the Ministry of Lands provide legal documentation of village land status and tenure. Until recently, VLUPs promoted across Tanzania represent a "business as usual" (BAU) scenario where forest is cleared as demands for land increases in line with population trends, based on current use patterns. Under REDD+ however, project proponents need to show how the BAU scenario will be altered through the actions of the project (for the purpose of demonstrating additionality).[31] Land use planning facilitates a participatory discussion about trade-offs – identifying areas where actions could be foregone and revenues and other non-carbon benefits from REDD+ substituted for changing the current model of land use change. Furthermore, under REDD+ land use plans are used as a tool to regulate – rather than guide – land use. In many of the Tanzanian REDD+ projects, VLUPs form the basis for agreement between villages.

Agreeing and formalising boundaries between neighbouring villages, which previously shared forest resources can create tension and conflict, particularly when these resources develop monetary value under REDD+ and from other forms of forest use. For those projects paying dividends for REDD+ (See Table 2), forest size is generally an important criterion determining payments received. Establishing forest boundaries is an essential step in legalising village land forest reserves and this may involve negotiations between neighbouring villages where the use of the forest is shared. Given the link between forest size and REDD+ dividends in a number of projects, boundaries between villages have been strongly contested in some areas. Tensions between neighbouring villages can increase further when villagers from one village are known to harvest forest resources (or degrade forest cover) in another neighbouring village, thereby undermining potential dividends of their neighbours. Conflicts can also arise within villages when particular individuals or interest groups persist in activities leading to D&D, which lower dividends across the whole community. This problem of "free riders" is often caused by individuals engaged in harvesting of timber or charcoal who have been unable to secure alternative sources of income.

Evidence from a number of pilot projects suggests that although these conflicts exist, demands from community members to address and resolve them are also increasing and where necessary, local government is being called on to mediate. In the case of MCDI, the Kilwa District Council was in the forefront of the VLUP process and the District Commissioner became involved when inter-village boundary conflicts arose between Nanjirinji A village and neighbouring villages in Ruangwa District who did not have CBFM. The Ministry of Lands was helpful in resolving boundary conflicts with regards to the establishment of the COFMAs in Zanzibar.

31 "Additionality" in this context refers to evidence that any reduction in emissions from a REDD+ project is genuinely additional to reductions that would occur if that project were not in place.

Support to strengthening land and natural resources tenure is both a precondition for effective land-use management but also an important non-carbon benefit that in some cases was of greater local value than any carbon benefits received. Clarifying land tenure represents an important pre-condition for managing land use and addressing the drivers of D&D effectively. In addition, strengthened land and forest tenure is recognised by the beneficiaries of many of the REDD+ pilot projects as a benefit in itself, with its own intrinsic value. Once the village has officially received the village land certificate, individual land ownership can be formalized through certificates of customary right of occupancy, issued by the village government.

Strengthening land tenure is complex, time-consuming and costly and in some cases frustrated by politically driven changes at higher levels. Given the involvement of government agencies in key stages of land tenure support activities, delays have been common across many projects. This is particularly the case with regard to issuing of village land certificates which form the documentation needed to legally demonstrate village land status. By 2012, out of around 11,500 registered villages in Tanzania, only around 850 had been granted certificates of village land.[32] Politically-driven changes, such as the administrative splitting of villages or the extension of town council (municipal) territory into the surrounding rural district land has been witnessed in a number of pilot projects (for example, Lindi District – TFCG/MJUMITA and Kondoa District – AWF). This has increased costs for villagers and project proponents as well as weakened land and natural resource tenure in some cases.[33]

3.5. Adapting participatory forest management to a REDD+ context

Summary of key messages:

• The use of PFM as a principal tool for addressing local deforestation drivers within the context of REDD+ has generated useful lessons and experiences that are different from those in previously used and more established approaches to implementing PFM in Tanzania.

• Externally defined objectives of reducing carbon emissions (which may include the protection of forest areas from conversion to other land uses) may conflict with local demands for expanding agricultural production due to growing demands for land and as such, trade-offs need to be negotiated in a participatory and inclusive manner.

• Avoiding leakage through the unregulated harvesting of trees on village land outside village forest reserves requires careful management, supported by village land-use planning process and bylaws.

• Demands under REDD+ for "permanence" is providing impetus for the extension of joint forest management (JFM) agreements up to 30 years in duration, which provides increased tenure security for local communities (see Box 2, below).

• Fragmented small sites managed under PFM require aggregating entities that can present larger volumes of carbon to the international voluntary market to be economically viable. Alternatively, working at a higher scale, (such as jurisdictional or national levels) should be initiated to achieve economies of scale and savings in efficiency.

32 Tanzania Natural Resources Forum. 2012. Understanding land and investments in Tanzania. Info Brief

33 Two villages in TFCG/MJIMITA's Lindi project site have, during the life of the project found themselves within the municipal area of Lindi town. This, in effect, extinguishes their right to village land (and the associated benefits that go with it) and means that they are administratively managed by Lindi Municipal Council.

National and international context: There is a considerable overlap between the goals of REDD+ and PFM with regard to the long-term protection and management of natural forests. Overall, both PFM and REDD+ aim to maintain forest cover, reduce conversion to other land uses, restrict unsustainable resource use and generate long-term benefits. As such, PFM is increasingly seen as a means to address local deforestation drivers.[34] In countries with a strong legal jurisdiction relating to community tenure over land and forests, such as Tanzania, Nepal, Bolivia and others, PFM is being used as a basis for advancing REDD+. New financial support from REDD+ is being channelled to improve community forestry that has historically been constrained by limited government and donor support. Better monitoring of resource extraction and greater enforcement of rules may result in improved forest carbon as well as livelihood outcomes. REDD+ can pose challenges since it may distort local management objectives. Under REDD+ a key goal is to ensure forest protection and management while avoiding conversion of forests to other land uses. Many REDD+ projects, both in Tanzania and elsewhere, have emphasised forest protection with relatively little focus on sustainable utilisation and the delivery of other non-carbon benefits from sustainable forest management. Given the uncertainties over future REDD+ markets and sales, adopting protectionist approaches to REDD+ may leave communities exposed to a higher level of risk than if they pursued more established markets for forest products such as timber, charcoal or firewood.[35]

Text Box 2: The two forms of PFM in Tanzania

Joint forest management is a collaborative management approach, which divides forest management responsibility and returns between government (either central or local) and forest adjacent communities. It takes place on land reserved for forest management such as national forest reserves and local government forest reserves. It is formalised through the signing of a joint management agreement (JMA) between village representatives and either national or local government agencies.

Community based forest management takes place in forests on "village land" (land which has been surveyed and registered under the provisions of the Village Land Act (1999) and managed by the village council). Under CBFM, villagers take full ownership and management responsibility for an area of forest within their jurisdiction through the establishment of village land forest reserves (VLFR). Following the legal transfer of rights and responsibilities from central to village government, villagers gain the right to harvest timber and forest products, collect and retain forest royalties, undertake patrols (including arresting and fining offenders) and are exempted from local government taxes (known as "cess") on forest products, regulations regarding "reserved tree" species, and are not obliged to remit any part of their royalties to either central or local government.

Lessons from Tanzania

Tanzania has a well-established national PFM programme that builds heavily on existing land and local government laws. Two forms of PFM exist in Tanzania: JFM and CBFM (Text Box 2). Most projects have supported community involvement in forest management. Some have helped communities gain legal title over forests through CBFM, while others have gone for a more collaborative sharing of rights and responsibilities through JFM. Figure 1 shows how different projects have worked on a continuum of state management of forests through to complete transfer of forest management authority to the community level.

[34] Hagen, Roy. 2014. Lessons Learned from Community Forestry and Their Relevance for REDD+. USAID Forest Carbon, Markets and Communities (FCMC) Program. Washington, DC, USA

[35] Peter Newton et al. 2014. Community Forest Management and REDD+. Washington, DC: Program on Forests (PROFOR).

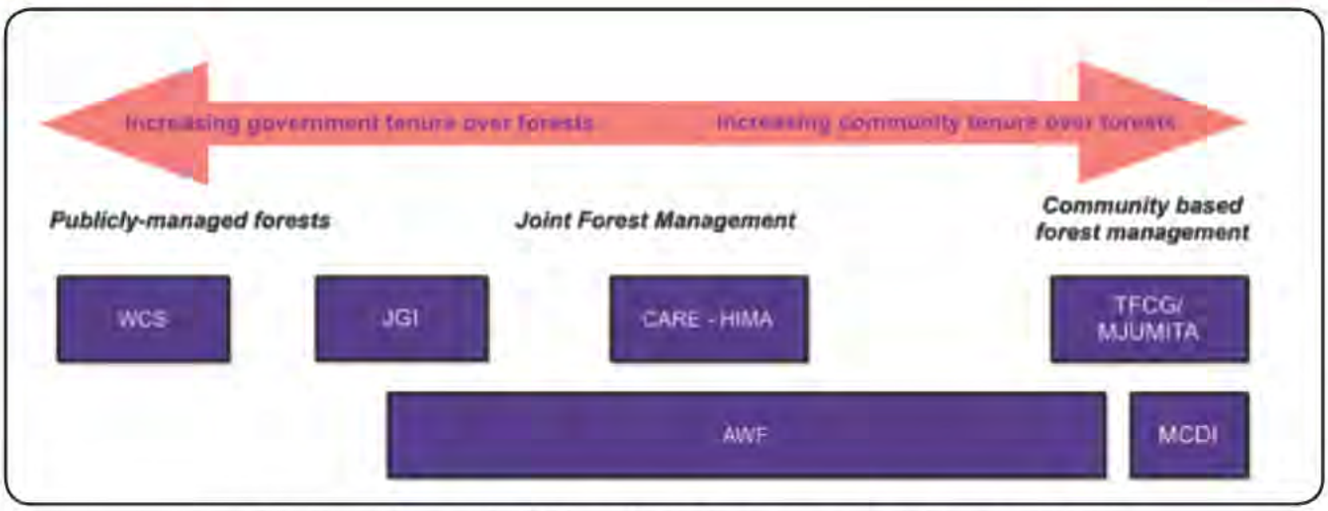


Figure 1: Continuum of community decision-making in forest management within participating REDD+ pilot projects (Note: Tenure of forests under JGI project still unresolved)

CBFM implemented as part of a REDD+ intervention results in trade-offs over the two goals of increasing carbon revenues (by protecting larger areas of forest) and providing opportunities for future expansion of agricultural activities. For actions to qualify for REDD+, they must demonstrate a measurable change from BAU scenarios, as expressed by prevailing rates of historical deforestation measured over a recent time period. Experience from the TFCG/MJUMITA project shows how communities were encouraged initially to reserve areas of forest larger than they otherwise would have done, in order to generate potentially larger revenues from avoided deforestation and demonstrate additionality. This additional area of forest represents an opportunity cost to communities as it restricts other economic activities that otherwise might have taken place in that area (such as agricultural expansion). In some cases, the opportunity and transaction costs were too high and over time, a more realistic forest size was negotiated and agreed between participating communities and implementing NGOs. However, the tension between the need to improve management and protection of large areas of forest and local development needs remains a subject of debate and in some cases disagreement within participating villages.

More recently, PFM has increasingly been developed within the context of commercial and sustainable harvesting of forest products such as timber and charcoal. The sustainable utilization approach has advantages in that the opportunity costs to communities resulting from a REDD+ project can be moderated by revenues generated from sales of forest products. Amongst the NGO pilot projects, TFCG and MCDI both established REDD+ projects in areas where also commercial, community-managed forest harvesting was developed. In the case of MCDI, REDD+ revenues were designed to supplement revenues from sales of certified timber in Kilwa District, whereas, for TFCG, REDD+ was adapted in order to supplement revenues from sustainable charcoal operations in selected villages in Kilosa District.

Trees on village land outside VLFR are subject to leakage and if not effectively managed, represent a potential loss of income to communities from REDD+ payments. Under previous, more established approaches to PFM in Tanzania, communities identified an area of forest that they would like to reserve for forestry. Little attention was paid to trees on village lands outside village forest reserves, which are often subject to significant levels of harvesting. The carbon assessment methodologies adopted by pilot projects (such as TFCG/MJUMITA, CARE Tanzania and others) point to the need to look beyond VLFRs if the overall objective is to reduce D&D at a landscape level. This implies a more holistic approach that considers trees both within and outside village-managed protected areas, the use of village land use planning tools and the application of village bylaws to cover all trees within the village area. Although the issue was taken up by NGOs at policy level and the language in the national strategy was modified to reflect the importance of all trees on village land, it has not been solved.

Demand for permanence under REDD+ is resulting in significant sharing of benefits from JFM and COFMA agreements and extension in their duration. JFM agreements in Tanzania have tended to be signed for up to five years in duration with the option for extension. Many JFM agreements have gone unsigned by government agencies for several years due to uncertainties over how costs and benefits from forest management should be shared. Two of the REDD+ pilot projects have advanced JFM agreements within the context of REDD+ - namely AWF in Kondoa and HIMA in Zanzibar. Not only have both projects been able to facilitate the signing of legally binding joint management agreements between the government and local communities but agreements have been made covering a thirty year duration. This is unprecedented for both mainland and Zanzibar (which have two different legal jurisdictions for forestry) and potentially opens the way for the conclusion of JFM agreements in hundreds of other government-managed forest reserves that could benefit greatly from increased community involvement and shared management. In addition, in Kondoa, the government agreed to provide 80% of any future carbon payments arising from jointly managed areas to participating communities in order to support REDD+ activities. The political momentum for this has been created by the high profile and international attention accorded to REDD+ pilot projects.

Fragmented and small sites managed under PFM require aggregating entities to be able to present larger volumes of carbon to the international voluntary market. Working at higher levels of scale could also increase viability prospects. Several communities were unable to set aside sufficiently large forest areas to access voluntary carbon markets on their own. Forest areas managed by individual communities within the pilots vary from medium sized areas (between 1,500 to 8,000 hectares) to very small (even less than 1 ha). Transaction costs associated with accessing carbon markets for such small areas are high. As such, there is a clear need to aggregate individual forest plots through an intermediary organisation to reach a viable total forest area, achieve economies of scale and reduce transaction costs for individual communities. JUMIJAZA in Zanzibar, JUWAMMA in Kigoma and JUHIBEKO in Kondoa were established to represent the local communities in carbon markets. As none of the pilot projects have yet sold carbon credits on the voluntary market, none of these bodies have become fully operational. Institutional capacity and sustainability of intermediary aggregation bodies is a key issue identified by a number of projects, with the conclusion that capacity needs to be built in such institutions at a very early stage in project implementation and sustained over a long period.[36] The final evaluation in a number of pilot projects raised questions about the institutional capacity and future of many of these aggregation entities, given the problems encountered in selling carbon on the voluntary carbon market. Working at higher levels of scale – such as jurisdictional or national levels – could potentially address the problem of transaction costs.

36 Jarrah, R. 2014. HIMA- Piloting REDD+ in Zanzibar. Review of lessons learned – April 2010 – March 2014. CARE International in Tanzania.

3.6. Consultation, stakeholder engagement and consent

Summary of key messages:

• The participation of local people in project design and implementation is required in the Tanzanian governance framework but the standards of participation are weakly regulated or monitored.

• The requirement of free prior informed consent (FPIC) as part of the CCBA validation for REDD+ projects appears to have stimulated and incentivised a more conscious practice and facilitation of participation and community decision.

• Pilot projects have experimented across a continuum of approaches and although only one project explicitly included FPIC in its original design, at least three others integrated aspects of FPIC practice into their implementation through an adaptive learning process around achieving voluntary standard (both VCS and Plan Vivo).

• The FPIC process helped to manage community-level expectations and mitigate future risks.

National and international context: FPIC applies to REDD+ regarding potential changes in resource use that could impact the rights of indigenous peoples and forest-dependent communities. Under such circumstances, people potentially impacted by REDD+ should have the right to participate in, consent to, or withhold consent from a proposed action[37]. As such FPIC differs from the concept of participation and consultation, neither of which specifically requires the right to withhold consent on externally proposed interventions, or a process of dealing with grievances during the project implementation.

The right to FPIC is enshrined in international agreements including the United Nations Declaration on the Rights of Indigenous People (UNDRIP) in 2007, which was signed by Tanzania. FPIC is not a standalone right but emerges as a principle of international human rights law including the right to food, the right to own property and the right to self-determination[38].

Internationally there has been considerable discourse over the right to FPIC for all forest dependent communities, particularly in the context of REDD+[39]. As such, different organisations have adopted different positions on those who have a right to FPIC.[40] Unlike UN-REDD, the World Bank operational policies and the Forest Carbon Partnership Facility (FCPF) charter and guidelines do not require FPIC unless a country participant has ratified ILO 169 or if mandated by its national laws. Also voluntary carbon market standards have adopted different positions on FPIC: for example, VCS emphasises the need for consultation with rights holders, but not explicitly FPIC, whereas CCBA standards require a record of the process that respects the right to FPIC52.

The international discourse increasingly recognises that respecting the right to FPIC is a core element of success in REDD+. Benefits of FPIC include increasing the potential of success for both proponents and communities, reducing the probability of conflict during the project and increasing the confidence of carbon market buyers in the viability of a project36.

37 UN-REDD. 2013. Guidelines for Free Prior Informed Consent. UN-REDD Programme

38 Other international instruments such as International Covenant on Civil and Political Rights (ICCPR) (1976), International Covenant on Economic, Social and Cultural Rights (ICESR) (1966), Convention on the Elimination of all forms of Racial Discrimination (CERD) (1965) do not expressly mention FPIC but their respective committees repeatedly mention right to culture, right to equal treatment before the law, right to self-determination. The 2013 UN-REDD FPIC Guidelines cite the UN Special Rapporteur on "Right to Food" who quoted the Human Rights Committee to state "no people's land, including in particular indigenous peoples, can have its use changed without prior consultation".

39 In UNFCCC climate change negotiations on REDD+ it is noted that the United Nations General Assembly has adopted UNDRIP.

40 For example UN-REDD 2013, which states that "States are required to recognize and carry out their duties and obligations to give effect to the requirement of FPIC as applicable to indige¬nous peoples; and recognizing the right of forest-dependent communities to effective¬ly participate in the governance of their nations, at a minimum States are required to consult forest-dependent communities in good faith regarding matters that affect them with a view to agreement"

FPIC is more than a social safeguard, it provides opportunities for dialogue between communities and project proponents, throughout the project, where communities have the right to reject or withdraw interventions at any point. As such it goes beyond the purpose of "doing no harm" to providing a strong basis for communication and providing improvements in the project especially if efforts are made to include those normally marginalized from development processes.[41]

FPIC is a recent and somewhat contested term in Tanzania,[42] where there the government view is that there are no indigenous but only forest dependent people in Tanzania. However, many traditional pastoralist, agro-pastoralist and hunter-gatherer communities contest this[43]. The national strategy for REDD+ (2013) contains a section that addresses the rights of communities dependent on forests and the impact of REDD+ programmes on such groups. This could be interpreted as a willingness to embrace such groups' right to FPIC.

Lessons learned from Tanzania

Pragmatically it was recognised by most pilot project NGOS that engaging local people in project decisions is critical to ensure effective project implementation. To a large extent engaging local people in project decisions was already the practice and experience of most piloting NGOs, and as such it was nothing new. However, approaches were variable in relation to the quality of the engagement, information provided and the scope of the process to reach all community members[44]. The actions taken by pilots can be viewed along a continuum in terms of their interpretation of what it means to achieve consent (Figure 2)[45]. The projects that had a conscious strategy to achieve CCBA validation and verification from the initial stages, largely demonstrated a process that aimed at documenting the willingness and consent of community members.

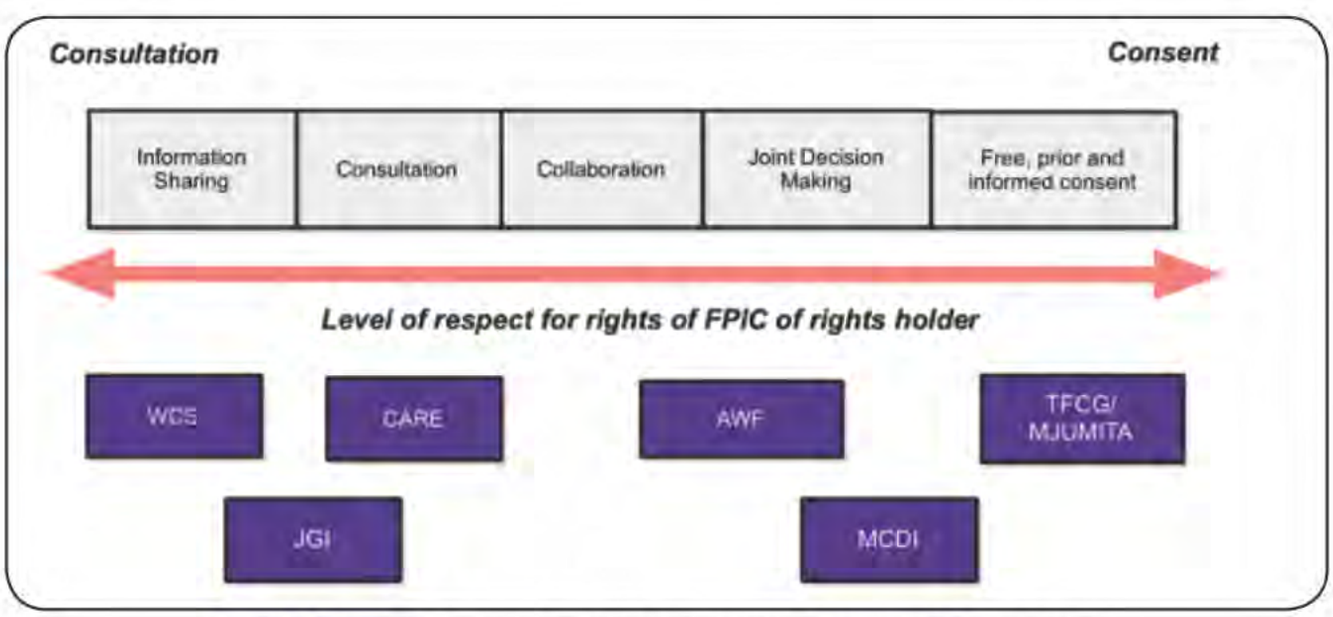


Figure 2: Continuum of consultation, participation and consent within REDD+ pilot projects

Another factor that influenced the intention to achieve consent was site selection, where it was much clearer to define the rights holders in a village land context than in areas that focused around boundaries of government-protected areas. It was perceived by some project proponents that communities surrounding protected areas are not the rights holders and therefore their consent is not required.

41 RECOFTC, 2011. Free, Prior, and Informed Consent in REDD+: Principles and Approaches for Policy and Project Development.

42 Campese, J. 2011. Integrating REDD+ Social and Environmental Safeguards and Standards in Tanzania. TFCG Technical Report 32. Dar es Salaam.

43 See for example, Formal submission by Tanzanian Indigenous Pastoralists and Hunter Gatherers Forum to the 12th Session of the UN Permanent Forum on Indigenous Rights

44 During the lessons learned workshop, February 2015 the authors identified that information shared may not have always included risks but focused on highlighting benefits of REDD+. TFCG made specific efforts to reach previously marginalized groups and explored the best format of "representation" much more consciously than other pilots.

45 Continuum adapted from various models of participation and consent including RECOFTC (2012) and UN-REDD (2013)

The rationale of the pilot projects to respect the right to FPIC was primarily based on the requirement under CCBA validation and verification. NGOs other than TFCG/MJUMITA did not include FPIC in their initial design, although it was later included as they learned more of the requirements of CCBA verification. In addition, several of the NGO project areas had been subject to cases of "land-grabbing" by international investors. As investments had failed, villagers were left worse off than before leading to high levels of mistrust and scepticism regarding investor projects that were seeking access to village lands. In other pilot projects, agreements and contracts with participating communities were proposed for over a 30 years period (to ensure permanence). This generated considerable levels of dissent in the case of all five MCDI pilot villages, which initially refused to sign the contracts. The process resulted in the provision of legal advice for villages, renegotiations, changing of terms and conditions and incorporating the concerns of local parties to the agreement. In the case of JGI, community concerns led to revisions of agreements to include the right to forest utilisation by communities within local forest reserves.

Obtaining consent within the context of a REDD+ pilot project generated important benefits, but it also resulted in delays and additional up-front costs. In AWF, MCDI and TFCG/MJUMITA projects, a number of villages chose to withhold consent to participate, based on fears of land or resource "grabs" and concerns over loss of access to village forests. This meant that other villages had to be identified and the initial process started again in order to reach agreed project targets. Strong opposition from a small number of influential and vocal individuals who were able to sway the opinion or fears of the majority also resulted in significant delays in (or loss of) consent, even when such individuals were known to be those benefiting most from unregulated and often illegal activities (farming operations, illegal logging or other actions that drive deforestation). A key lesson from the projects was the importance of framing FPIC discussions within legitimate and mandated forums, such as the village assembly , which by law is the final decision-making body over village affairs and where such discussions can be moderated. Extending discussions to sub-village level, significantly increased time and costs, but ensured inclusion of remote, more marginalised communities, often with higher levels of forest-dependence.

Despite the higher initial transaction costs, FPIC generated many advantages, among which managing expectations and mitigating future risks were the most important. In sites where FPIC or joint planning and decision-making was conducted, communities appeared to have more realistic and cautious expectations regarding the flow of REDD+ finances. Those who skipped this initial step encountered problems at later stages when expectations that were initially raised to an unrealistic level, failed to materialise. A summary of key lessons on FPIC can be found in Text Box 3.

Text Box 3: Summary of lessons learned in moving towards FPIC for REDD+ at project level.

• Having FPIC as part of the CCBA standards for REDD+ acted as an incentive to improve the quality of the current practice of "participatory" project formulation and implementation that is "inherent" within the Tanzanian governance framework, since demonstrating "consent" is already required. (MCDI, TFCG, AWF, JGI).

• Rumours and misinformation (AWF, JGI, MCDI and TFCG) could only be dealt with by reaching out to those normally not reached through "representative" meetings. This required a change in approach and carrying out meetings at the sub-village level.

• The quality of engagement, trust building, and shared information influence the process of obtaining consent and cannot be rushed (CARE, MCDI, AWF). Sub-village and stakeholder focus meetings are critical to this (AWF, MCDI, TFCG).

• Applying the principles of FPIC in designing and approving a REDD+ project has built trust between communities and the project proponent. It has also resulted in changes and improvements in the design of the project which may not have arisen without the FPIC requirement (MCDI, TFCG and AWF).

• Information sharing needs to be based on facts on both risks and benefits. It can be a tool to help communities make informed decisions and self-manage their expectations (AWF, MCDI, TFCG).

3.7. Payment modalities and local-level benefit sharing arrangement

Summary of key messages:

• Tanzanian REDD+ pilot projects have experimented with a range of local-level benefit sharing arrangements, both in the way benefits are disbursed, but also in the way in which benefits are calculated and shared.

• Cash payments, made at the individual level, have high transaction costs but they show success in building accountability, generating local support and reducing the risk of elite capture.

• Performance-based (rather than effort, or input-based) payments appear to have triggered greatest local action and incentives for reducing deforestation.

• Communities make sensible decisions on how revenues should be shared and used, if a transparent, equitable and participatory decision-making process can be supported.

National and international context: Modalities for sharing of carbon finance benefits between communities, private sector NGOs and government agencies is a subject that attracts a great deal of attention at national, jurisdictional as well as project levels. In particular, civil society organisations representing indigenous peoples and local communities have expressed fears regarding benefit-sharing relating to corruption risks, equity, transparency and governance.[47] A range of frameworks have been developed to guide the sharing of carbon benefits from REDD+, most of which are guided by principles of effectiveness, efficiency and equity (the "3Es").[48] Related to the 3E debate is the concept of "trade-offs" – or reconciling the demands for efficiency with broader concerns over equity.

Pursuing a deliberate pro-poor approach will generate additional transaction costs and generally results in a reduction in efficiency.[49] However, ignoring equity concerns may create elite capture and social conflict, which can in-turn undermine efficiency. Elite capture has been widely reported to occur within the context of community based natural resource management initiatives such as PFM.[50] Benefits can be allocated on the basis of performance or inputs.[51] Performance-based arrangements distribute benefits on the condition that the stakeholders receiving the benefits have achieved a predefined, measurable and verifiable standard of performance against a baseline. Input-based arrangements distribute benefits on the basis of agreements with beneficiaries to either carry out specified actions, or refrain from certain actions, in return for monetary or non-monetary benefits. Under input-based systems, no link is provided between the distribution of benefits and measurable performance (or outcomes) in forest condition. In some cases, countries or projects may evolve in their approach, moving from an input-based scheme to one that is more explicitly based on performance[43]. Others have argued that adopting a benefit sharing approach based solely on performance (defined in terms of emission reductions) runs the risk of inequitable outcomes and the creation of perverse incentives, for example through rewarding large land-owners engaging in illegal deforestation .[52]

47 See for example: Standing, A. 2012. Corruption and REDD+. Identifying risks amid complexity. U4 brief. No 4. Anti Corruption Resource Centre. Christian Michelsen Institute, Oslo, Norway

48 Angelsen, A., M. Brockhaus, M. Kanninen, E. Sills, W. D. Sunderlin and S. Wertz-Kanounnikoff. 2009. Realising REDD+. Bogor, Indonesia, CIFOR

49 Luttrell, C., L. Loft, M. F. Gebara and D. Kweka. 2012. Who should benefit and why? Discourses on REDD+ benefit sharing. Analysing REDD+: challenges and choices. 129-152 in. A. Angelsen, M. Brockhaus, W. D. Sunderlin and L. Verchot, (Editors). CIFOR, Bogor, Indonesia.

50 Lund, J.F., Saito-Jensen, M., 2013. Revisiting the issue of elite capture of participatory initiatives. World Development. 46, 104–122

51 Behr, D. C., E. M. Cunningham, M. Gimbage, G. Kajembe, S. Nsita and K. L. Rosebaum. 2012. Benefit sharing in practice: insights for REDD+ initiatives. Washington DC, Program on Forests (PROFOR)

52 Peskett, L. 2011. Benefit sharing in REDD+: exploring the implications for poor and vulnerable people. Washington, DC, The World Bank and REDD-net

Lessons from Tanzania

Projects have developed different approaches to sharing REDD+ revenues as well as different basis for allocating benefits between participating communities. Four of the REDD+ pilot projects included trial payments within their budgets with the aim of making "front-loaded" payments to test benefit-sharing mechanisms and generate early incentives for improved forest management. Benefit sharing was mostly input-based and tied to forest management activities rather than carbon stocks.

CARE International experimented with social criteria to encourage gender equity within participating communities, for example, by increasing dividends to those communities that had high participation by women in the shehia conservation committees. TFCG/MJUMITA made individual payments and included allocations to children with payments made through mothers, as this was known to empower women and ensure that funds were used for the children's welfare. Apart from TFCG / MJUMITA, all projects made payments at the community level, by targeting funds for community projects. A summary of benefit sharing arrangements is presented in Table 2.

Project	Way in which cash benefits were disbursed	Basis for allocating benefits	Benefit sharing formula adopted during trial payments
TFCG / MJUMITA	Individual cash payments made to all registered village residents. For children (under age of 16) payments made to mothers.	Performance based – payments based on "stock-flow" approach – which rewards participating communities on the basis of emission reductions against a historical baseline as well as the maintenance of carbon stocks.	MJUMITA will retain the carbon project operational costs; 5% remitted to local government. The rest will go to individuals within participating villages.
AWF	Cash payments to village governments through JUHIBEKO, an Inter-village council that represents the 13 participating villages. Payments were used for community projects.	Input based - payments based on efforts to address deforestation drivers. Criteria cover two broad areas – efforts to introduce sustainable forest management and efforts to address D&D drivers.	In JFM forest - 60% of funds go to JUHIBEKO for patrolling and project operations, 20 % to communities and 20% goes to Tanzania Forest Service / district. In VLFRs, all revenue goes to village government.
CARE International	Cash distributed through JUMIJAZA (Zanzibar community forestry network) to 40 village level shehia conservation committees (SCC). Used for conservation, community development and social / charitable projects selected by village residents.	Input based - using two broad criteria: (1) Forest bonus payments (total forest area, condition of the forest, % of forest set aside as conservation area, number of trees planted); (2) Social bonus payments (women participation in leadership, number of meetings carried out by a SCC and number of female headed households).	At least 50 % of revenues go to SCCs through JUMIJAZA; a percentage retained by JUMIJAZA for project implementation (up to 35%); 5% retained by Terra Global Consulting; 5% may be retained by government.
JGI	Cash distributed through the JUWAMMA account and on to 7 pilot villages.	Input based - payments calculated based on inputs by communities on forest management (for example, number of patrols, number of times action was taken on illegal harvesting, efforts made to reduce fire incidence).	10% retained by JUWAMMA to cover operational costs and 90% to 7 pilot village accounts.
MCDI	No cash revenues were distributed. Funds from timber sales to forest management and community projects, including social development.	Each village earns funds from timber sales from its own forest. Similarly, verified emission reductions (VER) will be sold according to the size of the forest. Later on villages will be paid directly for emission reductions.	Income from timber sales go directly to the village council and village assembly decides how funds are distributed.

Table 2: Benefit sharing arrangements under REDD+ pilot projects

Benefit sharing systems work best when they are designed by the final recipients and opportunities for elite capture are minimised. In most cases, revenues from REDD+ were channelled to community level management bodies such as village governments or shehia conservation committees. While this has the advantage of reducing transaction costs for the implementing agency and uses existing institutional structures, it exposes individual community members to risks of elite capture. In the CARE International project implemented in Zanzibar, decisions relating to use of funds were taken by various committees operating at the shehia level. However, a missing element, as reported by CARE, was transparency regarding how decisions were made by these committees and how individuals or projects were finally selected.[53] MCDI uses a model where revenue generated from harvesting of timber is received by village governments who then allocate funds to a mix of forest management, local development and social security activities as decided in meetings with community members. One challenge of this approach is a perception of low transparency – despite communities being involved in decision making, there are doubts about how expenditures are actually managed in some communities.[54] Ensuring transparency and public disclosure from village management institutions as well as widespread awareness among community members was found to be a key factor for building local level accountability.

TFCG/MJUMITA adopted a model based on individual payments (Text Box 4).

Text Box 4: TFCG / MJUMITA model for benefit sharing

The total dividend allocated to participating villages is based on measured performance in reducing deforestation against a historical baseline.

• village assembly meetings made a decision to reward all community members equally, given the fact that forests are owned collectively as a community asset and any dividends arising from improved management should also be shared on this basis.

• A committee, elected by villagers is responsible for compiling a list of residents (who have had permanent residence in the village for at least two years). The list is published and a period given for any disagreements or omissions to be corrected.
• Payments are made by dividing the total village dividend by the number of registered residents. Children (under the age of 16) receive payments, but this is made to the mother.

• Although the transaction costs of administering individual payments are higher than when payments are made to village institutions, the project has effectively ensured complete participation within the project, widespread support and awareness for the aims of the project while avoiding any risk of elite capture (as seen in other PFM initiatives in Tanzania).

• One challenge encountered is that opportunity costs of implementing REDD+ actions are differentially distributed within communities. Those who have been heavily dependent on forest product harvesting or expansion of agricultural lands face the greatest costs, but receive no more (or less) than others experiencing lower opportunity costs.

53 Jarrah, R. 2014. HIMA- Piloting REDD+ in Zanzibar. Review of lessons learned – April 2010 – March 2014. CARE International in Tanzania.

54 Khatun, K., Gross-Camp, N., Corbera, E., Martin, A., Ball, S. and Massao, G. (2015) When Participatory Forest Management makes money: insights on governance, benefit sharing and implications for REDD+. Environment and Planning A (forthcoming)

Communities can and do make sensible decisions on how revenues should be shared and used, when they get support to develop a transparent, equitable and participatory process. A key aspect of most benefit sharing systems was that decisions relating to how benefits are shared and the process used were taken by the communities themselves. Democratic structures (such as village assemblies) were used to provide a space for deliberation and discussion on how funds should be allocated within participating communities. Given the low participation of women in public meetings, a number of projects including CARE, TFCG, and AWF took special measures to ensure that women's voices and concerns were heard. MCDI surveyed the issue of benefit sharing and found that men were more aware of benefits produced by the project- possibly because men are more involved in the project activities. The model supported by TFCG / MJUMITA was very popular at community level, but it was vigorously opposed by key government decision makers at national level. Fears were expressed that money would be "wasted" or used "unproductively" and not reinvested back into sustainable enterprises. Interviews conducted at community level showed that 35% of households dividends were used for entrepreneurial activities aimed at increasing their agricultural productivity, livestock keeping, or starting a small business .[55]

3.8. Measurement, monitoring, reporting and verification

Summary of key messages:

• REDD+ pilots have experimented with a variety of approaches to MRV, all of them combining highly technical, remote sensing (RS) approaches with community based forest carbon monitoring models.

• Piloting of participatory forest carbon monitoring has been successful. Tanzanian REDD+ pilots demonstrated that communities are capable of undertaking complex and technically demanding MRV tasks when sufficient training and incentives are applied.

• Due to the dependence on contracted external expertise, challenges with un-tested technology, the absence of national standards and absence of a body for guiding the MRV and hosting collected carbon data, some REDD+ pilot projects have not achieved their objectives of building a sustainable MRV system and feeding data to national level forest carbon monitoring.

• Lack of data sharing from the national forest assessment (NAFORMA) on the mainland and the late implementation of Zanzibar Woody Biomass Survey (ZWBS) prevented the projects doing comparative studies between datasets .[56]

• The creation of different MRV approaches, in particular forest stratification and data analysis protocols, has meant that comparison of datasets and results between projects is methodologically challenging.

• There is a large potential for synergies when data is freely shared and collaborations actively pursued, as shown by the collaboration between TFCG/MJUMITA and NAFORMA.

National and international context: Methods are readily available for accurately measuring deforestation caused by drivers such as commercial agriculture, which leads to large-scale permanent conversion of land use. In contrast, detecting D&D associated with subsistence agriculture and forest use, common across sub-Saharan Africa, poses a greater challenge: disturbance takes place across small and

55 Morgan-Brown, T. 2014. Governance and Incentive Structures for Reducing Emissions from Deforestation and Degradation (REDD) In Tanzania. Dissertation presented to the graduate school of the University of Florida in partial fulfillment of the requirements for the degree of Doctor of Philosophy. University of Florida

56 This is partly an issue of timing: the pilots needed the data early on while NAFORMA could not release data before it was thoroughly cleaned. Personal communication, S. Dalsgaard (5/2015).

fragmented areas, which are often left for fallow after harvesting, making measurement of long-term net carbon outcomes more challenging.[57] Although REDD+ MRV systems need to be accurate, concerns have been raised that demands for accuracy are placing unrealistic expectations on developing countries given the prevailing capacity and financing constraints. The establishment of functional MRV is likely to be limited in the absence of result-based payments through an international agreement on REDD+, backed up by the availability of readiness funding.[58] As such, MRV systems need to generate benefits beyond REDD+, such as supporting ordinary forest assessment and land use planning.

Internationally, there are a number of studies that document how monitoring, recording and transmitting data on natural resources are activities well within the capabilities of local communities[59]. The feasibility and sustainability of participatory MRV depends on its relevance to local people (including incentives to participate), and the development of sufficient local technical capacity. Potentially, participatory MRV can reduce overall MRV costs, build capacity and empower local stakeholders while improving transparency and participation.[60] Participatory MRV has been successfully applied in various countries (e.g. in Nepal, Indonesia, Cambodia and Vietnam) and effective participation of relevant stakeholders is now promoted under the United Nations Framework Convention on Climate Change (UNFCCC)[61]. Tanzanian REDD+ pilots demonstrated that communities are capable of undertaking complex and technically demanding MRV tasks when sufficient training and incentives are applied.

In forest carbon monitoring, there is a trade-off between community-based and remote sensing based monitoring.[62] In development countries, satellite images and geographic information system (GIS) archives are essential sources of data in thematic mapping of LULC and in historical baseline assessment. However, multi-temporal RS data, especially medium-resolution images (such as free Landsat data), cannot provide reliable information about small-scale land use changes and particularly about forest degradation caused by activities such as fuel wood extraction. Use of very-high resolution RS data is a technically possible solution, but access to cloud-free and up-to-date data is often difficult. In addition, the amount of imagery needed for complete coverage of a given area is greater than for a medium-resolution sensor. The amount of data and the high cost associated make the fine resolution images impractical for most cases. Thus, the combination of RS technology and field monitoring as an integrated monitoring system has been proven beneficial.[63]

57 Sills, E.O., et al (Eds) 2014. REDD+ on the ground: A case book of subnational initiatives across the globe. CIFOR. Bogor, Indonesia

58 NORAD (2013). Real-Time Evaluation of Norway's International Climate and Forest Initiative Contribution to Measurement, Reporting and Verification. Report 5.

59 McCall (p. 32) in Skutsch, M. (Ed., 2011). Community forest monitoring for carbon market – Opportunities under REDD. Earthscan.

60 Boissiere, M. et al. (2014). Estimating carbon emissions for REDD+ The conditions for involving local people. Perspective. No 40. CIRAD. Paris, France.

61 UNFCCC Decision 1/CP.16, Paragraph 72 and Annex I.

62 See e.g. De Sy, V., Herold, M., Achard, F., Asner, G.P., Held, A., Kellndorfer, J., & Verbesselt, J. (2012). Synergies of multiple remote sensing data sources for REDD+ monitoring. Current Opinion in Environmental Sustainability 4:696–706.

63 Böttcher, H., Eisbrenner, K., Fritz, S., Kindermann, G., Kraxner, F., McCallum, I., and Obersteiner, M. (2009). An assessment of monitoring requirements and costs of 'Reduced Emissions from Deforestation and Degradation'. Carbon Balance and Management 4:7.

Lessons from Tanzania

Lack of national standards for MRV, rapid development of information communication technology (ICT) and remote sensing technology, as well as heavy reliance on external expertise have created heavy demands on NGOs implementing pilot projects. Some level of experimentation has thus been unavoidable. When the REDD+ pilots started in Tanzania in 2009, there were high hopes that national standards for MRV would be developed and there would be both national and international guidance for NGOs on how to apply RS and MRV methodologies for forest carbon assessment and monitoring. In the absence of guidance, the sharing of lessons between the piloting NGOs has been limited. Given the capacity constraints, a number of projects relied heavily on external expertise in MRV, specifically in the establishment of reference emission levels (RELs), in designing and implementing assessments, and in analysing and reporting forest carbon data. External expertise was particularly needed as in-country MRV capacity at the initial phase of pilot projects in 2009 was minimal. MRV as a discipline is under constant development and evolution. Fast development of ICT and RS technology meant that new opportunities presented themselves but that experimentation was unavoidable. For example, while skills exist in Tanzania for GIS, these are generally insufficient to undertake complete-area LULC classification and detection of forest cover changes. Lack of experience on monitoring changes on low-carbon miombo woodlands or highly fragmented landscape patterns may result in over-confidence in RS technology for change detection.

WCS's plan to develop a 'fire, forest degradation and leakage monitoring system' was not effective because all fires could not be detected from moderate resolution imaging spectro-radiometer (MODIS) images with a too low ground resolution (500m x 500m). Also monitoring of forest degradation proved to be more challenging than expected[64]. To avoid this pitfall, TFCG applied the methodology VCS VM0015 for estimating and monitoring greenhouse gases (GHG) emissions of project activities that avoid unplanned deforestation, but which in their turn were unable to account for avoided degradation. Another challenge faced by many projects was the unavailability of RS data, caused by physical factors, as some coastal or mountainous areas are subject to high levels of cloud cover or haze. In the case of WWF, persistent cloud cover partly prevented flying with Light Detection and Ranging (LiDAR) instruments in the project areas. TFCG/MJUMITA and MCDI had to use advanced land observation satellite (ALOS) radar data to compensate the unavailability of optical RS data. In HIMA, the partner organisation Terra Consulting Company developed a new VCS methodology "A Tool for Calculating Deforestation Rates Using Incomplete Remote Sensing Images"[65], which is currently under validation.

Harmonisation of data collection and analysis protocols is important to secure comparability of datasets and results coming from different projects. NAFORMA (the national forest assessment) developed and published a national tree species list with species codes, but only the JGI project applied it.[66] This was a missed opportunity for the pilots that did not use the species codes: data harmonisation is an important issue that the National Carbon Monitoring Centre (NCMC) will have to address. All the REDD+ pilot projects applied different allometric equations in estimating above-ground biomass (Figure 2). Most above-ground biomass estimates were based on models using diameter at breast height (DBH) as the input variable and giving quite similar and comparable results, especially for trees with DBH less than 50 cm. Interestingly, two REDD+ projects (AWF and WCS) recorded all tree heights in the field sample plots, but in biomass and carbon estimation the height measurements were not used, representing another missed opportunity. However, if tree height data becomes essential in the future analysis, old data can be recalculated with newer biomass equations. TFCG/MJUMITA and JGI were able to access NAFORMA field data, and as such TFCG/MJUMITA created a local tree height curve using solely NAFORMA sample tree data. This generated significant savings in time and money as tree heights were not needed to assess biomass in the field. An example of synergies due to data sharing was the training of NAFORMA data management

64 WCS tested two remote sensing methods for detecting degradation: 1) NDVI was primarily done as an exploratory activity, and 2) CLASLite 2013 software. This remains a technical constraint to REDD+ work worldwide since e.g. the GOFC-GOLD Sourcebook (2014) states that "In reality, monitoring of degradation will be limited by the technical capacity to sense and record the change in canopy cover because small changes will likely not be apparent unless they produce a systematic pattern in the imagery." At http://www.gofcgold.wur.nl/redd/

65 http://www.v-c-s.org/methodologies/tool-calculating-deforestation-rates-using-incomplete-remote-sensing-images

66 NAFORMA tree species list was revised in December 2010 and the list has been available since then at http://www.fao.org/forestry/17847/en/tza/

team by TFCG/MJUMITA technical advisor, to extract the elevation of plot centres from digital elevation model using open source software. Consequently, plot centre elevation was added as parameter in the NAFORMA database.

Other projects (beside TFCG/MJUMITA and JGI) were less successful in harmonising data with NAFORMA due to the absence of data-sharing protocols. The Minister of Natural Resources and Tourism committed NAFORMA to free and open data sharing (at least for processed data level) at the presentation of the key findings in May 2013[67]. The lack of data sharing undermined the effectiveness of some projects – particularly the WWF pilot which focused explicitly on the development of MRV approaches.

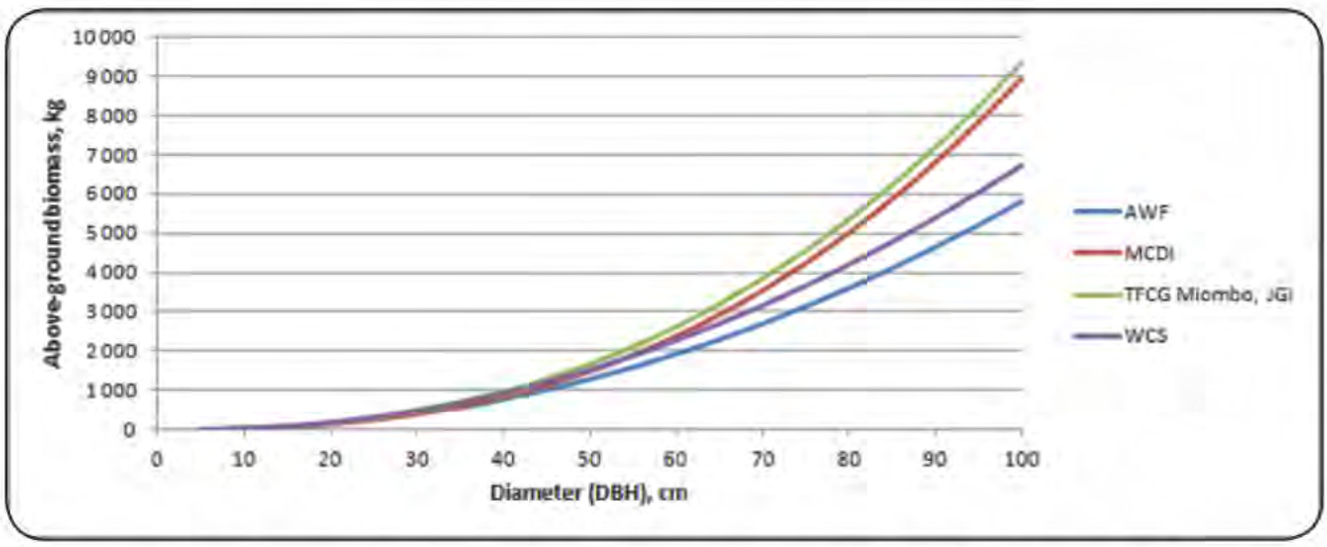


Figure 2: Comparison of above-ground biomass models applied in the REDD+ projects.[68]

Using different forest stratification and sampling protocols makes the comparison of different MRV approaches difficult (see Appendix 1). In general, stratification is important to ensure the accuracy of collected data by dividing the project area into sub-populations (strata) that form relatively homogeneous units. If this stratification rule is ignored by, for example, treating both high and low carbon forest types in the same way, the application of the proposed stratification may hinder forest carbon monitoring (as can be seen in the case of the CARE International project[69]). Comparability of forest carbon monitoring approaches can also be a challenge due to different forest classification systems and stratification approaches. This is illustrated e.g. by the use of closed/open forest classes in the AWF project, high/low carbon forest types in the TFCG project, and non-inundated/inundated forest types in the CARE International project. In most cases, the final decision on applied stratification system was based on target to separate different land categories in digital satellite images.

There is clearly a need for the harmonisation of forest classification systems to make the maps of all projects comparable and fit for "nesting" within the national MRV systems. In order to combine REDD+ projects' data into a national database, a uniform forest classification system and standardized stratification protocol options in MRV are needed. However, different sampling protocols can be allowed. Strict criteria for the best stratification protocol is hard to establish as it depends on various factors such as local land cover pattern and vegetation structure, applied monitoring method and the type of data (as optical satellite, Radar, LiDAR, and/or ancillary GIS data), available resources and professional skills. Nevertheless,

67 Personal communication, S.Dalsgaard (5/2015).

68 HIMA used equation with diameter and height while WWF applied equations with diameter, wood density factors and tree height. These equations cannot be shown in this 2-dimensional figure.

69 According to Terra Global Capital (21.5.2015) the LULC classification is still under review, and if found of importance, coral rag forest (low-carbon) and high forest (high-carbon) will be in separate strata.

applicable stratification protocols for future REDD+ projects were piloted by AWF (dry acacia and miombo woodlands) and TFCG/MJUMITA (miombo and coastal forests). Both these projects demonstrated successful attempts to classify forest land into more homogenous units based on carbon-stock characteristics.

Community level participation in MRV was applied in all projects and proved to be an effective and efficient way to gather data. In many projects (CARE, AWF, TFCG/MJUMITA, JGI) a number of community members were trained in basic forest assessment techniques, such as establishing, locating and measuring sample plots (see Annex 2). TFCG/MJUMITA demonstrated an applicable and scalable practice for forest change monitoring by combining remote sensing technology, advanced image classification algorithms and field observations. The change that was detected by using RS data was exported from the land information system as point data coordinates, sent through mobile phone to the village. Consequently, the village team navigated the area with the help of global positioning system (GPS) to the site of interest to verify the change. The report was then sent through mobile phone back to TFCG/MJUMITA. Similarly, JGI's approach used portable digital data collection technology such as GPS and open data kit (ODK) together with a cloud storage system. This could be applied to a wider scale if a reliable power supply for recharging the devices could be provided and if network coverage and internet connections were available.

Field sample plot designs applied by AWF, CARE, JGI, TFCG and WCS proved to be efficient in the field, although difficulties with circular plot types in correctly detecting plot boundary trees were reported by TFCG/MJUMITA. On the contrary, JGI found that the use of concentric plot was simpler, less labour intensive, more accurate and less time consuming compared to other plot shapes. Large permanent sample plots (MCDI, WWF) were very useful for capturing very big but rare high-biomass trees and generating sufficient data for RS image analysis as well as for monitoring forest dynamics (such as growth patterns) but the high cost of such approaches hinders its scalability. Large carbon plots cannot replace assessments with smaller sample plots, because to access Tier 3, the accuracy needs to be reported, meaning a higher number of sample plots.

A combination of methods used by different pilots could be packaged for forest management unit (FMU) inventories. Most piloted sampling protocols (excluding MCDI and WWF) are relevant and applicable for forest planning at the FMU level. In particular, AWF conducted a proper pre-assessment to plan sufficient number of plots by stratum using Winrock Calculator[70] and applied a simple sample plot design. A good toolbox for FMU level inventories could be set up by combining this sampling protocol with the JGI data collecting technology and data analysis methods applied by WWF.

The operationalisation of the National Carbon Monitoring Centre (NCMC) is essential to ensure national coordination, data hosting and sharing, verification and reporting on forest carbon. As defined in its Terms of Reference, NCMC will provide linkages and compatibility between project sites, and it will have a key role in reviewing and standardising approaches to local level MRV across the country. NCMC is planned to act as the entry point for all forest carbon data and other deliverables such as maps, scientific articles and academic thesis. Moreover, the future scenarios under different LULC policies developed by WWF project can be applicable for advocacy to policy makers within Tanzania. Generally, higher impact can be reached if and when data from NAFORMA becomes fully available for national researchers and the data and results of REDD+ projects are comparable with NAFORMA data.

[70] Winrock Sample Plot Calculator is a spreadsheet tool that can calculate the number of sample plots needed to estimate terrestrial carbon stocks, based on a specified targeted precision. https://www.winrock.org/resources/winrock-sample-plot-calculator

3.9. Getting projects to market

Summary of key messages:

• A major aim of the pilot projects was to leverage carbon market financing with which to sustain projects after donor financing was completed.

• The technical challenges associated with developing validated and verified project documents were grossly under-estimated by project implementers, and as a result, the process has taken significantly more time, funding and capacity than originally anticipated.

• Falling prices coupled with limited demand in the global carbon market threaten the viability and sustainability of project-based approaches.

National and international context: To date, there is no international compliance market for REDD+. As a result, since REDD+ was launched through the "Bali roadmap" of the 2007 UNFCCC conference of parties (COP) meeting in Bali, there has been significant activity from both conservation NGOs and private sector to sell REDD+ credits from tropical countries through the voluntary carbon market. By the end of 2012, it was estimated that 513 land use and forestry projects were either operational or being established in 58 countries. Globally, in 2012, 28 tCO_2e of forest carbon was traded, valued at USD 216 million[71]. While 24.7 tCO_2e of REDD+ offsets were transacted in 2013 (tripling in volume from 2011), uncertainties over carbon markets globally have resulted in a drop in demand and falling prices. The average price fell from USD 9.2 to USD 4.8 / tCO_2e between 2011 and 2013 .[72]

In recent years, a range of voluntary designs, methodologies and standards have emerged for crediting REDD+ projects and have been competing with each other for investors and market acceptance[73]. There has been a gradual convergence and consolidation of these standards and the market is now dominated by the VCS, which accounted for 46% of agriculture, forestry and land use projects traded in 2013. Plan Vivo, on the other hand, represented less than 1% of total market share (expressed in number of projects) for the same period. 81% of voluntary market projects surveyed by Forest Trends verified the delivery of social and environmental co-benefits under CCBA standards[74].Complexities relating to MRV methodologies and the development of sufficiently robust project design documents (PDDs) or project descriptions (PD)[75] coupled with market saturation for voluntary markets REDD+ credits means that only a low percentage of initiated projects get to the markets[76]. Of the 23 REDD+ projects included in CIFORs global comparative study, only four have sold credits to date[77].

71 Peters-Stanley, M., Gonzalez, G and D. Yin. 2013. Covering New Ground. State of the Forests Carbon Market 2013. A Report by Forest Trends' Ecosystem Marketplace. Washington DC.

72 Goldstein, A and G. Gonzalez. 2014. Turning Over a New Leaf. State of the Forests Carbon Market 2013. A Report by Forest Trends' Ecosystem Marketplace. Washington DC.

73 Streck, C and J. Costenbader. 2012. Standards for Results-based REDD+ finance. Overview and Design Parameters. Climate Focus

74 Goldstein, A and G. Gonzalez. 2014. Turning Over a New Leaf. State of the Forests Carbon Market 2013. A Report by Forest Trends' Ecosystem Marketplace. Washington DC.

75 Different methodologies for verification of carbon emission reductions use different terms for the document describing proposed actions. Under VCS, the document is called a "project description" while under Plan Vivo it is called project design document (PDD)

76 Linacre, N.; O'Sullivan R.; Ross, D.; and L. Durschinger. (2015). REDD+ Supply and Demand 2015-2025. Forest Carbon, Markets and Communities Program: Washington, D.C., USA

77 Sills, E.O, et al. (Eds) 2014. REDD+ on the ground: A casebook of subnational initiatives across the globe. CIFOR. Bogor, Indonesia

Lessons from Tanzania

Of the seven pilot projects that completed with support from the Norwegian government, only four have produced final PDs, notably CARE Tanzania, TFCG/MJUMITA, AWF and JGI. An overview of the projects that have produced a PD is presented below in Table 3.

Project	Certification system(s) used	Status as of July 2015
CARE Tanzania	VCS and CCBA	VCS PD produced with support from Terra Global Capital (Terra). Validation and verification undertaken by Scientific Certification Systems Inc. (SCS) and comments being processed by Terra and CARE.
TFCG/MJUMITA	VCS and CCBA	PDs produced, validated and verified (by SCS) for Lindi project site and Verified Carbon Units available for sale. PD produced for Kilosa and validation expected by mid 2015
AWF	Plan Vivo	PDD produced and submitted to Plan Vivo, validated by Edinburgh Carbon Consultants Ltd, comments currently being processed by AWF.
JGI	VCS and CCBA	VCS PD produced with support from Scope 14+ Ltd, Netherlands. Validation and verification process on hold, pending additional fund-raising by JGI.

Table 3: Status of four REDD+ pilot projects with regard to certification.

Lack of internal capacity, poor service from specialist service providers/partners and high levels of complexity resulted in many projects missing their targets of producing final PDs by the end of their donor-funded contract periods. Overall, pilot projects under-estimated the complexity, time and cost required to develop sufficiently robust PDs. In their review of lessons learned,[21] MCDI reported that they were only able to finalise the assessment and prioritisation of deforestation drivers well into the project implementation period. AWF initially pursued VCS, as advised by a private consultancy firm based in Nairobi. It later transpired that given the particularities of the site, VCS was in fact unsuitable and the methodology was substituted by Plan Vivo. TFCG/MJUMITA opted to build internal capacity within their own organisations and did not outsource the technical work to an external company. The result was an increase in in-house capacity, but arguably this was done at the expense of long delays in preparation of PDs. Much has changed between 2009 when these pilot projects began and now. Certification systems have matured and narrowed down to a few proven approaches and capacity has been built in NGOs and private sector regarding the application of these methodologies. Lessons have been learned about managing external partners or service providers working on PD and carbon markets. There is a clear need within NGOs to build internal expertise and capacity so that external relationships to service providers can be managed more effectively. Experiences with service providers have been mixed, resulting in poor results and inefficiencies in the case of AWF and delays in the case of CARE Tanzania. Outsourcing the technical aspects of PD does not necessarily reduce workload for the project proponents, as significant amounts of time still need to be invested working with the service providers, collecting information, fielding questions and adjusting strategies accordingly.

Complexities of getting carbon to the market have been grossly under-estimated by NGO project developers and promoters of REDD+. At the time of writing this report none of the implementing NGOs have sold carbon offsets on the voluntary market. In part, this is due to the delays in getting PDs validated, verified or registered. The widespread assumption among NGOs was that carbon would sell itself, once it was certified through globally reputable bodies such as VCS, Plan Vivo or CCBA. This has not proven to be the case – as is shown by the example of TFCG/MJUMITA who have successfully navigated the complexities of VCS/CCBA validation and verification, but have yet to sell any carbon. Lessons emerging from other project developers elsewhere internationally are that potential buyers need to be identified and engaged very early on in the process, rather than being presented with a final product.

4. Conclusions, discussion and recommendations

4.1. Conclusions and discussion

The REDD+ pilots were selected to test a range of different local-level actions that would lead to REDD+ readiness and performance based results. When REDD+ pilot projects were launched in Tanzania back in 2008 and 2009, REDD+ was an untested and poorly understood concept within the Tanzanian as well as global contexts. National policies, guidelines or standards on REDD+ in Tanzania were non-existent and international guidance was extremely limited. This meant that NGOs had to adopt a "learning-by-doing" approach, which meant higher overall costs and reduced efficiency than if the pilots had been undertaken today. Looking back, a number of overall conclusions emerge:

• Tanzania is mostly covered by a mosaic of dry woodlands with low carbon content per area unit. Due to historical settlement and harvesting patterns, natural woodlands are subject to various degrees of degradation. REDD+ projects are only financially viable (to project developers and communities alike) where significant areas of forest still exist, but where deforestation and forest degradation is currently taking place. Relatively large areas need to be included if sufficient revenue is to be generated from offsets. Consequently, site selection is a critical aspect of ensuring overall project viability. Approaches that work at higher levels of scale – jurisdictional and national – are more likely to be able to generate significant levels of financing from avoided deforestation, although the complexity and site-specificity of drivers will make working at scale costly and challenging.

• Emissions from land use in Tanzania are largely caused by gradual forest degradation, rather than clear-cutting (deforestation) due to small-scale, individual households harvesting forests for cash and subsistence uses and the widespread practice of slash-and-burn agriculture. Methodological gaps mean that assessing and reporting forest degradation is technically more demanding and expensive than under deforestation scenarios. One project (MCDI) has been able to develop and obtain approval for a new VCS methodology based on reduction of emissions due to fire management in miombo woodlands.

• Co-benefits generated by projects in Tanzania have been as important (if not more important) as carbon benefits (cash payments) – and have generated important governance, social, tenure-related, institutional and economic impacts to local people. Furthermore, many projects have helped poor rural communities become more resilient and less vulnerable to external impacts such as those of climate change. Securing long-term agreements with government agencies on joint forest management has also been an important co-benefit for community groups in two projects (AWF and CARE).

• Viewing PFM through a REDD+ lens in the context of pilot project implementation has advanced the discourse on various PFM policy issues that have previously been viewed as bottlenecks. One area that has been strongly highlighted through the implementation of pilot projects is the question of benefit sharing and debate over the protection of forests versus sustainable use. Given that PFM was originally mostly promoted by both government and NGO organisations with a strong forest conservation focus, the generation of concrete local benefits has tended to be secondary to the goal of restoring and conserving forests. As such, a number of pilot projects began discussions with communities over the conservation and protection of forests in ways that limit or minimise local use. In the case of JGI, this initial starting point proved untenable and communities made it very clear that some form of sustainable use would be needed if community support was to be secured, primarily to cater for domestic needs for firewood and other forest products. Furthermore, strict protection was likely to result in the displacement of harvesting (leakage) to adjacent areas of forest with lower protection status. Interestingly, it was only in the MCDI project area that plans were developed for sustainable, commercial harvesting of forest produce (timber). In all other

cases, commercial extraction of forest produce was considered complex, risky, likely to generate high emissions and hard to account for. Overall, the application of REDD+ has raised the level of discussion and debate amongst both practitioners as well as policy makers within Tanzania on the need for tangible benefits at community level to sustain interest in and demand for PFM. Successful reduction of D&D cannot be achieved in Tanzania if the focus is on preservation and strict forest conservation - but the focus must be on sustainable harvesting/forest management. Conservation NGOs, previously comfortable with the notion of communities supporting strict protection in forest management are increasingly arguing for the need to generate concrete benefits at the local level.

• REDD+ has helped to move forward policy processes across a range of land and natural resource management areas. This includes issues relating to the duration of JFM agreements (which have been extended within the context of REDD+ in order to ensure permanence), participatory land use planning, the quality of participatory processes used to achieve and demonstrate consent and the involvement of local level forest managers in forest assessment and monitoring. As such, these represent important advances in "policies and measures" (PAMs) of wider relevance beyond REDD+ and very much along the lines of "no-regrets" approaches being discussed within the context of REDD+ at global level.

• The pilots have provided an opportunity to assess the performance of interventions that have already been rolled out and tested in Tanzania but in sector specific contexts. With a broader goal of REDD+, a more integrated and cross-sectoral approach is needed. This approach should encourage the adaptation of forest management strategies within the broader context of land and natural resource tenure, landscape level interventions, agriculture, energy and local governance. The emphasis of the pilot projects on testing and learning has created a framework of reflection, analysis and self-criticism. As a result of working across land use and energy sectors, questions relating to cost, and issues of scale, effectiveness and opportunity costs have been highlighted. These issues have not featured strongly in the discourse on deforestation and land use management until recently.

• Drivers of D&D have been successfully addressed when a range of complementary interventions have been promoted – such as combining participatory land use planning with the promotion of conservation agriculture. Projects have been able to achieve most when they have sought out and built partnerships with organisations with core skills in addressing non-forest activities (such as agriculture, marketing and value chains).

• If MRV is to be operationalized effectively within projects working on REDD+, considerable capacity building is needed within implementing organisations, as well as among community level forest managers, in the carbon assessment approaches. At the community level this includes simple, useable and low-cost technologies that ensure accurate collection of data that can be used to inform forest management decision-making at this level, as well as feeding up into more complex MRV systems at higher levels. Technical capacity within implementing organisations on remote sensing, forest inventory, data analysis and verification is needed. Without a functional national entity with responsibility for setting standards and methodologies at national level, project MRV is likely to be un-co-ordinated and unsuited to aggregation across projects.

• FPIC has been shown to have clear benefits to projects, in terms of increasing ownership of participating communities, reducing risks of delays or rejection of proposed activities during later implementation and building the capacity of communities to understand and negotiate their own development pathways. However, FPIC is a process that is costly and time-consuming and requires skilled facilitation. The staff needs to be fully trained on the underlying rationale and approaches to be used.

4.2. Recommendations

Recommendations in the following section are divided into two categories – to national level policy makers and to REDD+, forestry and land sector practitioners working at project level. The primary target for this second category is REDD+ and other practitioners working in Tanzania, although many of the recommendations are more generic and applicable to practitioners working on REDD+, forestry and land sectors in different national contexts. aff needs to be fully trained on the underlying rationale and approaches to be used.

NATIONAL LEVEL POLICY MAKERS

Upscaling REDD+ from project to landscape level

• Jurisdictional programmes should be created to take advantage of, and create economies of scale from higher cumulative volumes of carbon and to create policy impacts engaging effectively with local governments. Working at a broader landscape level also reduces risks of leakage.

• Strengthening the legal role and mandate of village governments in managing and using trees on village lands, outside village land forest reserves, will enable landscape approaches to REDD+.

• REDD+ as a concept should be promoted to include the 'plus-activities' – such as sustainable forest management and the creation of sustainable income streams from forest use.

Safeguards

• In accordance with requirements of countries develop the "four pillars" of REDD+ readiness defined by UNFCCC, safeguards should be operationalized through the establishment of a safeguard information system (SIS). As part of this, FPIC guidelines should be produced for Tanzania in line with international best practice and experiences to date gained from pilot project implementation. The Vice President's Office should play a role in monitoring safeguards and the use of FPIC. In Zanzibar the COFMA Guidelines should include FPIC.

Addressing D&D

• The guidelines issued by National Land Use Planning Commission on land use planning process should be revised to promote greater attention to balancing forest conservation and emission reduction with the growing needs for agriculture. Consequently, the plans should be linked into external sources of REDD+ results based payments that are anticipated in the event of a compliance market being created. Budgets should be set aside to facilitate land use planning by local and central governments across priority, forested landscapes.

• To address agriculture drivers, advocacy messages should focus on the fact that the expansion of shifting cultivation in dispersed areas leads to expensive service delivery and undermines the value of forests and associated services. The intensification of agriculture will bring sustainable benefits including gains in economic, social and environmental welfare.

• Climate smart agriculture, entailing the principles of conservation agriculture needs to be mainstreamed in the Ministry of Agriculture, local government and NGOs.

• The piloting of community based fire management (CBFiM) should be up-scaled to national level and included in different guidelines. Different stakeholders should test the CBFiM to generate lessons for finding the most cost-effective methods.

Service provision

• Public and private service provision has to be developed through targeted capacity building, the establishment of cost-effective participatory practices (land-use planning, forest management planning) and learning by doing.

• It is necessary to develop sufficient in-country capacity on remote sensing, forest inventory, analysis of data and verification.

• Support should be directed to build conflict resolution capacity in local government (village, ward and district levels).

Role of NCMC

• An operational NCMC is needed to host and share the collected data from REDD+ projects and NAFORMA; the field data should become accessible via Web-based portal. This data can help to create e.g. local tree height curves to replace tree height measurements (as in TFCG/MJUMITA case).

• Coordinating the active use of the data to ensure it is analysed and used to its full potential is an important function for the NCMC.

• National guidance (or standards) is needed on project level MRV that reflects international best practice and links to national approaches being developed.

• New open-source tools, such as the "Open Foris" package used in NAFORMA and ZWBS, could benefit the current data management and should be organized under NCMC to ensure harmonized approach for all databases.

• The role of NCMC in MRV capacity building should be determined.

• The comparison of biomass and carbon stock estimates from the REDD+ projects should be conducted and new local allometric equations created.

• There is a need for the harmonisation of forest classification systems so that all project maps are comparable, and can be "nested" within the national MRV systems. National capacity to undertake LULC classification and detection of forest cover changes using remote sensing data should be created.

REDD+, FORESTY AND LAND SECTOR PRACTIONERS (in Tanzania and elsewhere)

Site selection

• REDD+ projects should invest sufficient time and financial resources in undertaking site selection before beginning field activities. Parameters important for ensuring project viability include variables such as the nature and intensity of D&D drivers, population density, area of natural forest, land and forest tenure, biodiversity and poverty levels.

• Projects should concentrate in areas where there is a strong political will at local and local government level to support project interventions. If possible, identify areas where there is likelihood of developing also other benefits from wildlife or timber management, watershed services, hunting and tourism; and where other professional partners are working on agriculture, IGA, energy or family planning programmes.

• Consider large JFM areas where degradation has been increasing but where there are possibilities to raise revenues by creating forest management units (FMU) to sell carbon, practice low impact logging and share the revenue with the adjacent communities. There is scope to make long-term agreements to support the sense of security.

Understanding and addressing D&D drivers

• At the site level, undertaking detailed diagnostic studies to confirm and assess the drivers of D&D is an important element of project start-up.

• Planning a co-ordinated response to drivers is necessary and in many cases will require skills beyond the core competencies of implementing agencies.

• Participatory land-use planning provides a valuable framework for agreeing and regulating future land-use decision-making.

Land and natural resource tenure

• Investing in strengthening land and forest tenure and management is a necessary element of addressing local drivers of D&D. This investment should be viewed not only as an important pre-condition for generating emission reductions, but also as a valued co-benefit. In countries such as Tanzania, where a strong policy framework provides for legal means to secure forest and communal land tenure, projects should adopt and adapt existing approaches such as participatory forest management and village land use planning (VLUP).

• Projects working with participatory forest management within the context of REDD+ need to look for a broader and more integrated approach to managing forest resources at a landscape level, if the effects of leakage are to be avoided. This will involve participatory discussions at community level that take into account forest management more generally and the impact of activities such as slash and burn agriculture on forested land outside community protected areas.

• When creating aggregation entities, ensure that sufficient time and investment is given to building the capacity and sustainability of such institutions.

Consent and consultation

• Projects need to invest sufficient time in securing FPIC before embarking on project activities. While this may involve longer start up times, it will ensure greater security and reduction of risks with regard to implementation while improving participation by different social groupings in the community.

Gender

• Greater attention to gender is needed at the project level. This includes using gender analysis when planning and designing interventions as well as monitoring of gender impact with regard to how the carbon and non-carbon benefits of project activities are distributed. The impacts need to be reflected in the implementation strategies. When planning how communal funds generated from REDD+ dividends should be used, the needs and priorities of women should be equally balanced with those of men. Paying individual dividends ensures that both men and women receive benefits.

Benefit sharing

• Communities should be given the full mandate to determine the form in which carbon benefits are received and used. Benefit sharing systems work best when they are designed by the final recipients and opportunities for elite capture are minimised. A transparent, equitable and participatory process should be supported through which decisions can be negotiated and made. This should include options to obtain individual cash-based payments or community based payments. Where cash or community based payments are made to community level institutions, measures should be put in place to ensure transparency and accountability to avoid the risk of elite capture.

MRV

• MRV at project level needs to co-ordinate, to the extent possible, with national level carbon monitoring and reporting arrangements.

• Where possible, projects should encourage that community members themselves collect and gather primary data, while ensuring that their work is recognized and rewarded in either monetary or non-monetary ways.

• Projects should take advantage of the NAFORMA national tree species list as well as open-source tools that have been applied by pilot projects in MRV.

• Portable digital data collection technology and a cloud storage system can be applied to a wider scale if a reliable power supply for recharging can be provided, such as solar panels, and network coverage and internet connections are available.

• Greater investment in capacity development will be needed if these tools are to be used effectively.

Getting projects to market

• Projects seeking to market verified emission reductions (VER) need to identify potential buyers at an early stage in project implementation and involve the buyers in project design to increase communication and ownership.

• To mitigate against uncertainties related to the marketing and sale of carbon credits, REDD+ projects should seek to generate multiple revenue streams from forest management including sustainable harvest and sale of timber and non-timber forest products (timber, charcoal, honey). Gender roles in forest use and harvesting tend to be very strongly defined – and as such, gender analysis and measures to address gender inequality are needed to ensure that final outcomes, such as the benefits from multiple benefit streams, are balanced and equitable.

Annex 1: Summary of MRV approaches in REDD+ pilot projects in Tanzania

Project, subarea	Vegetation types	Stratification for carbon monitoring, Methodology used	Forest land area (ha)	Implemented CO2 emission reduction potential (tCO_2-e)	Estimated emission reduction potential - CO2
AWF, Kondoa District	1. Miombo woodland 2. Acacia woodland	1. Closed forest 2. Open forest (disturbed), 3. Bush/shrub land, 4. Cultivated land The adoption of current best practice	26,380 [79]	NA	26,153 tCO_2e/a 0.991 tCO_2e/ha
HIMA, Unguja (South Unguja, North B Unguja, Central Unguja), Pemba (Wete, Micheweni, Chake Mkoani)	1. Degraded Coral Rag Forest 2. Coral Rag Forest 3. High Forest 4. Mangrove	1. Non-inundated forest 2. Mangrove 3. Non-forest VM0006	66,467	NA	297,170 tCO_2e/a 4.47 tCO_2e/ha
JGI Kigoma District	1. Miombo woodland 2. Afromontane forest	NA	90,989	NA	55,000 tCO_2e/a 0.604 t CO_2e/ha
MCDI Kilwa District	1. Miombo woodland	1. Forest 2. Miombo woodland 3. Savannah (open) (4. Farmland)	96,112	19,600	28,000 [80] t CO_2e/a 0.29 t CO_2e/ha
TFCG Lindi and Kilosa Districts	1. Montane, highlands 2. Miombo woodland 3. Coastal forest	1. High carbon forests 2. Low carbon forest 3. Non-forest VM0015	151,867	40,178 (Lindi)	45,000 t CO_2e/a 0.29 t CO_2e/ha
WCS, Rungwe, Makete, Sumba-wanga and Mbeya Districts	Montane, Highlands	FAO Global Ecological Zones (i.e. Tropical Moist Deciduous and Tropical Mountain) and altitudinal bands of 200m	52,680	NA	NA
WWF	Predefined areas: 1. Miombo woodland 2. Acaicia/Commiphora woodland 3. Coastal forest 4a. Flood Plain grassland 4b. Upland grassland 4c. Savannah grassland 5. Bushland/Thicket 6. Mangrove 7a. Forest on volcanic mountains 7b. Forest on crystalline mountains		-	-	-

[78] Applied carbon fraction: 0.47

[79] Semi-Annual Report Aug. 2014-March 2015

[80] In 2013. MCDI REDD Project Progress Report to Jan. – Ju

d n	Estimated emission reduction potential - biomass [78]	Proposed carbon monitoring system	No. of plots	Forest land per plot (ha)	Sanpling Intensity (1% of the total area)	Sample plot design	Cycles
	15,176 t/a 0.575 t/ha	Remote sensing (RS) and systematic sampling	298	89	0.11%	Circular, 0.1 ha	1
ha	172,439 t/a 2.594 t/ha	RS and stratified random sampling	79	841	0.07%	Square, 25m x 25m (0.625 ha)	1
e/a	31,915 t/a 0.351 t/ha	RS and systematic cluster sampling	186	489	0.01%	Nested circular (NAFORMA): 15m radius (DBH>20cm), 10m (DBH>10cm), 5m (DBH>5cm) 250m between cluster	1
ha	16,248 t/a 0.169 t/ha	RS, and stratified random sampling	150 (at 25 locations)	641		Nested design: square 9 ha (DBH>40cm) and square 1 ha in middle, 4 x 0.2 ha circles in corners	2
e/a ha	26,112 t/a 0.172 t/ha	RS, and stratified random sampling	~900	169		Nested circular (NAFORMA): 15m radius	2
	NA	RS, and stratified random sampling	600	88		Nested rectangular (trees: 20m x 50m, 10m x 25m) and shrubs 5m x 5m, herbs 1m x 1 m	1
		Permanent sample plots additional to NAFORMA	128	-	-	Square, 100m x 100m (1 ha)	1

n. – Jun. 2014 to RNE..

Annex 2: Strengths and weaknesses of MRV approaches used by REDD+ pilot projects in Tanzania

Project	Strengths
AWF	Proper pre-assessment (100 plots) in order to plan sufficient number of plots by stratum (using Winrock Calculator[81]). Simple sample plot design (circular plot).
HIMA	Despite the difficulties of access cloud-free satellite images, and difficulties in mapping highly fragmented land use/land cover pattern in Zanzibar, Terra Consulting Company developed a new VCS "Tool for Calculating Deforestation Rates Using Incomplete Remote Sensing Images" (being under review).
JGI	Harmonised method with NAFORMA (including using the species codes). Innovative data collection technology that will later be applicable if recharging difficulties are solved.
MCDI	New approach using data and models on dynamic processes in forest - GapFire biomass simulator. Developed new VCS methodolog. Quantification of drivers of deforestation.
TFCG	Remote sensing analysis with various data (optical, Radar), and good expertise in RS data analysis. Data exchange with NAFORMA; Harmonised method with NAFORMA (except the use of species codes). Relatively low forest assessment and monitoring costs. Spatial analysis on drivers of deforestation. Use of ICT in forest change monitoring.
WCS	High number of field sample plots. Documentation on remote sensing data processing technically detailed.
WWF	Co-operation with CCIAM, SUA, University of York, SUA LiDAR Project and among project partners in research and training. Good knowledge on (spatial) scenario modeling. The data can give additional value to NAFORMA dataset especially on mangrove, lowland forest and volcanic mountain forest sites. Promotion of open-source technology in data analysis and mapping. Development of scenario planning under Business as Usual and Green economy futures.

81 Winrock Sample Plot Calculator is a spreadsheet tool that can calculate the number of sample plots needed to estimate terrestrial carbon stocks, based on a specified targeted precision. www.winrock.org/resources/winrock-sample-plot-calculator

Weaknesses
Inexperience in MRV when REDD Projects started; difficulties with contracted company to develop PD. Reliability estimates did not show uncertainly of the estimates (i.e. confidence limits). Measuring of all tree heights but not using them in biomass estimation. No use of NAFORMA species codes
Probably inefficient stratification for long-term forest carbon monitoring: combining high and low carbon forest types. Lack of local data ownership, data could not be found in Zanzibar. No use of NAFORMA species codes
Sustainability of forest monitoring capacity (as Android phones, people's skills). Challenges for using Android devices due to lack of reliable power supply for recharging.
Small number of replication (i.e. insufficient number of plots). No use of NAFORMA species codes.
Use of concentric circular plots: difficulties with quality assurance especially regarding location of plot center, and detection of plot border trees.
Web service (for data sharing) not operational. Inexperience in MRV and difficulties in co-operation with the MRV service provider. Near-real-time fire monitoring system using MODIS satellite data. Assumptions that forest degradation can be monitored using mid-resolution satellite data. Stratification: use of FAO Global Ecological Zone map is not probably efficient method at the local level. No use of NAFORMA species codes Measuring of all tree heights but not using them in biomass estimation.
Difficulties in acquiring LiDAR data due to rains and clouds. Lack of data collection and analysis harmonization with NAFORMA data. Low Leaf Area Index (LAI) estimates, because of seasonality (dry season), may hinder applicability of hemispherical photo data. No use of NAFORMA species codes

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