OCCASIONAL PAPER

The context of REDD+ in Tanzania

Drivers, agents and institutions

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Photo by Anna Bolin
Image shows timber transported from Angai villages land forest reserve in South-Eastern Tanzania. An important question for REDD+ in Tanzania concerns how sustainable forestry can be implemented in the village land forest reserves.

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List of abbreviations

3Es	Efficient, Effective and Equitable
AGRA	Alliance for a Green Revolution in Africa
CBFM	Community Based Forest Management
CBNRM	Community Based Natural Resource Management
CCA	Climate Change Adaptation
CCE	Community Carbon Enterprise
CCIAM	Climate Change Impacts, Adaptation and Mitigation
CDM	Clean Development Mechanism
CMEAMF	Conservation and Management of the Eastern Arc Mountain Forests
COP	Conference of the Parties
CSO	Civil Society Organization
DANIDA	Danish International Development Agency
DFID	Department for International Development
DoE	Division of Environment
EAC	East African Community
EC	European Commission
EIA	Environmental Impact Assessment
EMA	Environmental Management Act, 2004
FAO	Food and Agriculture Organization of the United Nations
FBD	Forestry and Beekeeping Division
FCPF	Forest Carbon Partnership Facility
FLEGT	Forest Law Enforcement and Governance
FRs	Forest Reserves
FSC	Forest Stewardship Council
GCS	Global Comparative Study
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
GNP	Gross National Product
GoT	Government of Tanzania
IPCC	Intergovernmental Panel on Climate Change
IRA	Institute of Resources Assessment
IRA-UDSM	Institute of Resources Assessment at the University of Dar es Salaam
IUCN	International Union for Conservation of Nature
IWGIA	International Work Group for Indigenous Affairs
JFM	Joint Forest Management
LGA	Local Government Authority
MAFS	Ministry of Agriculture and Food Security
MAI	Mean Annual Increment
MCDI	Mpingo Conservation Development Initiative

MEA	Multilateral Environmental Agreement
MEM	Ministry of Energy and Minerals
MNRT	Ministry of Natural Resources and Tourism
MRV	Monitoring, Reporting and Verification
NAFORMA	National Forest Resource Assessment and Monitoring
NAP	National Action Programme
NAPA	National Adaptation Plan of Action
NBS	National Bureau of Statistics
NCCSAP	National Climate Change Strategy and Action Plan
NCCSC	National Climate Change Steering Committee
NCCTC	National Climate Change Technical Committee
NCMC	The National Carbon Monitoring Centre
NEAP	National Environmental Action Plan
NEMC	National Environment Management Council
NGOs	Non-Governmental Organizations
NICFI	Norway's International Climate and Forest Initiative
NLP	National Land Policy
NORAD	Norwegian Agency for Development Cooperation
NRTF	National REDD+ Trust Fund
NSGRP/MKUKUTA (in Swahili)	National Strategy for Growth and Reduction of Poverty
NTRF	National REDD+ Task Force
PES	Payments for Ecosystem Services
PFCA	Participatory Forest Carbon Assessment
PFM	Participatory forest management
PMO RALG	Prime Minister's Office – Regional Administration and Local Government
RALGA	Regional Administration and Local Governments Authorities
REDD+	Reducing Emissions from Deforestation and Forest Degradation
RNE	Royal Norwegian Embassy
R-PIN	REDD+ Proposal Idea Note
SAP	Structural Adjustment Plan
SUA	Sokoine University of Agriculture
TAFORI	Tanzania Forest Research Institute
TASAF	Tanzania Social Action Fund
TFCG	Tanzania Forest Conservation Group
TFWG	Tanzania Forest Working Group
TSF	Tanzania Forest Services
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNFF	United Nations Forum on Forests
UNFCCC	United Nations Framework Convention on Climate Change
UNREDD	United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation
USAID	United States Agency for International Development
VLFRs	Village Land Forests Reserve
VPO	Vice President's Office
WWF	World Wide Fund for Nature

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Executive summary (English)

Deforestation and forest degradation are among the leading causes of global environmental change. Together emissions from deforestation and degradation account for nearly 20% of global greenhouse gas (GHG) emissions, more than the entire global transportation sector and second only to the energy sector (IPCC 2014). Reducing Emissions from Deforestation and forest Degradation (REDD+) is an international accord emphasizing climate change mitigation via reductions in greenhouse gas (GHG) emissions and increases in GHG removals. REDD+ also aims to provide socio-ecological co-benefits, including biodiversity protection, pro-poor development, human rights and improved forest governance (UNFCCC 2010). Fundamentally, REDD+ is based on providing economic incentives for behavioral change resulting in actions that will maintain and enhance carbon stocks stored in tropical forests.

Tanzania is a forested nation experiencing high levels of deforestation and degradation, making it an appropriate focus country for REDD+ activities. Tanzania spans 94.5 million ha of which 35.3 million ha are forests and an average 403,000 ha of forests are lost per annum (between 1990 and 2010). The key drivers of deforestation and degradation in Tanzania are expansion of agriculture for cash crops such as coffee, cotton and tobacco (FBD, 2008 cited in Burgess et al. 2010; Geist and Lambin 2002 cited in Wertz-Kanounnikoff and Wallenoffer 2011), illegal logging and fuelwood demand (including charcoal production). Direct drivers are involved in a complex interplay with underlying drivers of deforestation such as population growth, inappropriate land tenure systems, poverty, institutional and governance factors (UN-REDD 2013).

The REDD+ policy process in Tanzania began following the UNFCCC Conference of the Parties (COP 13) in Bali in 2007 (Bali Action Plan). Tanzania and Norway signed a letter of intent in 2008, considered the key starting point of the REDD+ policy process, and a formal commitment by the Government of Norway to support REDD+ in Tanzania. In addition, Tanzania's REDD+ initiative is supported bilaterally by the Federal Government of Germany, in the management of nature reserves to reverse degradation and enhance carbon sequestration, and the Finnish government, to producing a forest inventory. While financial support to Tanzania has been significant, several REDD+ related activities ended in 2014 and there is no new funding in place, leaving the future looking uncertain.

Tanzania is engaged in a spectrum of global and multilateral international agreements governing forest management and these have constituted a base from which to embark on the implementation of the REDD+ in Tanzania. For example, decentralization in forest management has advanced with participatory forest management (PFM) through community-based forest management (CBFM) and these sites form the basis for more than 80% of all the REDD+ pilot projects in the country. They have helped Tanzania put in place relatively advanced institutions, policies and strategies for sustainable forest management. However, weak forest governance, an unclear mechanism for benefit sharing (e.g. in the cases of Joint Forest Management (JFM,[1] another type of PFM)), and poor enforcement of forest laws and regulations remain challenges likely to affect REDD+ implementation. Further,

1 JFM is a form of PFM allowing communities to sign joint forest management agreements.

while REDD+ in Tanzania is built on the existing institutional systems such as PFM, these have so far failed to generate tangible benefits for local communities and contribute to sustainable management of forests.

This country profile is part of CIFOR's Global Comparative Study (GCS) and builds on guidelines that have been established in 14 countries (Brockhaus et al. 2012). The document provides an overview on the contextual conditions that affect the REDD+ policy arena in Tanzania. It aims to understand the political economic context of Tanzania in which REDD+ policies and processes emerge. The key assumption is that REDD+ national policy outputs, their formulation and implementation, and the REDD+ policy outcomes, depend on the governance structure, its actors, mechanisms, processes and institutions and the macro-economic conditions in national policy arenas. This report explores the Tanzanian REDD+ policy processes and strategies at the national level, identifying barriers, limits and opportunities in national REDD+ arenas to inform future REDD+ design by providing research-based options for achieving efficient, effective and equitable REDD+ (i.e. the 3Es of REDD+).

Executive summary (Kiswahili)

Ukataji miti na uharibifu wa misitu ni miongoni mwa visababishi vya uharibifu wa mazingira ulimwenguni. Kwa ujumla, hewa ukaa itokanayo na ukataji miti na uharibifu wa misitu inakadiriwa kuchangia 20% ya hewa zote zinazosababisha kuongezeka kwa joto angani; kiasi ambacho ni zaidi ya kile cha sekta ya usafirishaji na ni cha pili baada ya sekta ya nishati (IPCC 2014). Mpango wa Kupunguza Uzalishaji wa Hewa ya Ukaa Kutokana na Ukataji na Uharibifu wa Misitu (MKUHUMI) ni mpango wa kimataifa wa kuzuia mabadiliko ya tabia nchi kwa kupunguza makusanyo na uzalishaji hewa ukaa. MKUHUMI pia unakusudia kuzalisha manufaa mengine ya kijamii na kiuchumi ikiwa ni pamoja na kutunza na kuhifadhi mazingira, bioanuwai, kuleta maendeleo kwa watu duni, haki za binadamu na usimamizi bora wa misitu (UNFCCC 2010). Lengo la MKUHUMI ni kushawishi mabadiliko ya tabia miongoni mwa watu waishio pembezoni mwa misitu kwa kuwapatia tija na motisha mbalimbali hasa za kifedha ili waweze kuhifadhi na kutokukata misitu na karboni inayotokana na misitu hiyo.

Tanzania ni moja ya nchi zenye viwango vya juu kabisa vya ukataji na uharibifu wa misitu hivyo kuifanya ipewe kipaumbele kwenye mpango wa MKUHUMI. Nchi hii ina ukubwa wa eneo la hekari milioni 94.5 ambapo hekari milioni 35.3 ni misitu na kwa wastani Tanzania imekuwa ikipoteza hekari 403,000 za msitu kila mwaka (kati ya mwaka 1990 na 2010) kutokana na kukatwa au kuharibiwa. Visababishi vikuu vya ukataji na uharibifu wa misiti nchini Tanzania ni ongezeko la mahitaji ya ardhi kwa ajili ya kilimo, uvunaji haramu wa misitu na matumizi ya misitu kama chanzo kikuu cha nishati. Hali hii inajitokeza zaidi pale ambapo kuna idadi kubwa ya watu katika eneo dogo la misitu, ardhi au misitu isiyo na usimamizi mzuri, umaskini uliokithiri na kukosekana kwa dhana ya usimamizi bora wa misitu (UN-REDD 2013).

Utekelezaji wa MKUHUMI nchini Tanzania ulianza punde baada ya mkutano wa kimataifa wa maswala ya mabadiliko ya tabia nchi uliofanyika mjini Bali, Indonesia mnamo mwaka 2007 (Cop 13 Conference of Parties). Mwaka 2008 Tanzania na Norway zilisaini makubaliano ya kufanya kazi pamoja ili kudhibiti mabadiliko ya tabia nchi, na huu ndio ulikuwa mwanzo wa utekelezaji wa MKUHUMI Tanzania. Vile vile, Serikali ya Jamhuri ya Ujerumani ilitoa msaada kwa utekelezaji wa MKUHUMI kwa Tanzania kupitia mpango wake wa usimamizi wa misitu asilia. Serikali ya Finland yenyewe iliipatia msaada serikali ya Tanzania katika kufanya tathmini ya hali misitu nchini. Ingawa msaada wa wafadhili kwenye MKUHUMI Tanzania ni mkubwa, miradi mingi sasa imefikia ukingoni na hakuna wafadhili wengine waliojitokeza.

Tanzania imekuwa mstari wa mbele na inajihusisha kwenye makubaliano mbalimbali ya kimataifa yanayohusu usimamizi misitu na hii imekuwa ni msingi ambao MKUHUMI unatarajiwa kuuendeleza. Kwa mfano, Tanzania tayari ilikuwa imeshapiga hatua katika utekelezaji wa utaratibu wa Usimamizi Shirikishi wa Misitu (PFM). Takribani asilimia 80 ya miradi ya MKUHUMI intekelezwa chini ya utaratibu huu wa usimamizi shirikishi wa misitu. Usimamizi misitu shirikishi (PFM) imesaidia kuiweka hali ya misitu Tanzania kwenye vyombo vya usimimizi na kuweka sera na kanuni mbali mbali za usimamizi misitu kwa njia endelevu. Pamoja na hayo yote, kumekuwa na mapungufu kwenye uongozi, usimamizi wa sheria za misitu na ugawaji mapato ama faida za misitu miongoni mwa wadau, hali ambayo itaikabili MKUHUMI pia. Hii ni dhahiri hata sasa ambapo MKUHUMI bado haujaweza kuleta mabadiliko kwenye sekta ya misitu kama ilivyotegemewa.

Taarifa hii ni sehemu ya utafiti linganishi (comparative study) za MKUHUMI duniani zilizofanywa na Shirika la Kimataifa la Utafiti Misitu Duniani (CIFOR) na taarifa hii inafuata muongozo wa utafiti katika nchi 14 kabla hazijaanza kutekeleza MKUHUMI (Brockhaus et al. 2012). Hii inamaanisha taarifa hii ilitakiwa iwe imeeandaliwa mwaka 2009-2010 (kabla MKUHUMI haujaanza rasmi nchini) ili kutoa angalizo kuhusu MKUHUMI lakini ilichelewa kwa sababu zilizo nje ya uwezo wa shirika. Lengo la taarifa hii ni kuelewesha juu ya mchakato wa utekelezaji MKUHUMI chini na changamoto zitakazo ambatana na mpango huu kuzingatia sera za nchi na hali ya Tanzania kiuchumi na kisiasa. Hi ni kwasababu matokeo ya MKUHUMI nchini yanategemea sera, vyombo vya utawala, na mikakati mbali mbali ya nchi ili iweze kusonga mbele. Hivyo basi taarifa hii inatoa ushauri katika utekelezaji wa MKUHUMI nchini Tanzania ikionyesha sera mbali mbali, mikakati ya taifa, kuchambua vikwazo na fursa za MKUHUMI kwa nchi ili kupima ufanisi, uwezo na usawa wa MKUHUMI.

1 Introduction

Reducing Emissions from Deforestation and forest Degradation (REDD+) is a rewards-based payment mechanism of the United Nations Framework Convention on Climate Change (UNFCCC) designed to serve as an incentive to induce activities that mitigate forest-based contributions to climate change. A number of countries have started developing REDD+ strategies since its inception after the 13th COP in Bali in 2007. Tanzania is one among these and is currently involved in piloting REDD+ projects on the ground with the support of bilateral and multilateral donor agencies.

In response to these developments in the forests and climate change agenda, CIFOR is conducting the Global Comparative Study on REDD+ (GCS-REDD+). GCS-REDD+ aims to provide REDD+ policy makers and practitioner communities with the information, analysis and tools they need to ensure effective (securing emissions reductions) and cost-efficient reduction of carbon emissions with equitable outcomes (termed the 3Es) – and co-benefits (i.e. including poverty reduction, enhancement of non-carbon environmental services, and protection of local livelihoods, rights and tenure). The 3Es analysis is based on the Stern (2006) report but migrates well to the REDD+ context and allows for the assessment of potential options and past results (Jagger et al. 2009; Angelsen and Wertz-Kanounnikoff 2008).

The policy analysis component of GCS-REDD+ is currently underway in 14 countries (Bolivia, Brazil, Burkina Faso, Cameroon, Democratic Republic of Congo, Ethiopia, Indonesia, Laos, Mozambique, Nepal, Papua New Guinea, Peru, Tanzania and Vietnam). It provides longitudinal insights on the REDD+ policy arena and knowledge on the institutional and political arrangements that facilitate or impede REDD+ initiatives. Information on best practices and lessons learned will be shared with stakeholders and can serve to inform the future development of 3E REDD+ (Brockhaus and Di Gregorio 2012).

This country profile report is a work in progress due to the nature of the REDD+ policy arena (at the national and global level). REDD+ is a moving target in the sense that it is evolving and being modified with time. The country profile focuses on the country of Tanzania and follows the GCS module 1 methodological framework and the country profile guidelines (Brockhaus et al. 2012). Sections 2, 3 and 4 draw largely on comprehensive literature review from sources including peer –reviewed studies, grey literature and government documents and are informed and are complemented by interviews with key experts within the policy arena. Sections 5 and 6 offer analysis and synthesis of data collected during interviews from actors related to the policy and protest events that mark the REDD+ process in the country. Finally, expert knowledge and a long presence of on-going field research on REDD+ in Tanzania has informed the analysis.

2 Analysis of the drivers of deforestation and degradation

2.1 Current forest cover and historical overview of forest cover change

Tanzania is one of the world's 'megadiverse' countries and is endowed with a forest cover of around 34 million ha, covering 40% of the national territory (Figure 1; MNRT 2010). These natural forests[2] and woodlands[3] have significant mitigation potential due to the carbon they store and sequester (Figure 2; see Appendix 2). However, Tanzanian forests are under pressure from drivers of deforestation[4] and forest degradation[5] (see section 2.2) and experienced one of the largest global annual net losses of forest cover between 1990–2010 (FAO 2010; Table 1). To demonstrate, if the average rate of forest loss experienced over the last 20 years (Table 1) continued or increased, Tanzania would exhaust its forest cover within 50–80 years. REDD+ is potentially part of a sustainable solution to deforestation and degradation.

Tanzania has relatively low emission per capita at 1.3 t CO_2 (all GHGs) and 0.1 t CO_2 (CO_2 only). This may benefit REDD+ should this ration continue into the future, although it could also create the issue of low baselines and hence low rewards (SEI 2010). However, per capita emissions could double to 2.7 t CO_2e when land use change and forestry are included with two sectors (agriculture and forest) continue to be the leading emitters of GHGs due to agriculture (extensive agriculture, livestock emission-CH_4 from enteric fermentation and soil-N_2O) and deforestation (SEI 2010; Yanda 2010). Tanzanian's ambition to continue its GDP growth rates of 8-10% as set out in the vision 2025 document presents a challenge to REDD+ progress since it depends largely on the natural resources sector characterised by unsustainable resource use.

The different types of forest cover (Table 2) in Tanzania are distributed over the administrative regions of the country. The regions of Katavi, Lindi, Mbeya and Ruvuma are the most forested regions (forest cover >70%); NAFORMA 2014). The principal forest covers are the miombo woodlands and acacia savannas. Humid montane

Table 1. Trends in forest change in Tanzania in 1990–2010 showing an average loss of 403,328 ha per year.

Forest area (million ha)			
1990	2000	2005	2010
41.5	37.5	35.4	33.4

Source: FAO Forest Resources Assessement (2010)

2 Forest in Tanzania is defined in the Tanzanian Forest Act (URT, 2002) as an area of land with at least 10% tree crown cover, naturally grown or planted, and/or 50% or more shrub and tree regeneration cover; and includes all forests reserves of whatever kind declared or gazette under the 2002 Forest Act and all plantations.

3 Low-density forest forming open habitats with low canopy cover and limited shade is classified as woodland. Woodlands may support an understory of shrubs and herbaceous plants including grasses.

4 FAO (2010) uses two different parameters to define deforestation: based on land use, deforestation is defined as the conversion of forest land to another land use; based on crown cover, deforestation is defined as the long-term reduction of this parameter below a 10% threshold.

5 Forest degradation can be defined according to canopy cover, ecological function, carbon stocks and other attributes of forests (Penman et al. 2003). For the purpose of REDD+ schemes, forest degradation is, for example, a partial loss of biomass due to logging or other causes of biomass removal (UN-REDD 2013).

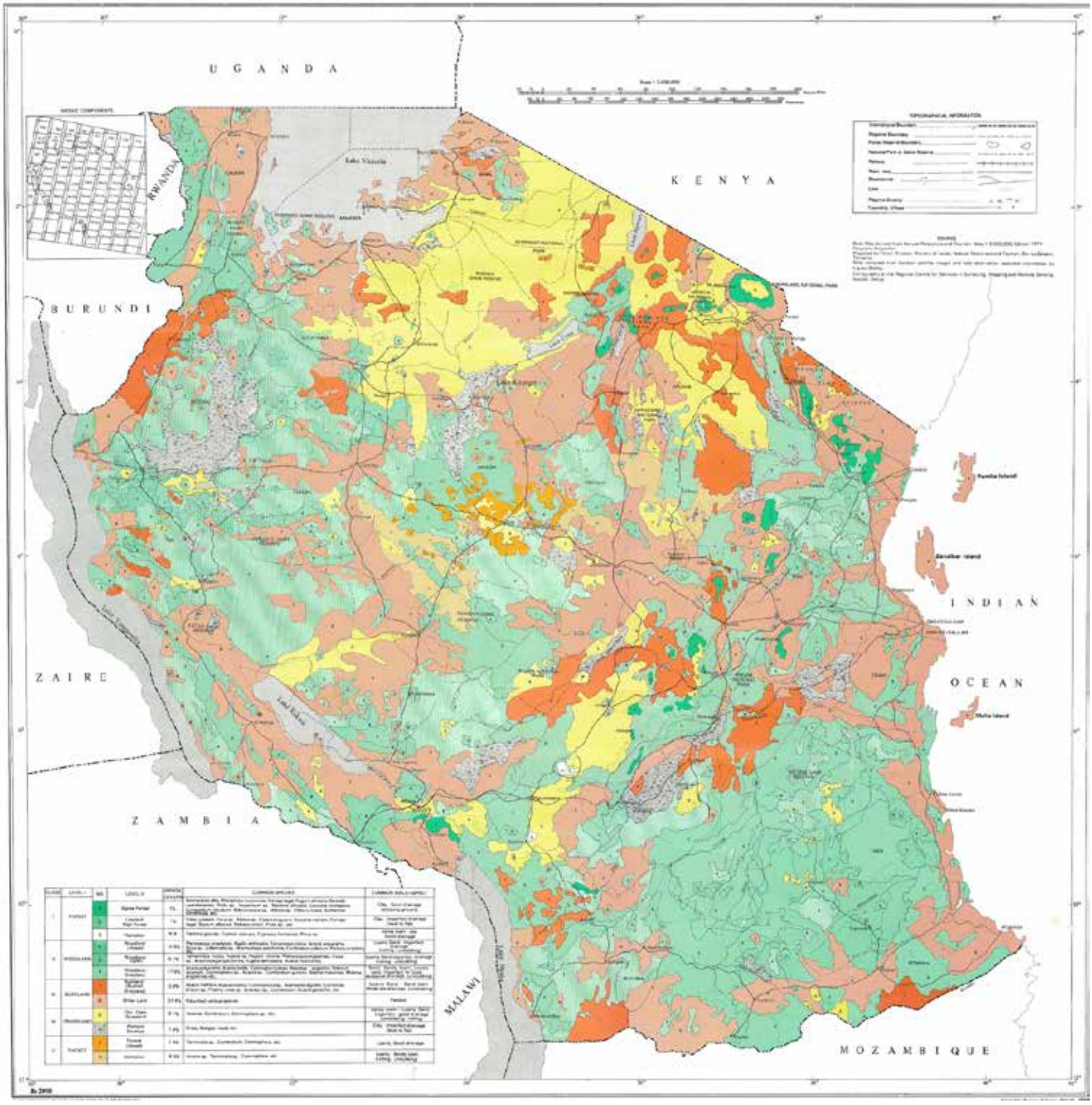

Figure 1. Land-cover types in Tanzania.

Source: Base map derived from Natural Resources and Tourism, Map, 1:2,000,000 Edition 1974. Polyconic Projection. Prepared by Forest Division, Ministry of Lands, Natural Resources and Tourism, Dar-es-Salaam, Tanzania. Data compiled from Landsat satellite images and field observation specialist information by Ligusy Okello, Cartography at the Regional Centre for Services in Surveying, Mapping and Remote Sensing, Nairobi, Kenya.

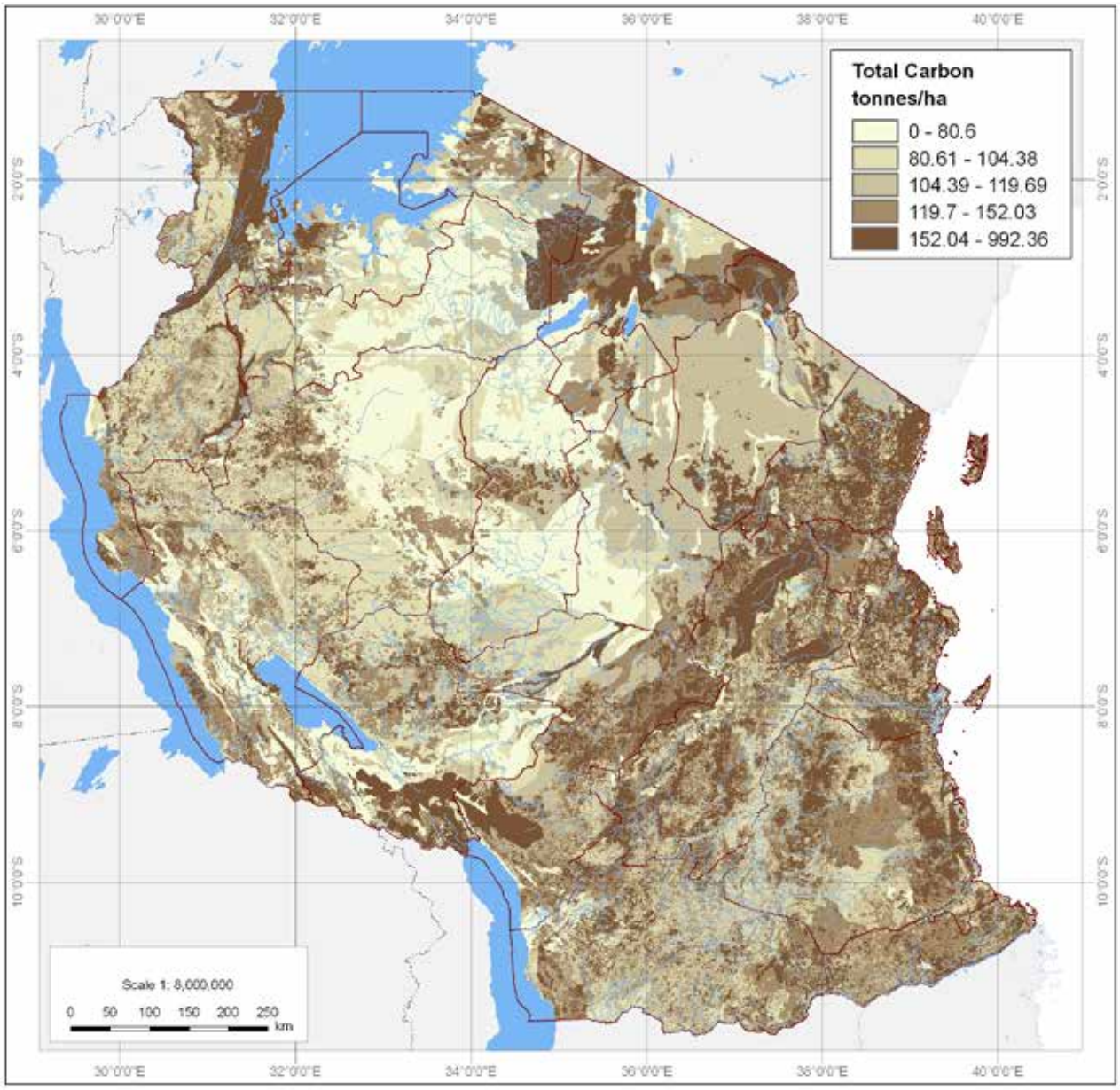

Figure 2. Carbon pools in Tanzania.

Source: UNEP-WCMC (2009). http://www.unep-wcmc.org/system/dataset_file_fields/files/000/000/126/original/Tanzania_brochure_final_110617.pdf?1398683289

forests, lowland and coastal forests cover smaller areas and are more fragmented and dispersed. Montane forests are located in the north.

In Tanzania, multiple major ecosystem types are under the threat from forest degradation, including acacia savanna, Guinea-Congo, miombo

Table 2. Forest and woodland distribution.

Veg Type	Eastern	Southern	S. Highl.	Central	Lake	Western	Northern
Forest: Humid montane (ha)	274,823	70,169	175,622	38,544	194,815	24,023	418,916
Forest: Lowland (ha)	681,772	610,118	65,340	2,802	16,924	240,331	91,141
Forest: Mangrove (ha)	153,423	37,899	-	132	-	68	2,081
Forest: Plantation (ha)	16,180	3,095	558,227	2,559	85,427	10,533	44,605
Woodland: Closed (>40%)	1,822,100	1,847,086	838,212	763,517	537,505	1,869,029	363,751
Woodland: Open (10-40%)	5,045,878	8,140,873	8,707,824	2,945,331	2,843,421	4,896,585	3,517,603
Forest and woodland total	7,994,176	10,709,239	10,345,226	3,752,886	3,678,091	7,040,570	4,438,097

Source: NAFORMA (2014)

woodland and montane ecosystem (Table 3; Katoomba 2009). Tanzania is experiencing serious deforestation and forest degradation of its forest resources (Bjordalen 1992; Okello 1994; CEEST 1999; DoE VPO 1999; Milledge et al. 2005). The hotspots for deforestation and forest degradation are located in the south, the poorest region of the country (Figure 3; Milledge et al. 2007).

Problematically, in the Tanzanian context, significant data lacunae exist and sources of figures for forested area estimates vary substantially, depending on the methods and definitions used among other factors. For example Landsat-based calculations differ to those of NAFORMA (2014) (Table 2), estimating forest cover to be 44% larger and total annual loss ~10% less.

Land tenure is a factor closely associated with rates of deforestation and degradation, and granting tenure and clarifying tenure claims are expected by many to be a prerequisite for REDD+. In Tanzania, the largest areas of reserved forest, mostly managed by the central government, can be found in Morogoro, Rukwa and Tabora regions while other areas, including Iringa, Mbeya, Shinyanga and Tabora rest reserves (NAFORMA 2014). Due to population growth and poor capacity for sustainable forest management, deforestation and degradation are taking place in the reserved forests as well as in the open access public lands (unreserved forests of village land or general land) (Salehe 1995; URT 1997, 1998; CEEST 1999; Kaale 2001). However, deforestation is highest in open access land where management and tenure security is weakest (Milledge and Kaale 2005).

While deforestation and degradation are threats to the forests of Tanzania (see Table 1), a parallel process of reforestation is evident in the country, and has been partly supported by IUCN (Barrow et al. 2002). The total growing stock of trees is ~3.3 million m^3, of which 74% is woodland, 11% is in forest areas and 15% is trees outside forest.

Plantation forestry is located largely in the Southern Highlands (NAFORMA 2014). Soft- (currently n=16 recorded industrial plantations) and hard-wood plantations (n = 3) cover ~80,000 ha and represent 1% of total forest cover (FAO 2010). The primary designated function of plantations, allocated in 70% of the total area, is production, 24% is for multiple use and the remaining 6% is biodiversity conservation (FAO 2010). The dominant species are cypress,

Table 3. Major ecosystem types and main regions for forest degradation in Tanzania.

Ecosystem type	Main regions	Main deforestation and degradation driver(s)
Acacia savanna	Shinyanga, Singida	farming (sown crops, cash crops, subsistence food production), firewood
Coastal forest	Lindi, Mtwara, Pwani	logging, charcoal
Eastern Arc/montane forest	Iringa, Morogoro, Tanga	fire
Eastern Arc/montane forest	Iringa, Morogoro, Tanga	illegal logging
Guinea-Congo	Kagera, Mwanza	farming (sown crops, cash crops, subsistence food production), charcoal
Miombo woodland	Manyara, Morogoro, Tabora	charcoal
Miombo woodland	Iringa, Morogoro, Tabora	agriculture (livestock and plantations)

Source: Adapted from Katoomba (2009)

Figure 3. Administrative regions of Tanzania.
Source: Food and Agriculture Organization of the United Nations. FAO GEONETWORK. Sub-National Administrative Boundaries of Tanzania (GeoLayer). (Latest update: 04 June 2015) Accessed (02 December 2015). URI: http://data.fao.org/ref/dabf6250-88fd-11da-a88f-000d939bc5d8.html?version=1.0

eucalypts, pines and teak, which are all exotic species in Tanzania.

Industrial plantations have the potential to contribute to national economic, industrial and rural development, but currently plantations are poorly managed and do not supply enough quality wood to support modern and efficient forest industries (MNRT 2010). The plantations may also drive natural forest loss, though in some cases they may also constitute offset projects, for example, sequestering additional carbon and may reduce pressure on natural forests.

Currently, there are a few privately owned afforestation carbon offset projects. Those that exist are in Kilombero and Mufindi Districts operating under the Kyoto Protocol's Clean Development Mechanism (CDM). They cover 30,000 ha of land and are implemented by Green Resources Limited. In addition, Sun Biofuels is working towards afforestation using jatropha and covering ~8000 ha in Kisarawe, Dar es Salaam.

2.2 Review of the main drivers of forest cover change

Deforestation and forest degradation have direct and indirect causes (FBD 2008 cited in Burgess et al. 2010; Rudel et al. 2009). In Tanzania, deforestation is driven by a multitude of factors (Kaale 2001; Forester-Kibuga and Samweli 2010), particularly smallholder farming (Geist and Lambin 2002), charcoal production (Zahabu 2011 and commercial logging (Milledge et al.

Table 4. Estimated emissions due to deforestation and forest degradation for Tanzania.

Annual rate of deforestation1 (ha/yr)	412,000
Annual CO_2 emission due to deforestation (t)	77,903,442
Average growing biomass stock t/ha	103
Growing biomass stock[a] (t)	3,636,000,000
Biomass growth rate (Mean Annual Increment-MAI)[b] t/ha/yr	1.2
Annual growing biomass increment (t)	44,066,004
Scenario annual biomass off take of 1 t/ha/yr (t)	70,514,000
Net loss of biomass degradation (t)	26,447,996
Annual CO2 emission due to degradation (t)	48,492,401
Total annual CO2 emission from deforestation and degradation (t)	126,395,843

a Data from Global Forest Resources Assessment (FRA) of 2005 (FAO 2006).

b Data from Real-time evaluation report of Norway's International Climate and Forest Initiative and Milington and Townsend (1989).

Source: Zahabu (2008)

2007). These drivers are interacting with *indirect* underlying drivers including human population growth (Allen and Barnes 1985; Holmberg et al. 1991; Mather and Needle 2000), increasing demand for forest products from the wealthier urban population and export markets (De Fries et al. 2010), unequal distribution of land, and governance issues such as inefficient enforcement of national policies. Drivers interact and occur at multiple scales, which presents a significant challenge to understanding their relative contribution. The following section discusses the direct and underlying drivers of deforestation. We present the drivers of deforestation in alphabetical order and not in order of importance, since determining their individual contributions is made problematic by inter-regional differences (Table 3).

2.2.1 Agriculture

Permanent conversion of forest land to agriculture (both permanent and shifting cultivation) is an important driver of forest cover change and is responsible for 84% of deforestation in Africa (Geist and Lambin 2002 cited in Wertz-Kanounnikoff and Wallenoffer 2011). The conversion is predominantly driven by small-scale agriculture activities (DeFries et al. 2010; Fisher 2010 cited in Wertz-Kanounnikoff and Wallenoffer 2011) and is related to population growth and poverty (i.e. subsistence living, lack of access to alternative farming practices, etc.). Smallholder farmers dominate the agricultural sector in Tanzania, producing 85% of food crops. While ~75% of the population depend on agriculture, it constitutes only 20–25% GDP. At the same time the practice of shifting cultivation has transformed and today rather than long fallow systems (~25 years), short (~3 year) rotation cycles are dominant (Luoga et al. 2000). The area under short fallow cultivation (i.e. a system no longer categorized as swidden cultivation) doubled between 1980 to 1990 (CEEST 1999). Such reduced fallow periods do not leave sufficient time for forest regeneration or soil nutrients to be replenished and are considered unsustainable.

REDD+ in Tanzania is providing incentives for engagement with more sustainable agriculture. The use of new technologies such as improved agriculture tools and inputs (e.g. agroforestry, ecological fertilizers) has increased production while avoiding land degradation (Swai and Rwehumbiza 1998; Gwambene 2007; Majule et al. 2007). Proponents (i.e. project implementers) of REDD+ in Tanzania have promoted interventions to increase agricultural productivity including practices associated with conservation agriculture and agricultural intensification (right spacing, use of local fertilizer, quality seeds and farm tending). In addition, proponents have developed land-use planning to guide the use of land in the villages and to reduce short fallow cultivation. However, a performance assessment of these interventions remains unavailable since efforts are in the trial phase with experimental plots. There

is also a national policy initiative, *Kilimo kwanza* (agriculture first) which represents Tanzania's efforts to modernize agricultural production (including small-, medium- and large-scale practices) thereby reducing the demand for land associated with population rise (Kangalawe and Lyimo 2010).

Livestock grazing in Tanzania (including pastoralist and semi-pastoralist practices) contributes to carbon emissions in two ways, as a direct source of emissions (i.e. enteric fermentation), and as a driver, particularly via the associated forest degradation in certain regions (see Table 4). Livestock are a traditional tenet of local livelihoods in Tanzania, and are traditionally used for status, to buffer times of hardship, as a savings repository and for food (Pietikäinen 2006). Livestock overgrazing is compounded by population pressure, as suggested by Pietikäinen (2006). Areas where livestock-related emissions are apparent include the arid woodland areas and non-marine wetland areas (e.g. the lake, central and northern zones) of the country (Yanda 2006). While large-scale industrial livestock ranching does not (yet) occur in Tanzania, the practice of pastoral or semi-pastoral livestock tending is relevant for REDD+. The impact of livestock on carbon emissions through deforestation and forest degradation is overshadowed by more prominent drivers including agriculture and charcoal and fuelwood consumption, and further data on emissions and numbers of cattle are not readily available in the literature.

Attempts to address the environmental and increasingly, carbon-related impacts of livestock in Tanzania have included initiatives to introduce a modern and sedentary form of livestock tending (Pietikäinen 2006), as well as policies such as the Agriculture and Livestock Policy of 1997, which addresses this driver of degradation and seeks to enhance food security and encourage development within a sustainable framework (Mbilinyi and Nyoni 2000). Recent quantified emissions figures related to the livestock sector (both in terms of forest degradation and enteric fermentation) and herd size estimates are not readily available in the literature (VPO 2003) and the terms over-stocking and overgrazing are contentious. Nevertheless, current livestock practices in Tanzania, deserve consideration as drivers of degradation and are relevant for REDD+ interventions.

2.2.2 Commercial logging

Logging drives deforestation and degradation, erodes biodiversity and leaves forest more susceptible to encroachment and fire. In Tanzania logging operations are almost exclusively unsustainable and encroachment of protected areas has taken place. In 2012 annual harvesting exceeded the annual sustainable growth by 19.5 million m^3 (NAFORMA 2014). Activities are concentrated in the miombo woodlands in the south of Tanzania (including Tabora, Morogoro and Tanga regions), which retains stocks of the most valuable timber species and has experienced increased access due to infrastructure improvements (e.g. newly tarmacked roads) (Milledge et al. 2007).

In 2003, for example, over 500,000 m^3 (~830,000 felled trees) of legal and illegal timber were estimated to have been harvested for commercial purposes from southern Tanzania (Milledge et al. 2007). The illegal proportion in this estimate is unknown, however, the relative contribution of illegal logging (i.e. logging without permits or documents, in protected areas, with counterfeit export documents, etc.) is increasing in Tanzania (Milledge et al. 2007). Enforcing logging and trade restrictions has proven challenging in Tanzania, and the proportion of legal timber harvested represents a contradiction of the REDD+ agenda. Since they have been systematically recoded (i.e. since 2003), forest revenues have been increasing. For example, revenues collected increased almost eight fold from 2003/4–2009/10 (from USD 4.18 million to USD 31.08 million) (FBD 2010). Nearly 70% of the recorded revenue is derived from plantations where revenues are not reinvested and hence these growth trends are not likely to be sustained (Milledge et al. 2007). Further, logging has not generated as much revenue as anticipated, perhaps due to the large volume of illegal and unrecorded timber extraction in Tanzania.

It is estimated that due to illegal logging practices (including harvesting, evasion, fraud and forgery of documents, etc.), widespread in Tanzania, at least USD 58 million are lost each year (URT 2012a). The timber sector is driven by major markets in countries such as China, India, Japan and African countries including Kenya (URT 2006a; Milledge et al. 2007). For example, between 2002 and 2005 China imported 4–10 times more timber products

from Tanzania than appear on official Tanzanian export records (Milledge et al. 2007; *Mwananchi* 2010) and only 4% of the forest cover in the county has a management plan (URT 2012b). Fraudulent legalization (or rubber stamping) of timber complicates monitoring activities; official documentation is given to illegally harvested timber, thereby rendering it legal on the market.

Following logging, forests are degraded and forests become vulnerable to increased fire invasion, tree fall and drought which can reduce the value of the forest and the potential for PFM. Sustainable forest management interventions and enforcement of the legal restrictions would contribute to curb illegal logging in Tanzania. To date only 10% of reserved forests have an operational management plan (Akida and Blomey 2006). Other efforts could include the broad policy reforms required for REDD+, for example in the area of governance, strengthening responsible institutions to execute their mandate and building their capacity in law enforcement. REDD+'s monitoring, reporting and verification (MRV) system is designed to do just that. Concerted effort between countries to control illegal trade and possibly a market compliance-type agreement (e.g. FLEGT[6]) would complement these endeavors.

2.2.3 Charcoal and wood fuel dependence

The proportion of deforestation directly related to woodfuel production is as high as 70% in Tanzania (Makundi 2001), the degradation associated with the activity is also sizeable and compounds its negative environmental impact. Tanzania's annual consumption of charcoal is 1,658,000 tonnes (FAO 2014); in Dar Es Salaam alone annual charcoal consumption may be as high as 500,000 tonnes (World Bank 2009). Charcoal is considered cheap and easy to transport, distribute and store (Hosier and Milukas 1992 cited in Mwampamba 2007; Bailis et al. 2005; World Bank 2009a) and is the single largest source of household energy in urban areas in Tanzania. About 85% of the total urban population depends on charcoal for household cooking and energy for small and medium enterprises (Sawe 2004), and more in rural areas. Urban populations are supplied with charcoal from dry woodlands within a radius extending 200 km from the urban energy markets (Milledge et al. 2007) and this may increase as forests are depleted and demand continues.

Charcoal production is such a threat to forests because it is entirely dependent on freshly cut live wood, is subject to inefficient production and consumes 4–6 times more wood than fuelwood (van der Plas 1995; Kammen and Lew 2005 cited in Mwampamba 2007). In addition, the best charcoal, which carries a price premium and is in high demand, is sourced from slow-growing species (such as miombo hardwoods) that are particularly vulnerable to overexploitation (Chidumayo 1991; Girard 2002 both cited in Mwampamba 2007). They produce a low-burning coal suitable for local traditional cooking (e.g. making *ugali*).

Charcoal production does not act as a single driver of deforestation, but instead in conjunction with wider development policies. For example, national policies do not support the accessibility and use of alternative sources of energy. The quantity of charcoal consumed is expected to rise in the coming years due to factors such as rapid population growth, continued urbanization and relative price increases of fossil-fuel-based alternative energy sources. It is estimated that for each 1% increase in urbanization (i.e. increase in urban wealth and thus per capita consumption) there is a 14% increase in charcoal consumption (Hosier et al. 1993). There is also an export market for charcoal (e.g. Arabian Peninsula); however, there are no reliable statistics to gauge the extent of this since exporting charcoal is illegal.

Almost all proponents of REDD+ pilot projects have designed interventions to address charcoal production (Tanzania Natural Resource Forum 2011). They range from alternative energy sources for cooking and lighting to more efficient energy use such as high efficiency stoves for cooking. However, introduction of alternative energy facilities has been tried in the past and failed. Supply-side interventions also exist, including increasing production efficiency and establishing plantations for firewood. Meanwhile charcoal production remains one of the drivers

6 FLEGT stands for Forest Law Enforcement and Governance. It is a trade instrument used as a vehicle for change. It is based on Voluntary Partnership Agreements between producer countries and the EU. Through partnership agreements, a joint verification system is established guaranteeing the legal status of exported timber and that trade will contribute to poverty reduction and the preservation of the environment (EU FELGT Facility 2014).

for deforestation and forest degradation due to the dependence on charcoal as an affordable means to meet household energy requirements, combined with weak law enforcement and inadequate regulatory capacity that result in illegal charcoal production.

2.2.4 Forest fires

Recurrent forest fires (escaped fires) have social, economic and environmental consequences. In Tanzania they have been associated with deforestation and degradation, depleted forest resources (such as non-timber forest products), have caused significant economic damages and have released large amounts of CO_2 into the atmosphere with implications for global environmental change (URT 2007[7]; URT 2001). An average of 11 million ha burn annually (ranging between 8.5 and 12.9 million ha), in miombo woodland (75%), forest plantations (20%) and montane forests (5%) (Rucker and Tiemann 2012). Large areas in the Eastern Arc Mountains, Kilimanjaro and Meru have experienced chronic situations where forest fires have escaped beyond control.

The major causes of wildfire is fire escape, either from plot preparation, hunting endeavors or from charcoal production (URT 2001[8]). In Tanzania, fire is often used to 'manage' forests because it is affordable and, for many, often the only accessible means of clearing the land for agricultural production (in swidden). Increasingly labor constraints associated with swidden make burning early in the dry season infeasible. Fires set later in the dry season run a higher risk of escape and may lead to large wildfires. Wildfires in Tanzania cannot be divorced from the wider political economy and development policies that operate, particularly those that serve to keep smallholders with limited agricultural and livelihood options and alternatives to fire use (Sorrensen 2008). In Tanzania, for example, agricultural extension services are minimal, only three out of ten farmers use improved seeds, four out of ten use animal manure for fertilization, and only two out of ten use chemical fertilizers (Limbu 1999).

Fire is a threat to REDD+ building blocks, such as permanence, additionally and leakage (Kilahama 2011; Barlow et al. 2012). To date, there has been no deliberate or systematic efforts to determine the type and extent of bushes and forests prone to fires or to map the forest-based risks in Tanzania (Hall and Gwalema 1985; Madoffe et al. 2000). Some areas including the Eastern Arc Mountains have been identified as high-risk areas for wildfire, however, there is no fire management strategy due to the insufficient data (Burgess et al. 2005; MNRT 2005). Current national policies (e.g. forest policy, wildlife policy, land policy) do not articulate how to contain and/or eliminate wildfire (Kilahama 2011). As experience from other countries shows, such interventions will need to be informed of local level capacities (Carmenta et al. 2013) and will be required for REDD+ to succeed (Barlow et al. 2012).

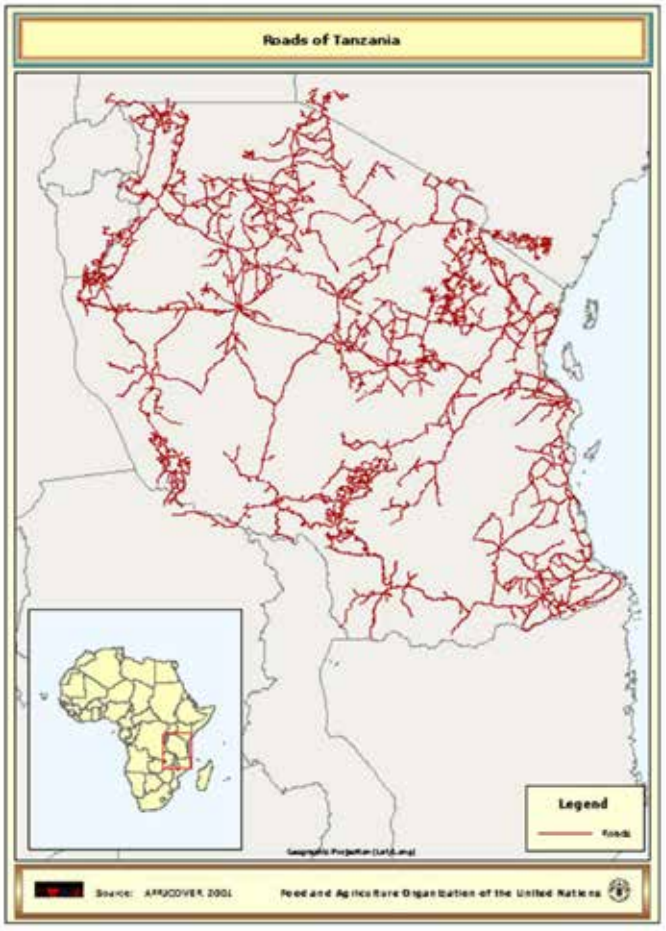

Figure 4. Extent of paved roads in Tanzania (2001)
Source: AFRICOVER 2001 (http://data.fao.org/map?entryId=c16a6610-88fd-11da-a88f-000d939bc5d8).

7 National Adaptation Programme of Action

8 National Forest Programme

2.2.5 Infrastructure extension

Roads generally result in increased deforestation and degradation (Nepstad et al. 2001). They make the transport of goods possible and economically viable, linking resources and producers to markets at lower costs (Milledge et al. 2007; Chiesa et al. 2009). In the late 1980s and 1990s, the national road network in Tanzania was poorly developed with many areas lacking connectivity. The past decade has seen expansion and improvement of the road network in Tanzania (Figure 4). Roads offer the potential for economic integration of smallholders, which could contribute to a more balanced and equitable growth. However, the association of roads with the overexploitation of resources, increased frequency of wild fires and the displacement of small-scale farmers, present challenges for good environmental management (Milledge et al. 2007).

2.3 Agents, actors and indirect drivers of deforestation and degradation

2.3.1 Population growth

Tanzania currently has a population of over 49 million, a large proportion of which depends on forests in some way for their livelihoods or for their fuelwood. The pressure on forests and lands is projected to rise, since the population of Tanzania is anticipated to reach 63 million people by 2025. Between 1960 and 2010 the population increased from 10 million to 47 million (NBS 2012). Population growth exerts pressure on forest resources, particularly in a context of prevailing poverty, ambiguous tenure, policy and governance failures and a lack of agricultural intensification (Misana 1999; Harris et al. 2011). We discuss these issues in the following sections.

2.3.2 Poverty, consumption patterns and cultural factors

Environmental degradation and deforestation are embedded in the wider development policy and are associated with poverty (Sorrensen 2008; Chowdhury and Moran 2012). For example, farmers rely on agricultural produce for income but are confronted with technological limitations and a lack of government spending on extension services (particularly since 1990) that keeps returns to a minimum and maintains extensive agricultural practices. There is a dearth of supportive policy initiatives to improve the situation and, at the same time, there is a lack of employment opportunities outside the farming sector. Further, agricultural production costs have increased relative to product prices and increases in living costs have encouraged people to exploit forests more intensively (particularly on the general lands), in order to generate cash income. Increasingly, the role of remittances are being acknowledged for their contribution to household economies, though these appear to be highly regionally dependent and mark an area of new research.

Extraction of high returns commodities, such as charcoal, is incentivized (Monela et al. 1999 cited in URT 2001) and increasing demand for forest products, mainly for economic purposes, are significant drivers of deforestation and degradation (Sitarz 1994 cited in Misana 1999; Malimbwi et al. 2007; FBD 2007; Van Beukering et al. 2007 in Burgess et al. 2010; URT 2009b; Devisscher 2010; Gwambene and Majule 2010). In regions such as in Morogoro and Dodoma, some households derive more than 50% of their cash income from charcoal and other non-timber forest products while peri-urban households derive up to 70% of their cash income from forests (URT 2001). According to one recent estimate, the annual per capita value of subsistence use of forest products in rural areas is USD 25–50, with forests providing 90% of energy supplies, 75% of building supplies and 100% of traditional medicines (World Bank 2008 cited in URT 2013).

REDD+ pilots are experimenting with implementing a range of income-generating livelihood diversifying activities (including beekeeping, tree planting for firewood and woodlots and poultry keeping), which are aimed at reducing pressure on forests for agriculture and other uses. These are often supported by microfinance loans.

2.3.3 The wider policy context: National, international and trade policies

Overall, the Structural Adjustment Programme (SAP) in Tanzania has increased rates of environmental degradation by increasing input

prices, promoting unsustainability through market liberalization, and reducing expenditures on 'reforestation'. In addition, unrelated sectoral policies have exacerbated degradation problems. The ending of policy initiatives such as *ujamaa*, poor agricultural extension, poor enforcement of land clearing, ambiguous land tenure and inappropriate energy pricing have all reduced incentives to conserve. Structural adjustment has also disproportionately affected the poorer farmers because pricing schemes have caused cultivation of marginal lands. Thus, a positive feedback loop has been created causing a downward spiral of economic and environmental well-being.

The incoherence between global and national policies and those related to forest conservation and REDD+ create problems for REDD+ progress and such incoherence still pervades the national context. For example, some of the policies of the Tanzania Investment Center have been in conflict with agriculture and the environment; a lack of alternatives to fuelwood or fire use in agriculture are good examples of such failures. The world market also has a strong influence over policy direction in Tanzania and is difficult to control. For example certain crops, such as tobacco, fetch high prices in the world market. Tobacco, in turn, needs firewood for the drying process thereby further fueling deforestation and degradation. The deforestation seen in Tanzania reflects a specific type of development model, which began in the late 1800s and early 1900s. At that time, the Tanzanian economy was drawn into the world market for primary goods such as cotton, coffee and tobacco (Utting 1991). The country relied on these primary goods to generate the foreign exchange needed to bring about economic growth and development. This situation prevails today and is reinforced by government policies such as the Agricultural Policy of 1983 (URT 1983), which emphasizes production of the primary export crops in order to generate foreign exchange.

External policy reforms, such as the World Bank Structural Adjustment Plans, have also influenced farming practices and resource management in Tanzania. While resource management was not ideal before, SAPs exacerbated the situation and led to, for example, cuts in forest department budgets, reductions in public sector staff and subsidies to farmers. This has meant that farmers cannot access farming inputs (intensification) and rather open up more forest areas in search of fertile land.

The goals of REDD+ need to be understood in the context of other country initiatives and development plans. For example, the current top national priority in Tanzania is agricultural development and these efforts have implications for REDD+ due to conflicting goals. Well-funded donor initiatives (i.e. Alliance for a Green Revolution in Africa (AGRA) and Feed the Future) and emerging private microfinance companies, that aim to develop both small- and large-scale commercial agriculture, may incentivize the expansion of agriculture into forests (Hertel et al. 2014). These same initiatives fall under criticism by some who fear they have been co-opted and hidden motives related to large corporations, GM and biotechnology have been disguised (Friends of the Earth 2012). At the same time, Tanzania has expressed renewed commitments to improving food security with climate adaptation incorporated. For example, Tanzania is signatory to the Comprehensive Agriculture Development Program (CAADP). CAADP was introduced by the African Union in 2003 and solicits commitments from national governments to raise agricultural productivity (by 6% annually). Tanzania will do this through an approach centered on transforming traditional subsistence agriculture to commercial agriculture implemented by the private sector (through enabling conditions to attract private investors), policy initiatives including the *Kilimo Kwanza* are intended to serve as blueprints for reforms.

2.4 Mitigation potential

The high deforestation and degradation rates, international attention on forests and awareness of global environmental change have raised national as well civil society concerns and support for sustainable forest management through REDD+. Tanzania has a variety of policy instruments and monitoring practices that are in place and which may facilitate climate change mitigation through REDD+. These include, for example, the country's position on integrating climate change as a cross-cutting component of its policies. Other examples include the *Kilimo Kwanza* initiative to improve agriculture and reduce dependence on extensive

practices, the long history of devolving forest management rights to the local level through practicing participatory forest management (PFM, introduced in detail in section 2.1.3). PFM creates certain conditions that may be enabling for REDD+, for example, it grants tenure rights, engages in forest management at the lowest level possible and has experience of institutional structures that may facilitate or impede these models of forest management which would bear relevant lessons for REDD+. Relevant policy reforms include the National Forest Policy and subsequent Forest Act of 2002. Further, Tanzania's protected area network provides potential sites for REDD+ initiatives to engage, particularly if Tanzania works with protected area authorities to improve law enforcement and management, increase biomass and reduce degradation in order for the protected areas to function as carbon stores.

Enabling initiatives in the country include the Forest and Bee Keeping initiative (supported by UNEP World Conservation Monitoring Centre) to map carbon distribution (Figure 2) with biodiversity (co-benefits) and livelihoods. This initiative supports REDD+ by providing carbon data needed for ascertaining payments for avoided emissions, and could provide possibilities for payments related to non-carbon services also, thereby securing a higher premium on reduced emissions. Since 2009, the National Forestry Resources Monitoring and Assessment (NAFORMA) has provided calculations of emissions reductions and reference emission levels, data much needed for REDD+. It is hoped that NAFORMA will contribute to addressing the quantitative data gap on drivers of deforestation and forest degradation as they operate in different parts of the country. The information regarding deforestation and forest degradation levels will be the basis for developing country-level carbon accounting systems and create potential for Tanzania to be ready in trading carbon post 2015. A significant issue concerns whether NAFORMA data are available at the necessary resolution to effectively monitor the impacts of REDD+ initiatives. Long-term sustainability depends upon the forestry sector, whether through REDD+ or other channels, generating enough revenue to maintain NAFORMA, the implementation of which so far has been expensive (e.g. Finland have funded USD 6 million to NAFORMA).

3 Institutional environment and distributional aspects

In any given REDD+ country, the forest management institutions, governance context and decentralization policies are likely to influence the outcome of REDD+ on the ground. The governance of forest resources occurs at multiple scales at levels. In the Tanzanian context, for example, governance structures are operating at the international, national, regional and local levels. We outline some of the major governance arrangement affecting the forest resource of Tanzania below.

3.1 Governance in the forest margins

Land is the most contentious and politically charged issue in Tanzania, given global environmental change and population pressure, the situation is likely to remain contentious. Under the Forest Act (2002) and the Land and Village Lands Act (1999), Tanzania classifies its forests and woodlands into three broad categories: village, general and reserve lands. Roughly 18 million ha of forest (including mangroves) is reserve land (Table 5) and refers to national parks, game and forest reserves, including industrial wood plantations and water catchment forests, and mangroves. Forest reserves (FRs) are for the purposes of either for production of forest products or for the protection of water catchments and biodiversity values and controlled under the Forest Act of 2002. FRs are grouped into three broad management regimes: central government FRs, local government FRs and community (or village) FRs (which are synonymous with PFM), and central government are the prevailing type. The central government holds the legal rights and management responsibilities to the central government FRs covering 92% (~11 million ha) of the reserved forests. Around 2,000,000 ha are in village FRs (FBD 2006).

Village land is defined as land in the village and is demarcated and registered by the Commissioner of Land. While some degree of autonomy and administration is devolved to local authorities in the form of village councils, ownership and control of land and resources rests with the Commissioner of Lands and ultimately, the national government. The remainder is managed by local government.

An estimated 4 million ha falls under community forest management regimes (also known as village land forest reserve) under PFM. The areas under PFM can take two forms, Joint Forest Management (JFM) (accounting for 40% of forests in PFM) and community-based forest management (CBFM) (accounting for 60% of forests in PFM) (MNRT 2008). Estimates of forest area that is unreserved range from 50 to 60%, or 19 million ha (Milledge et al. 2005); these forests are often on village and general lands.

Property rights interact strongly with deforestation dynamics. In the 1980s, many communities in Tanzania were scattered and land was abundant, such that claims to property were not common. Apart from land in the protected reserves (i.e. national parks and FRs), forests on village land and general land were in large part seen and treated as common property or open access (Milledge et al. 2005). Natural resource degradation (e.g. small-scale farming, timber harvesting) occurring in various parts of rural Tanzania are associated with open access property regimes that include poorly defined and unenforced rights (Petersen and Sandhövel 2001).

Open access (unreserved) lands (found in most villages) are also integral to the subsistence food production of poor farmers practicing shifting cultivation. This forest has no legal titles and farmers are underequipped (both economically

Table 5. Legal status and main use of forest land in Tanzania (ha).

Use of forest land	
Production forest area	23,810 (71%)
Protection forest area (mostly catchment areas)	9,745 (29%)
Legal status	
Forest reserves (public)	12,517 (37.3%)
Forests/woodlands in national parks (public)	2,000 (6%)
Non-reserved forest on general land (on private and public land)	19,038 (56.7%)

Source: National Forest Programme (URT,2001)

and bureaucratically) to navigate the process of legal titling. Given this situation, much village forest lands suffer the risk of overexploitation. The government has pushed for land-use planning in the villages but this falls short of the financial resources to complete the exercise. The risk of unsustainable exploitation is compounded by the inability of governments to charge sufficiently high forest rent (e.g. royalties from timber sales or fees related to environmental services such as water catchment) in unreserved forests to cover the real financial cost of managing the reserved forests. This has resulted in the inability to control, manage and monitor the forests adequately (URT 2013) which presents challenges to REDD+.

3.1.1 Governance at international, national and regional scales

Tanzania has signed multiple international agreements and treaties related to forest governance, biodiversity conservation and climate change. These include the Convention on Biological Diversity, United Nations Framework Convention on Climate Change (UNFCCC) and United Nations Convention to Combat Desertification as well as meeting of the Commission on Sustainable Development. This participation has helped Tanzania to formulate and implement related programs, such as National Adaptation Programme of Action (URT 2006a), National Biodiversity Strategy and Action Plan (URT 1999a) and National Action Programme (1999) to combat desertification. Tanzania is involved with the United Nations Forest Forum (UNFF) and participated in the 10th session of the UNFF theme on forest and economic development. This session required countries to offer responses to the challenge of implementing sustainable forest management, and suggestions for how to ensure the economic contribution of forests and sustainable forest trade to the country.

The Environmental Management Act No. 20 of 2004 (URT 2004) supports the implementation of these conventions. For example, it sets out general provisions on the enforcement of international agreements. While Tanzania has signed or ratified the majority of the global agreements related to forests, biodiversity and climate change, Tanzania has taken little effort on the FLEGT compliances and negotiations related to FLEGT Voluntary Partnership Agreement with the EU have not taken place. Members of the Tanzania Forest Working Group (TFWG comprised of over 45 civil society organizations (CSOs)) are working on collaboration towards improving FLEGT.

Regionally, Tanzania has signed the East African Community (EAC) Treaty in November 1999. Under this treaty, Tanzania and four other countries in East Africa (Kenya, Uganda, Rwanda, Burundi) committed to cooperate on management of forest resources. However, the future of the EAC-led collaboration is currently uncertain given the status of little cooperation, and fragmented policy formulation and implementation. According to forest experts, the EAC is a work in progress and unilateral actions by individual governments that breach negotiated regional policies are still common. Nevertheless, there are a number of forest-related obligations that Tanzania is required to fulfill as a part of the EAC. These include to identify, promote and protect indigenous and traditional knowledge associated with biological resources and ecosystems, to strengthen national plans, programs and legislation for forest management, inventory and monitoring, and to information sharing on trade in illegally harvested forest products interventions (EAS 2012).

3.1.2 Governance conditions in areas of high risk of deforestation and degradation

Tanzania has a well-developed institutional framework for forest management and governance is currently high on the political and development agenda. This interest is backed by processes occurring over the last decades, including the development of key instruments and tools for forest governance, such as revisions to forest and land policy, environmental legislation, participatory land-use planning and various decentralization reforms. To some extent, these processes have revived forest protection measures, including enforcing harvesting rules and law enforcement. However, the forest sector remains compromised by poorly controlled, irregular and unsustainable activities (Milledge et al. 2007).

The responsibility for forest management is held by both central (MNRT) and local (Prime Minister's Office-Regional Administration and Local Government (PMO-RALG). However, ~55% of Tanzania's woodlands and forests constitute unreserved lands (Milledge et al. 2005), and these areas are concentrated in the south of the country. The lack of a full decentralization process where the distribution of power and responsibilities lies with the officer in charge of forest management. Although there is decentralization to the district level the fact that the forest officer and the district executive officer report to the Prime Minister's office (Regional Administration and Local governments Authorities, (RALGA) and not the Ministry of Natural Resource and Tourism brings a major challenges in implementation (Harris et al. 2011). The Ministry of Natural Resources and Tourism (MNRT) cannot hold district officers accountable and demands for transparency are not always met.

Forest degradation and deforestation occur in public lands (i.e. unreserved) as well as in FRs due to factors such as population growth, limited capacity for forest management (Salehe 1995; URT 1997, 1998; CEEST 1999; Kaale 2001; Petersen and Sandhövel 2001). Even in reserved forest areas management capacity can be severely stretched, for example, only two qualified foresters are mobilized in the Rufiji District area (which is regarded to be important for carbon storage) and manage over 100,000 ha (Milledge and Kaale 2005). Despite these limitations more deforestation occurs in public and unreserved lands where management and tenure security is weakest (Milledge et al. 2005).

To improve the forest management situation towards greater sustainability the MNRT has put a number of measures[9] in place in recent years. These include steps to better regulate the timber trade, increase financial benefits to local people and measures to control corruption (Milledge et al. 2007). To date, these measures have focused on regulatory controls and boosting management capacity rather than on fully addressing the root causes driving deforestation and degradation (see section 2.2). The requirement that all projects with potentially damaging effects on the environment be preceded by an environmental impact assessment (EIA), and that users and polluters of the environment pay for the use and/or pollution are likely to remain a paper instruction that does not occur in practice if implementation of policies does not take place.

3.1.3 Implications for REDD+

Concerns over the implementation capacity and fiduciary risk of the national government led Norway to channel most REDD+ funds to academic and CSOs and less to central government. Coupled with pressure to produce rapid results, this left the government reluctant to develop the institutional arrangements necessary to see REDD+ beyond the pilot phase, in particular for finance and benefit-sharing mechanisms (NORAD 2014b). While REDD+ pilot projects have been an important resource at the local level, their implementation has also brought light to the substantial challenges, including remaining

9 Review of procedure for issuing licenses for harvesting and transporting forest products; empowerment of villagers to manage forests through participatory forest management approaches; ban of exportation of all types of logs since July 2004; National Forestry Inventory (2005) and ongoing development of district harvest plans; guidelines on harvesting of forest products and formation of district forest; harvesting committees gazetted during 2006; establishment of Forest Surveillance Unit in 2005/6; strengthening of checkpoints and improved security of documents used for harvesting forest produce; introduction of scanning of forest product exports; countrywide assessment of sawmills in 2005; establishment of a forest resource database; and development and implementation of an improved forest revenue collection strategy.

uncertainties about land tenure[10], carbon rights and benefit-sharing rules, insufficient technical skills for MRV, coordinating management between levels of government, and how to address deforestation drivers (Sills et al. 2014). This has created challenges for REDD+ implementation in Tanzania (NORAD 2014a).

Governance issues (elite capture, insecure land tenure, corruption) and insufficient capacity (financial, technical and human) represent some of the largest and most significant challenges to ensuring REDD+ in Tanzania. In 2009, for example, the Forestry and Beekeeping Division (FBD) reported low levels of protection of the FRs at the district and regional level due to few numbers of staff, equipment and other facilities for law enforcement and to provide advisory services to the communities, thus resulting in poor habitat cover and quality (URT 2009d). A lack of coordination between central and local government weakens forest governance and is embedded in the institutional framework. For example, the varying interpretation of annual revenue targets and line management complexities continue to plague affective governance of joint planning (central and local government) and impedes a clear protocol for the sharing of roles and responsibilities between these two ministries (Milledge et al. 2007).

3.2 Decentralization and benefit sharing

Since the 1990s, Tanzania has been involved in a process of decentralizing the management of its forests in order increase the area under conservation and to achieve sustainable forest management. This movement is embedded in a global trend and is related to the failure of state-owned reserves to secure forest preservation or sustainable use (Agrawal et al. 2008; White and Martin 2002). It reflects government recognition that to effectively manage the entire forest estate, local communities would need to be involved (Blomley and Ramadhani 2006). The Tanzanian government has developed a suite of forest, land and local government laws that vest rural communities with well-defined rights to own, manage and benefit from forest and woodland resources on their village lands through the establishment of village land forests reserve (VLFRs)[11].

The decentralization process of forest lands in Tanzania is supported by the Forest Act (2002) through a framework to devolve responsibility "for the management of forest to the lowest possible level". Decentralization of the forest sector has taken place under the umbrella of PFM. This long-established government program of PFM (Wily 2001; Zahabu 2008; Blomley and Iddi 2009; URT n.d.) has resulted in some 4.1 million ha[12] of natural forest coming under the direct legal management of some 2000 villages[13] across the country.

PFM grants long-term rights, responsibilities and ownership to local communities on the prerequisite that they set aside some land in a village forest reserve, PFM is funded through forest management revenues. PFM is articulated in the Forest Act (2002), stating a clear legal basis for any community, group or individuals across mainland Tanzania to own, manage or co-manage forests (on 'reserved land') under a wide range of conditions. According to the Forest Act (2002) once a community completes the process of setting aside a village land forest reserve, has got an approved management plan, the community becomes exempt from paying the regular royalties due on listed timber species. In effect, this means that the community can charge loggers the same amount as they would otherwise pay to the government (assuming they were logging legally) and retain those fees for themselves.

The rationale for redistributing forest management revenues through PFM appears to be an attempt to balance forest management costs in one area with benefits derived from the forest sector in

10 Although national laws support community forest tenure, its implementation on the ground faces uncertainty due to poorly produced land-use plans and existence of village lands that are unregistered.

11 Forets managed and owned by the village, managed by the village committee on behalf of the village using a management plan drawn and agreed by the village members. Village can issue permits, collect fines and impose fees.

12 Of a total area of 33.4 million ha of forest and woodland, with an additional area of 6.4 million ha of thicket and bushland. An estimated 16 million ha of forest and woodland that occurs on village lands has not yet come under formal community management.

13 Of about 12,000 villages, many of which are not forest adjacent.

another area. It also serves as an initiative to build local incentives for sustainable forest management, via granting access and management rights at the local level (Blomley et al. 2009). Scaling up PFM in Tanzania has been met with debate due to the outstanding need to ensure sufficient benefits are devolved and shared with community-level managers. Equitable sharing is crucial to increase local incentives for sustained forest management and to achieve broader goals of poverty reduction. While the program has resulted in improved forest conservation,[14] at the local level, it has resulted in only marginal economic gains for the communities conserving these forests. Very few communities (e.g. Amani Butterfly Project in Tanga, MCDI in Lindi, charcoal revenue from VLFRs in Iringa) have gained external revenue from selling their forest products.

When it comes to managing forest resources of potentially high revenues it is increasingly problematic to enact the law due to bribery, corruption and vested interests of the elite. In areas where the government authorities, forest officials and civil servants have private interests, or are exposed to political pressure from elite individuals, linked to activities driving deforestation and degradation, constraints on progress are most apparent. In such areas, there appears to be little interest in monitoring illegal logging and encroachment or in providing the private sector and communities with the access rights and capacity to utilize the resources in a sustainable manner (Kobb 1998; Fjeldstad 2001; Lund 2007).

Despite the challenges at hand, there is general recognition that Tanzania has made progress towards decentralization in the environment and natural resource management sectors (Somanathana et al. 2009), though the objectives of the decentralization process have yet to be fully attained. The impeding factors are perhaps three-fold: the autonomy of the local government is grossly undermined by the lack of an explicit institutional mandate and legal framework for control and management of natural resources; unfair sharing of revenues collected by local government authorities; and lack of capacity at the local level to manage and conserve natural resources (Mniwasa and Shauri 2001). Nevertheless the progress towards decentralization of forest management provides some foundation for REDD+ in Tanzania.

The current PFM-REDD+[15] scenario pivots on the understanding that benefits should be rewarded to balance individual forest management costs. The reward is expected to create local incentives for sustainable forest management. REDD+ in Tanzania regarded as added value thus improving forest management in Tanzania, sharing the benefits reinforces this objective. Ensuring the equitable and transparent distribution of benefits to communities whose livelihoods are intimately bound to forest resources is crucial if forest conservation is to succeed and not leave forest communities worse off. Within the context of REDD+, this entails a distribution framework linking international actors to national, sub-national and local actors.

The Government of Tanzania, through the National REDD+ Framework (URT 2009a) and REDD+ Strategy (URT 2013) is proposing a centralized management body (National Trust Fund) for making REDD+ payments to local forest managers. The main advantage of this system is that it can simplify monitoring and transaction costs of REDD+ and at the same time make it easier for government to reinforce national oversight and planning. However, based on previous experience from other sectors like mining and wildlife, this system is prone to a lack of transparency and accountability and might even not reflect the full value of the avoided emission.

Four distribution frameworks have been proposed: two national, a project and a nested approach. In one national approach, international markets and exchanges would link a national fund directly to local communities, or, alternatively, to district governments, who would then dispense funds to villages. At the national level, a framework for a National Carbon Trust Fund (NCTF) has been drafted, however, until REDD+ is backed by a climate change treaty, the government is reluctant to proceed with more robust institutional and policy frameworks that enable a finance mechanism and draft the possible legal definition of carbon

14 On the basis of research carried out by Sokoine University of Agriculture and partners that indicates sustainable management across all 18 selected CBFM sites.

15 Note all REDD+ projects in Tanzania are under PFM regime (mostly CBFM).

property rights. Past experience with government-led initiatives that were intended to utilize benefit-sharing relationships with local communities (e.g. JFM,[16] hunting blocks and tourism), failed to deliver and have led some to question the efficacy of a strictly national fund approach.

A nested approach is proposed and advocated by CSOs. In this, a national payment and carbon monitoring system would coexist with projects implemented by intermediate organizations, thus facilitating direct linkages between carbon markets and forest communities (TFWG 2010). A strictly project-based approach is largely considered unfeasible due to high implementation and transaction costs (Campese 2012). However, those costs could be reduced if the national government assumed technical responsibilities for MRV and baselines.

3.2.1 Implications for REDD+

It was hoped that REDD+ would provide a mechanism to deliver benefits to community forest managers that are currently receiving only marginal economic gains from their forest management practices. However, REDD+, like PFM, has not succeeded thus far (Sills et al. 2014). Instead the local economic and development value of forests in Tanzania remains untapped. Communities lack economic incentives to conserve their forest lands or expand the area under sustainable management and conservation.

While decentralization through PFM brings experience that can facilitate REDD+, it leaves certain elements outstanding. For example, Tanzania will need to identify effective strategies for financing payments for ecosystem services (PES) (and the associated conservation costs) that are distinct from the PFM financial flow. PFM finance is sourced from donors and unlike REDD+ payments, it is not dependent on performance. How communities managing forests on 'village land' will be adequately compensated for their contribution to a national carbon sink remains unclear. Some proponents (e.g. Mpingo Conservation and Development Initiative in Kilwa) are re-packaging REDD+ with additional in-kind co-benefits (agriculture intensified, local governance strengthened) and combining REDD+ with other schemes, including Forest Stewardship Council (FSC), to increase its potential from the communities' point of view (linking conservation costs with PES) (Sills et al. 2014).

Additionally, for REDD+ to succeed, stakeholders (including Tanzania Forest Services (TFS) and communities) will require more training in the management and monitoring of forests in order to reverse the degradation and improve carbon sequestration and track this process (Burgess et al. 2010). However, managing and monitoring forests and their carbon is not only dependent on technical knowledge and funding. The experiences from Tanzania show that, despite a conducive legal framework and official support, there seem to be administrative and financial discretionary powers forged against sustainable forest management that constitute a constraint on implementation (Milledge et al. 2005; Mustalahti and Lund 2009; Treue et al. 2014).

REDD+ poses other risks to local people, for example REDD+ and the various standards and international agreements related to REDD+ will require a form of professionalization and technicality. Such practices authorize and privilege professional, scientific, expert knowledge and technical practices over local and indigenous forms of knowledge and management. The processes of scientification and bureaucratization create a 'techno-bureaucratic doxa' that makes the locally democratic control of natural resources by citizens increasingly difficult (Ojha 2006). Such a shift could potentially undermine local managers and PFM, such risks will need to be equitably managed.

The Government of Tanzania, through the National REDD+ Framework (URT 2009a) and REDD+ Strategy (URT 2013) is proposing a centralized management body (National Trust Fund) for making REDD+ payments to local forest managers. The main advantage of this system is that it can simplify monitoring and

16 JFM is a form of PFM whereby communities adjacent a government owned reserve enter into joint management and revenue sharing relationships with a local government. PFM, by contrast, takes place on village lands. Tanzania has a robust policy framework supportive of PFM; however, practical experience shows that revenues generated from the sale of logging permits by the FBD to outsiders do not materialize at the village level despite their efforts to conserve forests. Only one REDD+ pilot project obtained FCS certification using PFM guidelines to obtain genuine livelihood benefits.

transaction costs of REDD+ and at the same time make it easier for government to reinforce national oversight and planning. However, based on previous experience from other sectors like mining and wildlife, this system is prone to a lack of transparency and accountability and potentially does not reflect the full value of the avoided emission.

REDD+ may pose a threat to the decentralization process (Phelps et al. 2010). For example, the long-term external funding for REDD+ could relieve the financial burden of the forestry sector, the very motivation for decentralization. Additionally REDD+ comes with technical demands (MRV, for example), which would potentially be prohibitively demanding for small-scale initiatives, making centralized management necessary. In order to avoid such power shifts (from decentralized to centralized), mechanisms should be clearly enforced to provide greater transparency and downward accountability from central and district authorities to village representatives. For example if financial and technical support is to be provided to national, regional and local institutions involved in administering benefit sharing, transparency will be critical.

3.3 Rights to carbon, land and trees

Perhaps one of the key concerns for REDD+ is related to the issue of land and carbon tenure, power and displacement. REDD+ represents a potential new stream of income linked to the ownership of forested lands and carbon. By conferring new values on forests and particularly forest carbon, REDD+ could create greater incentives for governments and commercial interests to lay claims to such land and deny the rights of forest dwellers. The issue is particularly salient given that indigenous and forest-dependent communities commonly do not have secure legal tenure of the lands they occupy in Tanzania, making them vulnerable to such scenarios.

In Tanzania, the current land, forest and carbon tenure arrangements are prominent issues for REDD+. It is likely that only communities with secure, recognized tenure over the land, forests and carbon will realize benefits. At the same time, communities and individuals who directly rely upon forest land to which access is restricted for REDD+ will bear costs, regardless of their tenure status. In other words – in the absence of secure, pro-community land, forest and carbon tenure, REDD+ is unlikely to benefit, and more likely to burden, local forest communities.

Many rural Tanzanians do not possess legal tenure to the land, they live instead on unregistered land which they have managed for generations. In Tanzania, the legal titling of village lands was underway prior to REDD+ but progress was slow due to the high costs of land surveying, and most villages had not yet been registered. Early drafts of the National REDD+ Strategy explicitly referred to unregistered land as 'general land' and suggested that nearly 50% of forest land was in this category. This was a point of concern raised several times in comments by CSOs piloting REDD+. The National REDD+ Trust Fund (NRTF) corrected this and the final REDD+ Strategy estimates that "70 percent of Tanzania's land area is village land, 28 percent is Reserve Land and 2 percent is general land" (URT 2013). The national REDD+ strategy does not, however, explicitly recognize that villages have rights to use and manage forest land when it is unregistered.

Although the NRTF (URT 2013) recognizes the important role of communities and people in the forest, the current Tanzania National REDD+ Strategy and Action Plans do not explicitly tie carbon ownership to land or forest tenure, "leaving communities and other forest owners vulnerable to losing out on rightful benefits, or possibly even compromising their current legal right to use and manage recognized forest land" (Tanzania Forest Conservation Group and MJUMITA 2012). The rights to carbon are not necessarily tied to forest ownership and land tenure. Existing forest and tenure rules are expected to define the right to carbon and assumed to serve as the basis for allocating payments for carbon emissions (Cotula and Mayers 2009). The Forest Act (69(1)) says only that "all biological resources and their intangible products, whether naturally occurring or naturalised within forests including genetic resources belongs to the government".

REDD+ advocates concentrate on securing land rights and advancing PFM (Veit et al. 2009), believing REDD+ benefits should be distributed to those who legally claim, or have, rights whether statutory or customary. Most of the REDD+

projects in Tanzania are under the PFM with established village land forest reserve with the exception of a privately owned traditional forest (Ngitili) in Kahama Districts. These VLFRs are owned and managed by the villages, thus carbon rights belong to the villages who own and manage the forest and trial payments in pilot projects have operated within this framework.

3.3.1 Indigenous rights in the international and national context

The REDD+ National Strategy (URT 2013) has no specific section related to the involvement of indigenous peoples. The strategy omits the term 'indigenous peoples', instead recognizing the important role of communities and people in the forest. The document pronounces forest communities and forest-based people are central to controlling degradation over large areas and should therefore be involved in forest management and benefit from improved management.

Although Tanzania is a signatory of the United Nations Declaration on the Rights of Indigenous Peoples (adopted by the General Assembly on 13 September 2007), the issue of indigeneity is not formally (legally or politically) articulated. Tanzanians are all regarded as tribal people, therefore there is no definition of who is indigenous. Legal recognition at the national level for indigenous rights does not exist and the same land laws and rights apply to all citizens. As a consequence, policies, strategies and management interventions that do not acknowledge or reflect the interests of the indigenous peoples (e.g. the access to land and natural resources, basic social services and justice) are constantly being developed, resulting in a deteriorating and increasingly hostile political environment for both pastoralists and hunter-gatherers. (International Work Group for Indigenous Affairs, 2014).

The national stance of indigenous peoples is contradicted by the International Work Group for Indigenous Affairs (IWGIA, 2014), among others, which has identified more than 120 ethnic groups (mainly under categories of Bantu, Cushite, Nilo-Hamite and San) living in Tanzania. However, only four groups (Akie, Hadzabe, Barabaig, Maasai) have organized themselves and their struggles around the concept and movement of indigenous peoples.

3.3.2 National tenure context

From the REDD+ point of view there are several challenges in national land tenure system of Tanzania. For example, the national REDD+ strategy identifies almost half of forested land as general, unprotected land (URT 2009a), while the Ministry of Lands state that only 2% of all land in Tanzania is general land (URT 2009c as cited in Blomley et al. 2011). Further, recognition of village land is unclear: a substantial amount of village land has not been registered and many villagers do not hold certificates. The situation is compounded by the fact that the recommended process for achieving land title and certification is prohibitively expensive and complex for many rural Tanzanians. Potentially, customary tenure arrangements on village land should be as valid as registered land, however, this is not the case. Land-use planning processes at the district level are cumbersome and do not serve to facilitate the registration of village land.

The Village Land Act authorizes the government (in general) and President (for public interest) to transfer village land to general land or reserved land. Such transfers enable a shift of control of land from village government to the government, reducing the amount of village land and limiting villagers' participation in and ability to benefit from REDD+ projects. To protect village land and villagers opportunities to participate in REDD+ projects, the right to transfer village land to general land or reserved land should be limited. (Veit et al. 2009). In some cases a person can apply to the local authority or village government for land to use, for example, for agriculture or biofuel production, in which case open areas or village land with forests and woodlands can be made available

Politically, forest laws tend to be weak when it comes to major political and developmental issues, (e.g. road development and mining) and there are cases in which forest laws have been overruled in the interest of 'development'. Further, the tenure of tree and forest land are advocated in the National Forest Policy (URT 1998). The policy realizes that environmental protection can only achieved if there is, among other things, tenure security. Tanzania approaches rights to the trees and carbon therein as intertwined with rights to the land on which trees stand (Kajembe 1994) but clarification

on this is needed for REDD+ progress. Forest tenure has a pivotal role to play in determining the fate of REDD+ in Tanzania. How and to what extent these tenure challenges are addressed will be critically important in ensuring that REDD+ is well governed and opportunities for corruption, fraud and theft are identified and addressed.

3.3.3 Implications for REDD+

Villagers face technical, bureaucratic and financial barriers to registering their land and forests; the cost of surveying land for titling purposes is prohibitive, even at an aggregate village level (Barnes and Quail 2011). REDD+ pilot projects have tried to deal with tenure and boundary conflicts at the community level. Some have sought to obtain village title, effectively absorbing the cost and responsibility of what previously fell under the purview of the government. However, even where there are sufficient resources for registering land and forests, the boundaries may be unclear and contested. Most REDD+ pilot projects elected to work on boundary conflict resolution as a minimum, yet in some cases report that clarifying forest boundaries for the purpose of registering forests and establishing reserves has been a major obstacle (personal observation, 2010). Further, the effort to clarify boundaries can itself exacerbate latent boundary disputes, particularly in light of the promise of REDD+ benefits. Even in the case of registered village land, weak or unjust governance and lack of information may make the village, either as a whole or vulnerable residents, susceptible to land disputes.

Carbon tenure – ownership of carbon stored in trees and other vegetation – is a new concept, emerging with REDD+. REDD+ discourse implicitly assumes that those who 'own' the trees in which that carbon is stored will be the beneficiaries. However, particularly as a new and untested arena, this important point should not be left as an assumption. Rather, national REDD+ policy must make explicit where carbon tenure lies. As REDD+ advances in Tanzania, interpretations of different actors regarding which tenure and carbon rights should be linked are likely to vary and closer examination of carbon rights at the national level is needed. Tanzanian land and forest laws include caveats which could be used by elite captures to exclude communities from significant carbon benefits. So far, Tanzania does not have separate national legislation defining carbon tenure.

In Tanzania with the implementation of the national REDD+ strategy, communities would most probably be required to obtain a license to report the carbon offsets within the national scheme. How this would influence who grants the carbon rights is unclear, but there is the need to secure local communities' land, forest and tree tenure rights, which they legally hold, for REDD+ benefit-sharing mechanisms to work equitably.

4 The political economy of deforestation and degradation

The dynamics of deforestation and degradation do not occur in isolation, rather they are embedded in the political, social and economic context and are influenced by factors occurring at multiple scales (from local to global). This section describes some of the past and present policies that have been in place at the national level, and considers their effect on deforestation and degradation in Tanzania.

4.1 Impacts of past policies on forest cover

In 1961, Tanzania obtained independence and the state inherited the colonial system, in which deforestation was prohibited and local communities did not hold forest tenure (Zahabu et al. 2009). The state developed a number of strategies to tackle the widespread poverty and to increase national ownership of its land. This period (i.e. in the early 1970s) was characterized by economic socialism. Socialism was the main mode of socioeconomic development with a centrally planned, public sector led, economy and a focus on self-reliance and villagilization. The result was macro-economic instability, low economic growth, high inflation rates, a foreign exchange crisis and a restrictive investment climate. Though ownership of the land (*de jure*) was held by the state on behalf of the public, during this period resource use decisions concerning land and forest were made largely at the community level (*de facto*). For example, the *ujamaa*[17] policy and village policy distributed land to communities over the entire country but without systematic land-use planning or guidance. As a result and combined with the villagization[18] most parts of Tanzania were occupied by communities directly dependent on natural resources for subsistence, building materials and incomes.

Internal and external shocks on the world market throughout the 1970s[19] saw Tanzania enter economic crisis in the early 1980s. In response, Tanzania developed self-guided adjustment efforts, but in 1986 adopted the SAP under the guidance of World Bank and the International Monetary Fund. This was the beginning of a considerable transition from a planned economy with a single-party political system to a free market economy with a multiparty democracy, albeit still dominated by the same ruling party. The economic reforms related to the SAP led to the privatization of state-owned enterprises, commoditization of land and an increase in foreign direct investment in natural and non-natural resources, while simultaneously cutting subsidies to farmers and increasing user fees for social services. Cuts in fertilizer subsidies encouraged the expansion of agricultural land into fertile areas, often forest reserve areas (Misana 1999). In general, SAPs led to increased deforestation as people were poor, and dependent on forest subsistence and income and forest land for farming.

17 Style of socialism, embedded in traditions found in Tanzania family, village and societal structure. A Kiswahili word for family hood and relationship and became a synonym for Tanzania's socio-economic system after 1967.

18 Villagization which was a way of organizing people into small group called village was associated with land reform and land with forest were either belonging to the state or the village and some forest were now owned communally.

19 Unfavorable external conditions wiped out the previous economic achievements and led to the crisis period of 1980–5. Even the coffee boom Tanzania experienced between 1975 and 1977, when coffee prices tripled because of frost in Brazil, could not compensate for the negative consequences of the two oil price shocks in 1973/74 and 1979, the breakup of the East African Community in 1977, and the war with Uganda that began in 1978.

Additionally, SAPs encouraged investment in infrastructure for tourism but without a parallel package for environmental safety (e.g. in the form of financing and policy legislation enactment). For example, SAPs in Tanzania increased the allocation of protected areas for lodge development and hotel construction on fragile beach areas (Mchallo 1994). A number of projects were executed without EIA, environmental monitoring and relevant mitigation measures and at times expert opinions were overruled. This trend, and the resultant unsustainable practices that followed, continued until the early 2000s. It was at this time that new strategies and policy started to be formulated to address Tanzania's long-term development vision and environment issues.

To improve the economic situation, Tanzania launched a series of economic reforms during the 1990s which led to the liberalization of agricultural markets, lifting of foreign exchange controls, saw prices deregulated and enhanced private sector involvement in the economy through a privatization program and a new investment code which offered competitive incentives. Comprehensive economic reforms have resulted in improved competitiveness, lower tariffs, increasing levels of foreign investment and trade, improved key economic indicators and rapid integration into world markets. Some incentives have had deleterious forest impacts. For example, the elimination of official prices and the introduction of market-based prices in 2002 increased the price of timber by 40–60% (UNEP 2002) and triggered an increased interest in logging.

Other liberalization measures included, the abolition of export tax and its licensing system and the elimination of the registration requirements for forest resource exporting companies. These measures have increased the international competitiveness of Tanzania and therefore production, harvesting, distribution and marketing of forest products. Hence, these measures have also resulted in increased rates of deforestation and forest degradation throughout the country.

The Government of Tanzania is currently attempting to upgrade its institutions to meet international standards. The expectation is to further enhance the country's competitive position for investment flows and meet the challenges of improving economy through foreign investment and trade (i.e. the challenges of globalization) (Ngowi 2005). Chinese and other foreign investors, more generally, have significant power in the forestry sector. They have sufficient financial capacity to cover costs related to logging, transport and export licenses, as well as other costs such as the demand for informal tributes (i.e. bribes).

Logging levels are also perpetuated by the fact that central government and their political leaders are either unable to stop, or not interested in stopping, illegal logging (as argued by nongovernmental organizations (NGOs), local newspapers, and sawmill operators). Illegal logging is driven mostly by demand for logs in export markets. Centrally placed forest officers (who control the issuing of licenses for valuable timber) have been associated with activities such as surpassing logging license quotas, accepting tributes and allowing export during export bans (Mustalahti and Lund 2009). The vast forest areas in the coastal regions south of Dar es Salaam that are targeted by a massive, partly illegal rush for timber for export (Milledge et al. 2007) were, for instance, not included in the areas targeted by the national PFM program. The current REDD+ strategy will face the same challenges in relation to controlling illegal logging

Despite the turbulence in world and regional markets, over the last decade the economy of Tanzania has experienced steady growth. In 2012 and 2013, the economy expanded by 7% and it is projected to continue at the same rate through 2015 (African Development Bank Group 2014). Five sectors drive 60% of the growth in GDP (since 2008) and include: telecommunication, transport and financial intermediation, agriculture, manufacturing,construction and trade.

The potential for such economic growth to be linked to unsustainable resource use and environmental degradation is high. The extraction of natural resources and increased number of natural resource dependent industries, combined with increased demand for agricultural land, present notable risks of deforestation and degradation. Such a context demonstrates well the need for REDD+, or an alternative, that will serve to counter these drivers, provide alternative incentives and maintain forest carbon stocks to mitigate global environmental change. The future development aspirations of Tanzania could present a challenge to REDD+, for example plans

in the Vision 2025 document depend largely on natural resources sector, so far characterized by unsustainable resource use.

4.1.1 Agriculture and deforestation

In Tanzania, more than 85% of the population relies on agriculture for subsistence and the sector is one of the main drivers of deforestation and degradation. The agricultural and livestock policy of 1997 took a cross-sectoral approach to the environment and climate change and advocated mainstreaming climate change in all sectors. The policy acknowledged the need for integration with other sectors such as land, forest, water and environment. Since June 2009, the Ministry of Agriculture has been focusing more specifically on addressing the impact of climate change on agriculture (Excellensia Consulting 2010). In particular, efforts have been made to redesign long standing practices to enhance their adaptive capacity to respond to climate change. For example, the Ministry of Agriculture has created an environmental management unit to deal with environmental issues related to the sector.

In the past, Tanzania has given agriculture precedence as the backbone of its economy and engaged with a suite of policy instruments and programs to improve country's agriculture. The Vision 2025 began operation over 10 years ago and includes a heavy focus on agricultural transformation, as do the Agricultural Sector Development Programme, MKUKUTA (URT 2010c) and MKURABITA. Additionally, Tanzania has adopted a green revolution program called '*Kilimo Kwanza*', which aims to boost agriculture for poverty reduction through subsides and incentive for people to invest in agriculture.

Kilimo Kwanza aims to transform the agricultural sectors in order to alleviate poverty and to achieve self-sufficiency in food production, with surplus for export. Such endeavors will require political will and funds and for the currently fragmented land-use management to be streamlined. This will necessitate overhauling the legal and institutional framework for land delivery and management (TNBC n.d.). For example, the Land Act No. 4 (of 1999) would need amending to facilitate proper coordination with any agricultural development. Such amendments may include, for example, identifying and demarcating land-use types (particularly agriculture and grazing lands) and determining the protection measures and management arrangements for every given category of land, in the same manner that national parks are demarcated, protected and managed.

CAADP commits African nations to raise agricultural productivity by 6% annually and to allocate 10% of national budgets to the agricultural sector. The initiative has been adopted by Tanzania and adds to the commitment of the country with regard to agricultural production. Well-funded donor initiatives such as the AGRA, USAID's Feed the Future, and emerging microfinance companies such as One Acre Fund, Opportunity and Pride, that use mobile-based money transfers to allow farmer groups to access credit services to purchase inputs, seems to confirm this.

REDD+ pilot projects are implementing some measures to increase agricultural intensification; for example, via improving productivity, reducing shifting cultivation and improving livelihoods and income. Nevertheless, the likelihood of emission reductions under REDD+ is low due to the high population growth rate, and increasing demand for food and farmland, which will lead to greater land conflict (NORAD 2014b). Unless REDD+ is strengthened, continuing investments in large-scale commercial and smallholder agriculture will likely accelerate the conversion of forest to agricultural land uses. Thus more effort is however needed to link with relevant initiatives such as the *Kilimo Kwanza* national program and PFM.

Tanzania's overall policy objective is to achieve sound sustainable development by reconciling economic growth and conservation of resources while spearheading social development. While a number of policies already in place favor REDD+, as documented in previous chapters, there is a prevailing trend of deforestation and degradation in Tanzania that is backed by a powerful elite. This deforestation trend can be linked to the inability to effectively implement existing public policies, lack of compliance with existing environmental and sustainability standards, inconsistent institutional frameworks for managing natural resources, poor law enforcement, as well as inadequate governance structures, compounded by strong interest facilitating collusive behavior, corruption, and entrenched bureaucratic interests and practices. This reality also results in communities, traders and

the government losing potential revenues because actors are engaged with wasteful harvesting and processing, routine non-collection of royalties and undervaluation of forest products (Milledge et al. 2007).

Another challenge to the sustainable management of forests is the deficit in available funds for forest management. The government budget on forestry has consistently been about 1% of the total national budget (MNRT 2010). While more than some other African countries (e.g. Democratic Republic of Congo (0.4%), Niger (less than 1%) and Ethiopia (less than 1%) (Fowler et al. 2011)), the Tanzanian budget is not satisfactory and the sector is threatened by a lack of secure financing. In Tanzania, the donor contribution to forestry projects and related activities has been over 70% of the total sectoral funding (MNRT 2010). Without an increase in funds and the guarantee of their long-term availability, adequate management of forest resources is likely to remain unobtainable. Projects are handed over to the central or local government, both of which have low operational budgets and limited capacity.

In the past investors have concentrated on industry, but today they prefer agriculture, biofuel and forest/timber opportunities. Such economic interests are powerful and have political strength, problematizing progress in conservation orientated initiatives (Kweka 2012). The nexus of investors and a poor governance context hinders sustainable forest management. Unfavorable governance conditions in Tanzania have, for example, contributed to the lack of enforcement of policies and practices of corruption and are not likely to be solved in the near future. Local governments may issue licenses to increase revenue rather than pursue sustainable extraction and use (Harris et al. 2011). There is low government capacity to monitor forest resource use and extraction, to check licenses and permits, to remove the possibility of bypassing collection points, or to stop illegal activities being wavered at checkpoints.

In addition, urban-biased policies have increased in urban areas and rapid rates of urbanization are observed in Tanzania. Population pressure will continue to feed urban centers where more land is cleared and the demand for energy, in form of charcoal, puts pressure on surrounding forests.

5 The REDD+ policy environment: Actors, policy events, policy process

5.1 Broader climate change policy context

The key environmental policy in Tanzania is the National Environment Management Act No. 19 of 1983. This was the first policy to recommend an integrated national policy framework and legislation for sustainable maintenance, protection and exploitation of the environment and natural resources. The National Environment Management Council (NEMC) was created following this Act and in response to the national need for such an institution to oversee environmental management issues. The NEMC also is charged with implementing the resolutions of the Stockholm Conference (1972) to establish and strengthen national environmental councils to advise governments and the international community on environmental issues.

The National Environmental Policy of 1997 defines the environmental policy framework relevant to natural resource management. The policy empowers communities to participate in activities to avoid the degradation of natural resources (including, land, water, vegetation and air). The Institutional and Legal Framework for Environmental Management (2003) further clarifies the roles and responsibilities of districts, wards and villages in the management and conservation of natural resources and the environment. An overarching Environmental Management Act was promulgated by Parliament in November 2004 (URT 2004) and supports the National Environmental Policy. The implementation of activities related to combating environmental degradation and poverty are supported through the National Environmental Trust Fund.

Tanzania's constitution requires the state to hold and protect certain natural resources, including land, water, wetlands, minerals, oils, fauna and flora, in trust for the people. Until recently, however, the country's policy framework (and legislation) was largely sectoral, with each line ministry developing policy without consultation with other sectors. Growing challenges in the environment and development nexus have necessitated a well-coordinated policy framework, culminating in a number of reforms in the last decade. Tanzania has not yet created a separate policy for climate change but has developed the National REDD+ Framework (URT 2009c) and National REDD+ Strategy (URT 2013). The land policy reform progress has included the enactment of the Land Act No. 4 and the Village Land Act (both in 1999) facilitating an enabling environment for adopting sustainable land-management practices. The National Land Policy (NLP) promotes an equitable distribution of, and access to, land by all citizens. The NLP promotes and ensures access to land, encourages the optimal use of land resources, facilitates broad-based social and economic development, and aims to do so without jeopardizing the ecological balance of the environment. The NLP ensures that existing rights to land, especially customary rights of small holders (i.e. peasants and herdsmen including beekeepers and women) are recognized, clarified and secured in law. This also comprises an important starting point for PFM initiatives and REDD+ pilot projects as explained above.

Desertification and drought pose significant environmental challenges to Tanzania and its people, particularly since agriculture is rainfed. In 1997, a National Action Plan (NAP) to combat these and to address land degradation was finalized. An additional objective of the NAP

is to promote sustainable development in order to mitigate the effects of drought. The NAP has three broad priority areas[20]; the creation of an enabling environment, the development of sectoral and lastly cross-sectoral programs. Due to the vastness of priority areas, recording the tangible achievements presents a challenge.

There are several national strategic policy and legal frameworks into which the NAP is being integrated to facilitate its effective implementation. The most important of these include the National Environmental Management Act (2004), Poverty Reduction Strategy Paper (PRSP) (2000), the phase II National Strategy for Economic Growth and Reduction of Poverty (2010), the Tanzania Development Vision 2025 (2001), the draft Rural Development Strategy (2001) and the Agricultural Sector Development Strategy (URT 2010c). There are also sector specific policies, strategies and laws, especially those in water resources management, rangeland management, energy resources, forestry, local government and mining, which are relevant to issues of land degradation and poverty reduction. Further research and analyses are needed to understand how these initiatives compliment or challenge REDD+.

Other relevant climate adaptive strategies and action plans include the Rural Development Strategy (2001), the Agriculture Sector Development Strategy (2001), and Local Government Reform Strategy (to implement the 1999 Local Government Act – which re-created the concept of decentralization by devolution). Importantly the government has recently adopted the second National Strategy for Growth and Reduction of Poverty (NSGRP; MKUKUTA in Kiswahili), which is an organizing framework and focuses on poverty reduction. The NSGRP/MKUKUTA strives to widen the space for economic ownership and effective participation of civil society, private sector development. It encourages local and external partnerships in development and commitment to regional and other international initiatives for social and economic development (NSGRP 2010). Despite these goals, a challenge to NSGRP/MKUKUTA's viability is that it may reflect donor priorities more than national priorities and political policies and has been a largely donor-led initiative (see also section 4.1).

Climate change initiatives in Tanzania are generally driven by the bilateral and mutltilateral development patners, in collaboration with the government. The bilateral or multilateral partners are broadly interested in building capacity (including training and research) of the government and other insitutions to better address and mainstream climate change into various relevant sectors. Their emphasis has been on supporting sectors such as water, environment, energy, agriculture and natural resources management as the areas and corresponding national policies that are directly related to climate change. However, the country has not yet made a proper account of the impact of climate change on ecosystem services and how this might affect the Government of Tanzania's poverty reduction and economic development goals.

In response to the requirements of the UNFCCC, Tanzania prepared its National Adaptation Programme of Action (NAPA) in 2007. This addresses the short-term adaptation needs of Tanzania. The counterpart will be the nationally appropriate mitigation action, which is not yet finalized. NAPA describes the main problems confronting climate change adaptation, a set of key priority areas (focusing largely on water and agriculture) for intervention and selected project briefs.

NAPA's financial support comes from the UNFCCC, though currently only limited funding for the NAPA plan has been achieved, possibly due to the perception that the NAPA is weak since it is not performance based. In 2011, the VPO started to prepare a National Climate Change Strategy and Action Plan (NCCSAP), which will serve to operationalize the NAPA and be used as an important tool for mainstreaming climate issues more thoroughly in the poverty reduction strategy (MKUKUTA). However, as clearly stated in the

20 NAP's enabling environment addresses: policy, legal and institutional frameworks, land use and tenure, information and enhancement of knowledge, public awareness, local level community initiatives, financial mechanisms and capacity building. NAP has seven sectoral program areas of intervention: energy, vegetation cover and wildlife, forest conservation, the conservation of biodiversity, agriculture and pastoralism, soil management and water resources management. The four cross-sectoral program areas are: mainstreaming gender, science and technology, poverty and environment, and early warning systems (National Environment Secretariat 2002).

NAPA, it does not cover, and was not intended to address, issues related to monitoring or forecasting of climate change and its impacts, research, capacity development, information exchange, awareness-raising or mainstreaming (see section 3.1.3 for the current state of MRV in Tanzania).

As a Party to the UNFCCC and the related objectives including the stabilization of atmospheric greenhouse gases, Tanzania has been working on implementation of CDM and adaptation related projects. Currently, Tanzania has a negligible number of CDM projects, compared to neighboring countries. Since 2005, there have been at least 14 applications, only one of which has been successful (land-fill gas recovery project), while the others are at various stages. Out of the 14 projects, five are in the biomass sector, three in the land use, land-use change and forest sector, while renewable energy and fuel switching has two projects each and the energy efficiency and waste management sector has one project each. It is clear that the CDM is a complex, global instrument to reward climate-friendly initiatives/industries.

The biggest challenge almost all the CDM projects have faced in Tanzania is the high upfront cost needed and the slow generation of credits in most of the CDM projects. In addition, there has been disagreement among stakeholders on modality and set up of CDM projects in Tanzania, and a lack of capacity and understanding of markets and carbon accounting. A shortfall in official understanding of complex CDM requirements has also hindered official support, which can be critical in getting CDM projects approved, such complexities are also characteristic of REDD+. Other difficulties include the challenge of demonstrating project additionality, complex methodologies and data requirements, and the lack of laws and regulations governing critical areas such as land tenure and carbon rights. There is also an institutional barrier related to restricted communication between different players such as project developers, international negotiators, local governments and communities.

While Tanzania has many positive and ambitious policies and laws, it also suffers a widespread implementation gap at both national and district levels and the experience of this has important lessons for REDD+. Historically, many districts have possessed very limited financial resources, and low capacity for planning and implementation (soft as well as technical skills). Few districts have received external support, training and operational funding. Local government authorities have been given greater responsibility and authority, including the development of District Agricultural Development Strategies and Plans and their implementation. However, achieving land management objectives will require building up this capacity for effective mobilization of coommunities and private sector as well as utilization of public sector disbursement.

5.2 REDD+ policy actors, events and policy processes

5.2.1 REDD+ policy processes

Amid a context of forest treaties, conventions and commitments is REDD+. National REDD+ 'readiness' efforts, and the related policy process, started in Tanzania in 2008, following the Bali COP that put REDD+ on the international agenda in 2007. The Department of Environment (DoE) under the Vice President's Office (VPO) oversees all climate change issues, while the MNRT leads MRV components including the National Forestry Inventory (NAFORMA), which completed the largest forest inventory in a developing country in 2014 (FAO 2010; NAFORMA 2014). The DoE formed a National Climate Change Steering Committee (to report on deforestation and degradation indicators) and formulated a climate change focal point in each ministry to oversee sectoral coordination.

A Letter of Intent between Norway and Tanzania and its signing in 2008 culminated in defining quick-start activities (readiness phase) to set the stage for REDD+. These included sub-national pilot projects to showcase activities, in-depth baseline studies on various subjects to inform REDD+ implementers (www.reddtz.org) and the proposal to develop a National REDD+ Strategy (Rantala 2012). At the national level, in 2009, a number of government and NGO REDD+ stakeholders jointly developed two key policy documents for REDD+. The first was an outline for the national framework (URT 2009a) for REDD+, the second was the establishment of the National REDD+ Task Force at the Kibaha Conference (Table 6). In addition, Tanzania

Table 6. Policy events in the national REDD+ policy domain.

Code	Date: month/year	Policy event name (or short description)	Main policy decision/policy proposal related to the event
1	March 2008	Letter of Intent with Norwegian government regarding REDD+	Signing of letter of intent on REDD+ between Tanzania and Norway. Quick-start initiative defined, pilot projects, in-depth studies, national REDD+ strategy development
2	January 2009	Kibaha Conference	Stakeholders' workshop for the development of the National Framework for REDD+. National REDD+ Task Force appointed
3	June 2010	NAFORMA establishment at FBD	National Forest Resources Assessment started with support of Finland
4	November 2010	R-PP by the DoE VPO	Development of the Readiness Preparation Proposal, submitted in October 2010 and approved in November 2010
5	January 2011	Draft REDD+ Strategy by the REDD+ Task Force	Draft national REDD+ strategy made public in January 2011: comments solicited. Kibaha II conference
6	June 2012	2nd Draft REDD+ Strategy and Action Plan	
7	March 2013	National REDD+ Strategy and Action Plan	Strategy and Plan endorsed
8	March 2013/August 2014	National Carbon Monitoring Center	Initiation of the process to establish the center. Signing of the Memorandum of Understanding between the Vice President's Office and Sokoine University
9	End of 2014	NAFORMA	National Forest Inventory coming to an end

submitted the REDD+ Proposal Idea Note (R-PIN) to the World Bank's Forest Carbon Partnership Facility (FCPF)[21]. The National Framework for REDD+ was officially published in August 2009 to pave the way for the development of the REDD+ Strategy (Figure 5). That same year the Royal Norwegian Embassy (RNE) contracted the Institute of Resources Assessment (IRA) to facilitate the development of a National REDD+ Strategy.

Most REDD+ pilot projects began in 2009 and were mainly implemented by NGOs. In February 2010, the Norwegian government gave funds to the University of Dar es Salaam and Sokoine University for capacity building activities through the Climate Change Impacts, Adaptation and Mitigation program (CCIAM). In May 2010, the National Forest Resources Monitoring and Assessment (NAFORMA) was established through the support of the Finnish government. The establishment of NAFORMA was not regarded as a policy event per se but was treated as highly relevant because it was expected to generate much-needed baseline data for the national MRV processes and national REDD+.

The NAFORMA project (2010–14), received financing from Finland (via FAO) of ~USD 6 million. In addition, the Government of Tanzania has assigned USD 2.2 million (not including salaries) for Tanzania Forest Service staff. In total approximately USD 33 million has been allocated for MRV and reference-level development in 2009–2014 (NORAD 2011). The funds are for strengthening the national governance framework and institutional capacities for REDD+, increasing its capacity for capturing REDD+ elements within

21 The Forest Carbon Partnership Facility (FCPF), a World Bank program, consists of a Readiness Fund and a Carbon Fund. The FCPF was created to assist developing countries to reduce emissions from deforestation and forest degradation, enhance and conserve forest carbon stocks, and sustainably manage forests (REDD+).

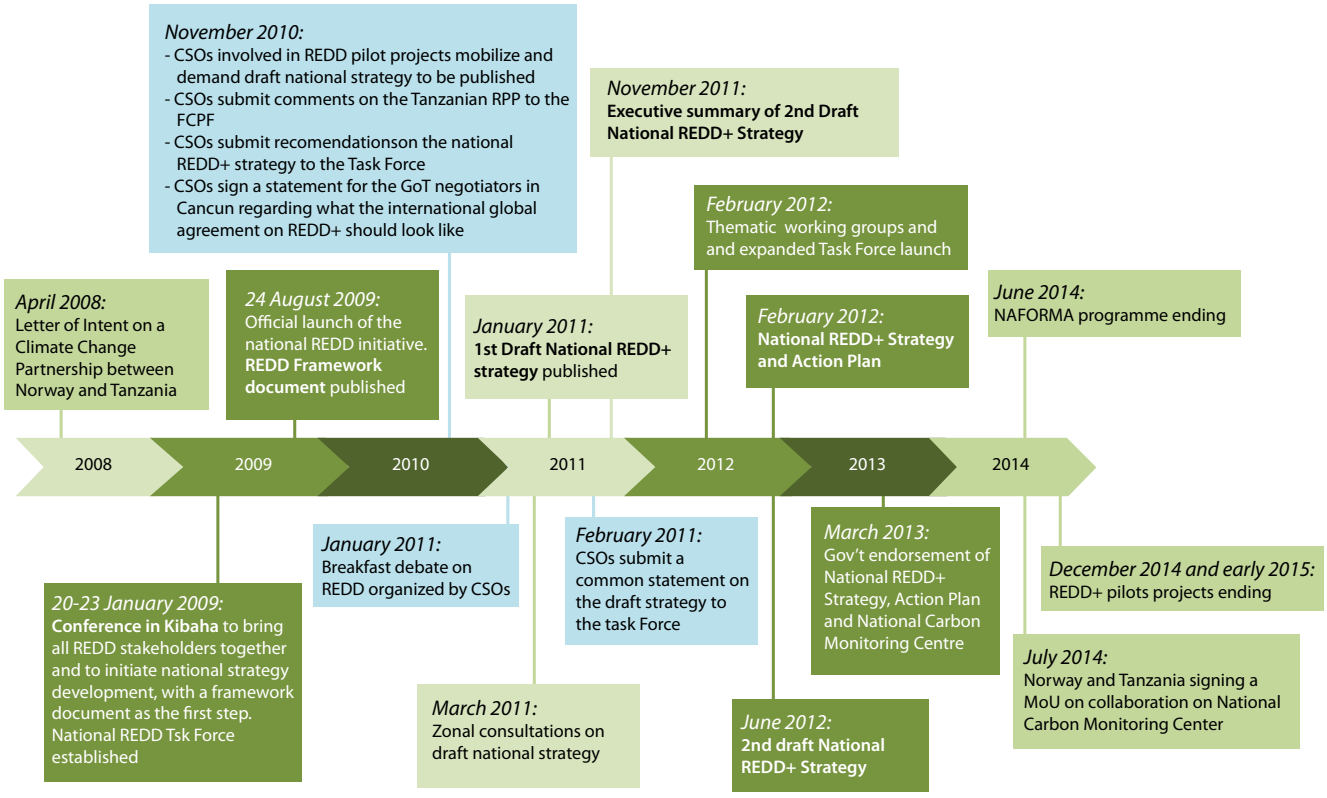

Figure 5. Timeline of REDD+ development process and protest events in Tanzania.
Source: Reproduced from Rantala, 2012, Appendix 1.

national MRV systems, improving its capacity to manage REDD+ and provide other forest ecosystem services at district and local levels, and fostering broad-based stakeholder support for REDD+ in the country. However, the future of NAFORMA is unclear. The continuation of the work (after the Finland and FAO project phases out) is estimated to require ~USD 500,000 per year (Chief Technical Advisor's calculation). There are no plans held by TFS or VPO to secure such funds.

The National REDD+ Task Force is an interim body formed by the government in January 2009 to oversee implementation of the technical and operational issues in relation to REDD+ readiness on behalf of the Government. It will later be replaced by a permanent structure such as the National Climate Change Technical Committee (NCCTC). Until the end of 2013, the REDD+ Task Force was facilitated by the IRA of the University of Dar es Salaam which provided secretarial and logistical services, the coordination responsibility is now with the VPO. The taskforce is charged with identifying the critical challenges and opportunities (at national and sub-national levels) related to developing a suitable REDD+ strategy for the country.

At its inception, the Task Force consisted of eight technical officers (drawn from the Division of Environment (DoE) and FBD, Zanzibar and local government) and has the provision to co-opt members from other organizations as needed (DoE, in FCPF, 2010). The Task Force has recently been broadened through the formation of five Working Groups: (1) Legal and Governance; (2) MRV; (3) Financial Mechanisms; (4) Energy Drivers; and (5) Agriculture Drivers. Each working group will have about six members drawn from key and relevant sectors depending on the issues to be addressed. The terms of reference (ToRs) for the Working Groups were formulated and adopted at the stakeholders meeting held at the Kibaha Conference Center (in February 2011).

The Task Force (and associated Working Groups) advises the NCCTC and the National Climate Change Steering Committee regarding REDD+ matters in Tanzania. However, the power sharing between the VPO and the Ministry of Natural Resources and Tourism (MNRT) has been problematic and remains unclear. The MNRT has been hosting the UN-REDD+ program but the same department has historical failures in managing projects, substantial constraints and challenges (e.g. financial, governance, political pressure) (Gapare and William 2013). The MNRT, however, went on to host national REDD+ components including the MRV, NAFORMA. The National Carbon Monitoring Centre (NCMC) is the overall body in charge of measuring reporting and verification in REDD+. The NCMC together with the national Carbon Accounting/Assessment System (NCAS) are operational.

In 2010, CSOs submitted comments on the Readiness Preparation Proposal (R-PP) to the FCPF and recommendations on the draft National REDD+ Strategy to the Task Force. The national policy development was largely underway with Norwegian support and Tanzania does not receive funding from the World Bank through the FCPF. Nevertheless, Tanzania wished to join the R-PP process for the opportunity to generate experience and knowledge exchange with other participating countries (Rantala 2012).

The draft National REDD+ Strategy (URT 2009d), made public in 2011, was considered one of the most important policy documents relevant to REDD+. The strategy is closely linked and integrated to national growth and development policies, strategies and commensurate legislation (e.g. Vision 2025; the National Agriculture and Livestock policy, among others). In 2012, at COP 18 in Doha, Tanzanian CSOs and the Designated National Authority (DNA) for climate change jointly demanded international commitment on REDD+ in the area of technology, finance and capacity building. In 2013, the draft of the National REDD+ Social and Environmental Safeguards was developed; stakeholders were asked to comment on it as a response to the unfolding REDD+ activities on the ground. REDD+ has benefited from being opened up to inputs from civil society organizations, government bodies and international NGO particularly in the areas of benefit sharing, safeguards, tenure and carbon tenure.

The highest apex governing body of REDD+ in Tanzania is the National Climate Change Steering Committee (NCCSC), while the National Climate Change Technical Group (NCCTG) addresses the more technical aspects within the Steering Committee. These two bodies oversee and guide the implementation of climate change activities in the country (Figure 6). The NCCSC is an inter-ministerial committee which comprises Permanent Secretaries from 13 ministries and reports to the Vice President's Office Department of Environment (VPO-DoE). They must report periodically on their deforestation and land degradation indicators. The NCCTG is made up of the directors from the various ministries and it handles all the technical issues of REDD+. The NCCTG is somewhat non-functional, leaving many of the technical aspects of a complex scheme like REDD+ needing attention. According to the national forest and REDD+ experts, both NCCSC and NCCTG have failed to meet regularly since the launch of REDD+ strategy in 2013. According to interviews with local forest experts, the initial momentum of REDD+ is flagging and the political focus is no longer on REDD+. Nevertheless, the Royal Embassy of Norway continues to fund REDD+-related activities such as the NCMC and developing a climate change and REDD+ financing mechanism.

The REDD+ policy and process in Tanzania involves many actors. They range from government actors, to NGO implementing pilot projects, to research institutions and a limited number of private sector actors institutions and a limited number of private sector actors (Appendix 1 lists all the actors involved in the REDD+ multi-stakeholder forum process in Tanzania). The goals and outcomes of the Tanzanian UN-REDD+ (also known as TNP) were initially intended to achieve quick-start measures and lay the foundation for future programs to ready Tanzania for REDD+. However, the introduction of the Norwegian-supported REDD+ programs, coupled with limited national coordination and inter-agency

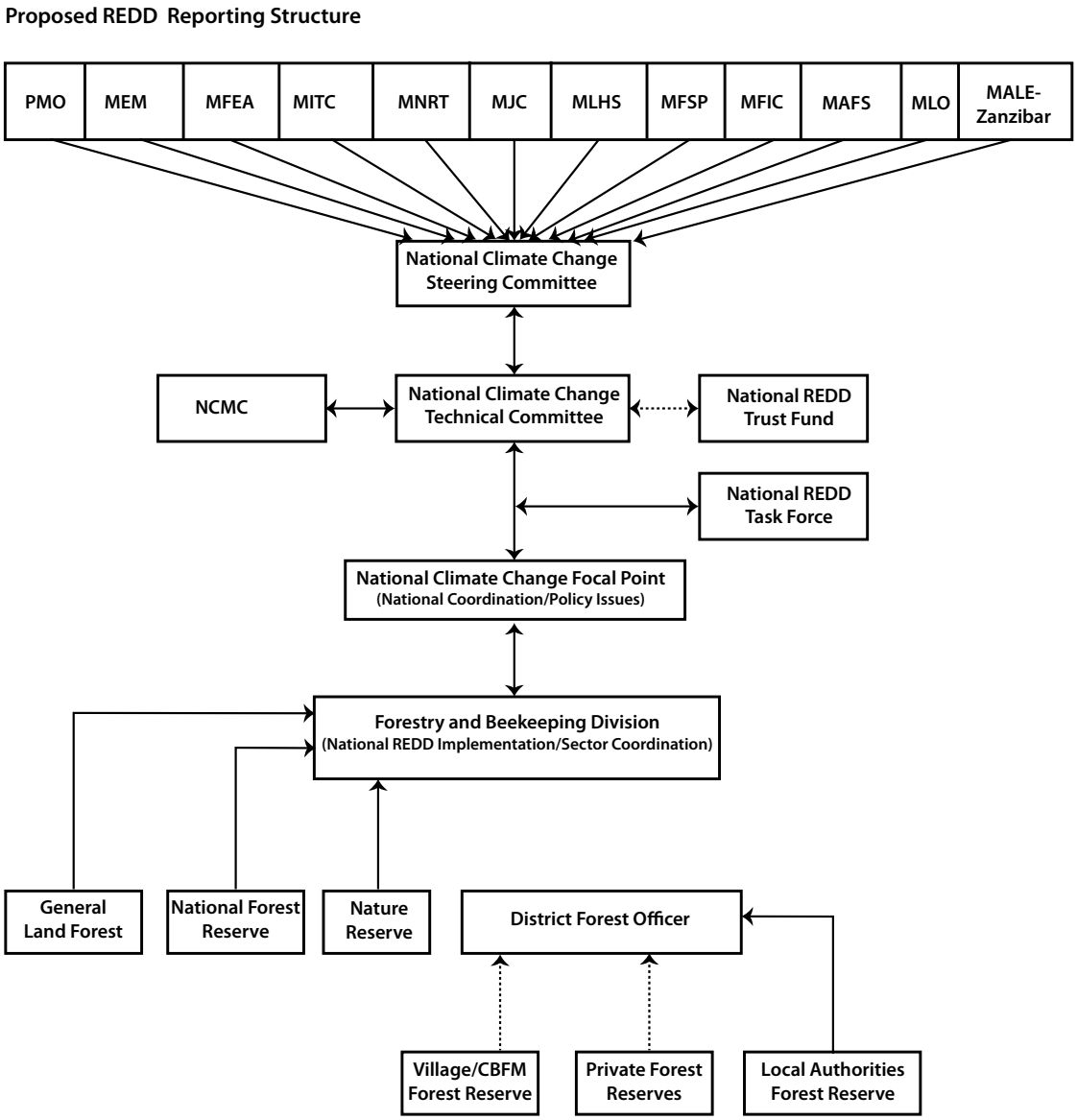

Figure 6. Proposed REDD+ reporting structure.
Source: National Strategy for REDD+ draft 2010, page 59. URT 2010b.

collaboration, and low national institutional and technical capacity, introduced unforeseen overlaps and administrative challenges that affected the impact of the TNP, complicating and slowing the process (Gapare and William 2013). The lesson would seem to be that the effective implementation of REDD+ requires particular management and regulatory capacities to be in place. It was perhaps unrealistic for designers to have assumed these were possible to create, particularly in the short term, given limited administrative and technical capacity. Negotiating REDD+ in such a diverse policy arena is likely to take time and commitment and demand national ownership. Also, REDD+ requires significant investment in major institutional reform initiatives, for uncertain benefit to government and to rural people.

5.3 Consultation process and multi-stakeholders forums

5.3.1 National REDD+ Development Strategy consultation

Consultations at national level with civil society began in 2009 as part of consultations on the National REDD+ Development Strategy. Tanzania REDD+ strategy underwent three phases of development (preliminary analysis, strategic analysis and consolidation phase). Stakeholders' consultations occurred in the second phase (strategic analysis) of the process. This was done by dividing the country into eight zones where consultative meetings were held with stakeholders, mostly government bodies from various sectors (agriculture, land, forest) as well as local communities. The aim of this consultation meeting was to seek inputs to the REDD+ process but also the same groups were later used to provide feedback on the prepared REDD+ strategy.

The REDD+ strategy document was circulated for comments in country zones. The comments were collated by CSOs in each zone and sent to the REDD+ Task Force at the Institute of Resources Assessment at the University of Dar es Salaam (IRA-UDSM) via email. REDD+ pilot project implementers sent their REDD+ strategy comments to the Task Force, as did a variety of institutions (academic, UN-REDD+, NORAD, RNE, DPG, etc.) in the country (URT 2013).

Together with the National REDD+ Framework, the strategy has been widely discussed in various forums and media, and has gained a significant number of both supporters and opponents (Tanzania Forest Conservation Group and MJUMITA 2012). CSOs and other stakeholders were invited to comment on the 2011 Draft National REDD+ Strategy. Comments were gathered through the National REDD+ Task Force's website, as well as through stakeholder meetings organized through consultations across the country (REDD+ Initiative in Tanzania 2013).

A second draft of the National REDD+ Strategy had been developed by June 2012 (URT 2012a) and a Draft Action Plan by July 2012, which was endorsed in March 2013 (Republic of Tanzania 2013). CSOs were again invited to comment (on the second draft) following which, in 2013, the government endorsed the National REDD+ Strategy and its associated Action Plan after (Tanzania Forest Conservation Group and MJUMITA 2012). The strategy plans to guide the implementation and coordination of mechanisms required Tanzania to benefit from a post-internationally approved, performance-based forest carbon trading system (REDD+ Initiative in Tanzania 2013).

5.3.2 R-PP consultation process

The R-PP acknowledges the importance of incorporating the principles of good governance (such as transparency and accountability) in the consultation process, as well as the necessity of conflict resolution, although specific procedures for ensuring these principles or creating a conflict resolution mechanism are not discussed. However, the R-PP does not clarify the steps that will be taken in the consultation and participation processes moving forward. The R-PIN was developed by experts from different ministries, academia, private sectors, civil society and international organizations and then was reviewed by the World Bank on 30 July 2008. In October 2008, R-PIN was submitted after a focused consultation with government MDAs, as well as public and private institutions. Specifically, the R-PIN contributors were Sokoine University of Agriculture (SUA), Tanzania Forest Conservation Group (TFCG), CARE International in Tanzania, Tanzania Forest Research Institute (TAFORI), MNRT, VPO-Environment, Prime Minister's Office – Regional Administration and Local Government (PMO-RALG). Others consulted included UNDP, some district natural resources officers and natural resources advisors who attended the national policy review workshop on 27–28 November 2008 in Dar es Salaam. However, there was only limited consultation with local communities and private sector actors. This is because it was anticipated that local people and private sector actors would get a chance to contribute to the REDD+ Strategy, facilitated by the Government of Norway and covering a large part of Tanzania.

The World Resources Institute (2010) conducted a review of the R-PP's consultation and participation plan and indicated that Tanzania has taken steps

to carry out an inclusive stakeholder process, but could be more thorough in enumerating the process moving forward. The process began with a nationwide round of consultation meetings to raise awareness about REDD+ and to develop a consultation and participation plan. It resulted in an analysis of strengths and weaknesses for REDD+ (URT 2010a). These inputs were incorporated in the REDD+ strategic options. Alongside national consultations held in the initial R-PP formulation phase, the territory of Tanzania was divided into eight zones and workshops were held in each zone with participants from regional and district governments and NGOs. A village was also selected from each zone, based on criteria such as forest resources and potential to undertake REDD+ activities, for a consultation that included local communities, village leaders and extension staff.

In many cases during the consultation process villagers likely do not understand the concept of REDD+, they do not have the courage to challenge the representatives from the government or necessarily have the ability to question what was being proposed. The overcomplexity of REDD+ and the difficulty of communicating it thoroughly in community consultation settings present serious challenges to the consultation process. This strategy to engage at the local level has distracted from, and perhaps provided an excuse to ignore, proper engagement with CSOs who are better placed to offer a detailed critique. While the R-PP authors do not identify the relevant stakeholder groups in detail, they recognize the need to do so, including 'minority or disadvantaged groups' and propose a study that will specifically consider forest-dependent communities, their representatives and effective mechanisms for community participation in REDD+.

5.4 Future REDD+ policy options and processes

5.4.1 Types of REDD+

The nine sub-national pilot projects in Tanzania (all funded through bilateral agreement from Norway) are conducted mainly by the NGOs (NORAD 2011). International NGOs (such as Clinton Climate Initiative and WWF) and national research institutions (e.g. Sokoine Agriculture University and IRA at the University of Dar es Salaam), supported by international research partners, are involved with additional pilot projects and feasibility studies. All organizations that are implementing REDD+ were already in place addressing the broader biodiversity goals and co-benefits then were refashioned to accommodate REDD+ schemes. These pilot projects are implementing a mix of interventions including: sustainable management and biodiversity conservation, livelihoods support, sustainable agriculture, use of technology and agricultural intensification, agroforestry, improved cooking stoves, alternative energy sources, artificial regeneration (afforestation and reforestation), sustainable animal husbandry techniques and participatory land-use planning (Sills et al. 2014).

The pilot projects and various research interventions will provide critical relevant background information particularly on reference scenarios. Thematic studies for filling information gaps have been identified (related to deforestation rates, carbon stocks, contributions of the forest sector in the national economy, collecting socioeconomic data, etc.). The scale and geographical location of projects vary as do their modalities. For example, seven projects are in CBFM and two are in JFM areas. Some project, are pioneering a combination of PES schemes (for example, sustainable timber harvesting with FSC certification in southern Tanzania) with REDD+ to increase economic benefits to the communities. Most of the project interventions are trying to work with issues related to the main drivers of deforestation and forest degradation in their respective areas (Sills et al. 2014).

5.4.2 Financing

The initial phase of piloting REDD+ activities is coming to an end in 2014–5 and it remains unclear how REDD+ related activities will be funded in the future. Financially, the Tanzanian REDD+ initiative is supported bilaterally by Norway, Germany and Finland. In addition, Tanzania is also included in the UN-REDD+ Programme and the FCPF. Norway commits USD 80 million in bilateral funding to assist REDD+-related activities in the country. Germany contributes USD 3 million to improve the management of nature reserves and thus reverse degradation and enhance carbon sequestration.

Funding for first phase outcomes, considered key building blocks for a national REDD+ program, aimed to develop capacity for MRV, national governance and institutional legal frameworks, benefit-sharing mechanisms, strengthened stakeholder support, and implementation of demonstration projects (NORAD 2014a). Major financial backing for technical assistance for REDD+ has also been provided by Norway contributing USD 58 million, and Finland contributing USD 5.9 million (FAO 2014; NORAD 2014b). For example, Finland's joint project with Tanzania, the National Forestry Resources Monitoring and Assessment (NAFORMA), has completed the national forest inventory. Norway's International Climate and Forest Initiative (NICFI) distributed a small portion of its pledge to the UN-REDD Programme (USD 4.3 million) while remaining funds were channeled to sub-national initiatives (51%), academic research (36%) and national policy projects (12%) (NORAD 2014b).However, despite initial enthusiasm and fanfare, readiness efforts slowed by 2013 due to delays and political challenges (in developing the national framework, the on-going stalemate in international climate agreements, and long-technical nature of the process of REDD+ that was not anticipated at the beginning (NORAD 2914b).

The REDD+ strategy places emphasis on a Trust Fund (that will receive funds from buyers and distribute funds to communities/implementers), without sufficient justification and without details on how it will operate or how the money will flow to the communities who are the custodians of the forest carbon and most affected by activities to reduce deforestation (URT 2013). The nested approach on the other hand, would allow communities direct access to REDD+ markets or funds, and provide the economic incentive believed to be required for reducing deforestation. This would be done by allowing community projects to be verified and credited independently within a national accounting framework to ensure REDD+ benefits reach communities.

There was a long debate whether to adopt a National Carbon Trust Fund (NCTF) or use a nested approach to fund REDD+ once fully operational. Yet the strategy does not state how it will deal with the issues of a national versus a nested approach to handling REDD+ payments in the future, neither on how carbon savings are to be achieved in practice nor an estimation of the expected size of the savings. Central government actors preferred a centralized NCTF, whereas many civil society actors preferred a nested approach. Civil society actors were concerned that if the funds are centralized they may not reach the intended carbon managers, including communities. Though the Task Force ultimately opted for the NCTF (and this is the recommendation of National REDD+ Strategy) (URT 2013), it remains a promissory and will only operate if REDD+ becomes fully operational.

5.4.3 Monitoring the drivers of deforestation and forest degradation

Several agencies monitor and report on indicators related to deforestation and that enable Tanzania to track the drivers of deforestation. Different agencies have key functions and focus on specific drivers (Table 7). However monitoring and reporting are still weak due to limited human resources, limited logistical facilities and a poor information management system. Therefore, comprehensive and up-to-date information on land-use change is often missing. Yet cross-sectoral and institutional analysis of the drivers and trends of deforestation is needed in order to assess the performance of REDD+ policies and measures for avoiding deforestation and degradation.

In addition to monitoring forest cover, calculations and inventories of carbon stock in the different ecological zones of Tanzania are required to inform REDD+. Some data, based on forest inventories (the most recent is NAFORMA 2014), are available for certain ecoregions. Soil carbon quantification and monitoring attempts are underway to improve the data on this important carbon stock, for example the FAO together with the Tanzanian government have embarked on a project since 2012 (Saket et al. 2010). Some progress has been made in determining the necessary tree height to diameter equations in order to estimate carbon (e.g. Chamshama et al. 2004; Munishi and Shear 2004; Malimbwi et al. 2005). However, at present, the paucity of available deforestation and forest degradation data creates a large margin of error on all estimations. Availability of data as well as credibility might, in the near future, become an even larger stumbling block for measuring and reporting of data, since a regulation

Table 7. Monitoring of drivers of deforestation indicators by various responsible ministries.

Driver	Who is monitoring?	How is it monitored?
Agriculture	Ministry of Agriculture	1. Crop productivity aggregated at four governance levels: village, district, regional and national 2. Shifting arable land with changes in temperature and precipitation as detailed in the National Investment Centre (NIC) and NAPA documents 3. Changes in cropping patterns (mono-crop vs. mixed) farming, timing (earlier or later), crop types, seed varieties, fertilizers, pesticides and herbicides
	Ministry of Planning, Economy and Empowerment (Monitoring of National Strategy for Growth and Reduction of Poverty – NSGRP, also known as MKUKUTA)	4. Percentage change in food crop production Ministry of Agriculture and Food Security (MAFS) 5. Percentage of smallholders using modern methods of farming (irrigation, fertilizers and improved seeds) National Bureau of Statistics (NBS) 6. Percentage of households whose main income is derived from harvesting, processing and marketing of natural resources products National Bureau of Statistics (NBS) or Ministry of Natural Resources and 7. Percentage of smallholders who have one or more off-farm income generating activities National Burea of Statistics 8. Percentage of smallholders who accessed formal credits for agricultural purpose NBS –
Commercial logging and charcoal	Tanzania Forest Services	1. Revenues from sale of forest products 2. Information related to illegal activities and changes in forest utilization
	National Bureau of Statistics HBS/National Census	3. Percentage change in proportion of rural households reliance on forest products 4. Adoption of alternative livelihood activities
Woodfuels	Ministry of Planning, Economy and Empowerment	1. Percentage increase in number of customers connected to the national grid and off-grid sources of electricity Ministry of Energy and Minerals (MEM), National/Stations 2. Percentage of households in rural and urban areas using alternative sources of energy to wood fuel (including charcoal) as their main source for cooking NBS
	Ministry of Energy	3. Energy generation capacity by source (hydro, wind, solar, gas) 4. Percentage of population connected to the national grid 5. National energy generation capacity 6. Number of projects/programs on alternative energy sources
	Tanzania Forest Service	7. Proportion of households dependent on forests for energy resources
Forest fires	Tanzania Forest Service	1. Hectares of land under forest fire annually

Source: Adapted from Excellensia Consulting (2010)

passed in early 2015 gives the bureau for statistics the sole publishing right for data (Mbashiru and Lugongo 2015).

The initiative of the FBD under the MNRT, with support from UNEP World Conservation Monitoring Centre, has started creating simple maps of carbon distribution (to 1 m depth) (Figure 2). These maps link carbon distribution with biodiversity (co-benefits) and livelihood data and maps the distribution of carbon in relation to human population, protected areas, key biodiversity areas and fire. They allow the identification of areas that are high in carbon and other attributes, such as biodiversity, and all combinations of carbon and co-benefits. This initiative could provide possibilities to link payments of non-carbon services to REDD+ and generate a higher premium on reduced emissions.

The national MRV system for Tanzania is to be led by NAFORMA. However, so far, individual projects have been developing their particular MRV systems which are not integrated with the national system. Consequently, NAFORMA has been unable to detect the changes achieved by pilot REDD+ projects. It is not clear if the support and capacity at the project level REDD+ pilot projects will increase capacity at the national level, particularly given the sizeable role of international consultants. Additional challenges are that projects are using different forest classification systems to the national level and have each taken a different methodological approach (Sills et al. 2014).

NAFORMA has provided calculations of emissions reductions and reference emission levels since 2009. It operates in different parts of the country and aims to address knowledge and data gaps on drivers of deforestation and forest degradation. Zanzibar is not part of the NAFORMA project and a proposal for a similar project called ZAFORMA has been submitted to the Norwegian Embassy. NAFORMA information will be the basis for developing country-level carbon accounting systems yet it is not clear whether the data are available at the necessary resolution to effectively monitor the impacts of REDD+ initiatives. This is because factors affecting forest integrity can be beyond human action and difficult to monitor, but yet might be related to REDD+ activities. These include, for example, an increase in fauna in REDD+ areas that may impact forest degradation, and such dynamics are highly complex and testing to monitor.

The NAFORMA permanent sample clusters (n = 30,000 sample plots) could be re-measured (from 2015) to create a new generation of forest change data based on field observations. Along with the plot center photos stored in the NAFORMA database, these will provide a unique dataset for determining the change based on ground observations (capturing both the forest degradation and deforestation) (NAFORMA 2014). Sustaining NAFORMA over the long term will depend upon the forestry sector, whether through REDD+, or other channels, generating enough revenue to maintain the expensive implementation.

Discussions are on-going on how best to develop an effective MRV system, for example, how to link efforts between actors such as NAFORMA with UN-REDD+ and other piloting projects. The MRV Working group aims to coordinate efforts and ensure that there is harmonization between the actors. This is being done within the framework of the national REDD+ strategy and R-PP initiatives based on the anticipated NCMC and the NCAS supported by the Royal Government of Norway and the Clinton Foundation, respectively. FAO is supporting the creation of a robust team on MRV to work with Tanzania's UN-REDD+. The objective is to lead the implementation process to develop strong monitoring and reporting systems.

Pilot project proponents have hired experts in GIS and MRV, largely on temporary consultancy contracts, to develop their own MRV systems within project implementation. The reliance on foreign consultants not only drives up the cost of MRV but also is not a long-term sustainable solution, these dynamics have been issues faced by project proponents. Carbon assessment by professionals is expensive and it may be more efficient to engage local communities who can carry out the same work using Participatory Forest Carbon Assessment (PFCA). PFCA is a useful technique that requires only minimal technical support from professionals (Zahabu 2008; Danielsen et al. 2013). Indeed forest-related data collected by local communities can be essential in the development of national REDD+ programs (Mukama et al. 2012). PFCA capacity building will be required, the use of equipment like GPS and hypsometers can be particularly demanding on

local-level training. This illustrates the need of both district council foresters and external experts to be involved in different stages of the inventory (e.g. training, monitoring the data collection and actual data analysis) (Mukama et al. 2012).

After mapping the country's actors and activities in MRV, a consultation on behalf of the Tanzanian government was carried out to streamline respective MRV work plans. This streamlining will avoid duplication and create synergies between the MRV initiatives happening in Tanzania. It will enhance the MRV framework between all existing and on-going initiatives. Yet, so far, development of Tanzania's national level MRV system has been slow and a large number disconnected projects and activities exist. These activities remain to be merged into a coherent national-level system (NORAD 2011). However, the biggest challenge for MRV and related efforts, is that the MRV system is being developed before there is a clear strategy for reducing deforestation and definite future for REDD+.

Monitoring and assessment of forest and woodlands in Tanzania will continue to be carried out by the TFS under the forest law. Deforestation and degradation data for decision making will continue to be provided through the National Forestry and Beekeeping Database (NAFOBEDA) and various projects (including the Tanzania Forest Management and Conservation Project (TFCMP) supported by the World Bank, the Conservation and Management of the Eastern Arc Mountain Forests project (CMEAMF) supported by the Global Environment Facility (GEF) through UNDP and Catchment and Mangroves Management, as well the PFM and industrial plantations). Data from district councils under the Prime Minister's Office – Regional Administration and Local Government (PMO–RALG) will also contribute to enhancing the data.

In the future, inventory data will continue to be collected by the FBD through the Forest Resource Survey and Inventory Section and has been carrying out the National Forest Resources Inventory with support from the Government of Finland and FAO the NAFORMA program.

In general, the Planning Department of the national government together with DoE of VPO are monitoring the climate change activities, policies and strategies. They also monitor the institutional capacity, coordination and mainstreaming of climate change issues. The MNRT is responsible for monitoring the rate of deforestation by geographical location. They are also responsible for monitoring the REDD+ projects, in terms of revenues generated and distributed and are well placed to do so due to similar monitoring for other carbon projects, e.g. CDM. The Ministry of Finance is responsible for executing economic surveys capturing of the revenue from the sale of carbon credits. These represent some of the functioning systems that are underway and which can support the REDD+ architecture.

The demand for monitoring and verification that is inherent to REDD+ brings the risk that the role of techno-bureaucratic values and practices take center stage. The professionalization, which authorizes and privileges professional and expert knowledge and technical practices over more local and indigenous forms of knowledge and management, could threaten the foundations of REDD+ which are likely to be rooted in the PFM approaches underway in the country and the practices of local people.

There is no clear incentive for Tanzania to progress with its MRV system. A perverse incentive may exist since the external funding received to develop MRV will cease once the system is fully established. There is also limited coordination between some of the NICFI-funded initiatives and existing components of Tanzania's national forest inventory. Further there is widespread opinion that the financial incentives for government staff are insufficient to undertake data entry or data management.

5.4.4 Benefit sharing

REDD+ in Tanzania suffers a lack of clarity regarding who should be eligible for benefit: forest stewards, those with legal rights or those achieving emissions reductions (Luttrell et al. 2013). There have been various debates on who should benefit from forest management, by how much and why. The cost–benefit equity approach suggests that the underlying rationale for compensating communities is centered on the fact that individuals are incurring costs in undertaking, or as a result of, forest management

(Blomley et al. 2009). These costs could be transaction and management costs (patrolling, meetings, management and crop raiding) or opportunity costs (i.e. a loss of income or potential income streams due to forest preservation) in the forest management under PFM or REDD+. The poverty equity (or forest stewards) approach argues that marginalized communities should receive the benefits of forest preservation, and forest management becomes the vehicle to mobilize capital to reduce poverty (Luttrell et al. 2013).

Ensuring equitable and transparent distribution of benefits to communities whose livelihoods are intimately bound to forest resources is crucial. Various distribution systems have been proposed by civil society and government agencies, including national, project and nested/hybrid approaches. In Tanzania, a national approach could entail linking market exchanges to a national fund that could, in turn, either link directly to local communities, or, alternatively, to district governments who would then disburse funds to villages. The Tanzanian National REDD+ Framework (URT 2009c) presents options for: (1) handing over REDD+ funds to relevant communities in proportion to their emission reductions; (2) distributing benefits according to inputs and actions, which would be more equitable in the sense that the reward for an action would be equal no matter the ecological (carbon) impact; proposes in-kind rather than financial benefits. A NCTF has been drafted but the subsequent institutional and policy frameworks that would enable a finance mechanism and legal definition of carbon property rights are unlikely to be developed until REDD+ has the confirmation of a climate change treaty.

Many civil society organizations advocate for a nested approach whereby a national payment and carbon monitoring system coexist with projects implemented by intermediary organizations that facilitate direct linkages between carbon markets and forest communities (TFWG 2010). Past experience shows that government initiatives often fail to deliver on benefit sharing with local communities, e.g. under JFM, hunting blocks, and tourism (Milledge et al. 2007; URT 2009c). This has led to questions about the efficacy of a strictly national fund approach (NORAD 2014b), although a strictly project-based approach suffers from economies of scale and possible higher implementation and transaction costs (Olsen and Bishop 2009; UN-REDD 2012). A strictly project-based approach has been found to be unfeasible due to high implementation and transaction costs (Campese 2012). Under a nested approach, those costs could be reduced if the national government assumed technical responsibilities for MRV, baselines and other activities. With regard to distribution of funds within villages, sub-national initiatives can give communities the autonomy to decide the arrangement that works best for them.

The existing institutions and frameworks within the natural resources sector will likely influence how benefits will be distributed. These structures dictate that if a village established a community/village forest reserve through a PFM, then they are entitled to own and benefit 100% of the benefit originated form their forest (Forest Act 2002). In REDD+ projects on state land, the financial benefits are expected to be distributed between the government and the communities through JFM guidelines. However, the guidelines are not yet finalized (perhaps a result of government bureaucracy and a lack of political will) even after a more than a decade of JFM and after the Forest Act 2002 was passed by parliament. As a consequence, communities have not been able to access their share of the financial benefit from co-managed forest under the JFM (TFWG 2010), which warrants caution for REDD+ in the future. Investment in alternative livelihoods has been insufficient and smallholders are largely dependent on natural resource extraction for subsistence livelihoods. Further, contested land claims are problematic for benefit sharing. For example, general lands (or unreserved land) (see discussion in section 2.1) are often managed and owned (*de facto*) by villagers, yet legally the Government of Tanzania can claim the control of carbon stocks in these areas.

To make progress and bring clarity to benefit sharing in Tanzania some preliminary activities will be required. For example, clearly defining carbon tenure and passing legislation that defines carbon rights is needed. Currently, most projects make the assumption that carbon tenure will be linked to land ownership since the trees are on the land. Yet, it will be important that benefits are distributed based on clearly defined rights and not on state discretion. Further, the issues of benefit sharing are still at the discussion level although it is likely that a national REDD+ Trust Fund will

be established through which the government will receive and distribute REDD+ payments. The lack of clarity around REDD+ benefit sharing is significant because effective benefit sharing is central to the functioning of the REDD+ model. A national government-level system would require higher levels of transparency and accountability than currently seem likely. There is distrust of a government-managed trust at the community level, where there is a risk of money being intercepted and diverted into other uses or development activities. Accountability mechanisms (such as electoral institutions, legal recourse and transparency) need further support in order to enhance equitable benefit-sharing schemes under REDD+ (Mustalahti and Rakotonarivo 2014).

Insights concerning optimal design and coordination within this framework can be generated via pilot-level experience with benefit sharing; however, only half of the projects have so far made trial payments. With feedback from village consultation and surveys, pilot projects have experimented with individual, household and community payments. In contexts of high population density, low forest carbon payments at the individual level are not a sufficient incentive and villages tend to channel lump sum payments into community projects. In others, upon receiving direct payments, households, in turn, allocate a portion of their payments for community projects such as schools, medical clinics, boreholes and latrines.

Pilot projects have experimented with individual, household and community payments (Sills et al. 2014). For example, a pilot REDD+ project, "Making REDD+ work for communities and forest conservation in Tanzania", aims to provide direct and equitable incentives to rural communities to conserve and manage forests sustainably. The trial carbon payments were made in February 2012 to individuals and village councils in each of four participating villages that fulfilled necessary requirements such as village by-laws, REDD+ benefit-sharing by-laws, and land-use management plans. The aim of this pilot project and the trial payments, was to develop so called Tanzania Community Carbon Enterprise (CCE). The CCE model assumes that if REDD+ revenues are directly channeled to communities and can be equitably distributed within communities, they could partly cover the opportunity costs and the forest management costs of local communities. The scheme should give participating community forest villages the opportunity to market REDD+ credits through the aggregation of voluntary emissions reductions from different villages, which would then be traded on the voluntary carbon market after being certified and verified (Kimbowa et al. 2011). The main advantage of this approach is that it reduces the transaction costs associated with small individual village emission reductions, which would prevent them from participating in carbon markets. The carbon enterprises' main responsibilities are thus to help communities to monitor forests, compile and submit monitoring reports for verification, organize and pay for verification, and market the resulting verified carbon credits (Mustalahti and Rakotonarivo 2014).

The sub-national pilot initiatives are ending, and so far no single one has sold carbon on the market. The largest of these initiatives (Tanzania Forest and Conservation Group), representing almost half of the REDD+ forests in Tanzania, has achieved emissions reductions of 30% and identified interested buyers. Several initiatives exhausted funds before accomplishing their objectives (JGI and TaTEDO), while others are struggling with the long process of meeting the requirements for selling carbon (MCDI and CARE) and/or suffering a shortage of technical capacity to progress with the process.

5.4.5 Proposed participation mechanism, policies and institutions

The REDD+ strategy (and the R-PP) emphasizes the need for full stakeholder participation in REDD+, which Tanzania is attempting through PFM, PLUP, etc. The success of REDD+ pivots on securing the necessary behavioral change of actors involved at national through to local levels. However, achieving broad participation (and collaboration) of all stakeholders is challenged by the reality of the division of responsibilities among ministries and sectors dealing with climate change adaptation activities. Local stakeholders also represent an important group (and one of the national goals of REDD+ is poverty reduction) and the participation of local communities is paramount. It is challenging to integrate local

level consultations into inclusive, transparent and effective processes of decision making about the use of natural resources.

There are policies and suggestions supporting effective and active participation of stakeholders in the design and implementation of REDD+ at local levels and the experience of PFM (mainly CBFM) could work as learning platforms. However, the implementation of participatory processes has not been successful, a similar experience to the Draft REDD+ Strategy consultations. Emerging CSO groups and vocal local communities are helping to increase participation and the initial design phase will likely generate constructive criticism and feedback.

The sub-national pilot projects have enrolled in the context of the current community forest and village land policies (e.g. PFM), which have potential to facilitate their models. The country's national REDD+ policy, however, may present contradictions with pilot projects and be incompatible with their approaches. For example, the strategy may not allow for villages to continue to sell their emissions reductions outside of the national system or the amount of funds villages receive through the national system may be insufficient to support improved agriculture and alternative livelihoods (or cover the opportunity costs or REDD+). For REDD+ to work, it will need to address these issues and ensure there are enough resources, capacity, strong institutions and mandate to implement REDD+ in Tanzania.

5.4.6 Policy learning

Proponents are learning a lot from the challenges of implementing REDD+ on the ground. At the site level, even securing short-term reductions in deforestation is challenging. The policing and enforcement of the law and of rules created at the village FRs level, is proving difficult. Communities are reluctant to put the entirety of their forests into reserves due to uncertainty of returns and also due to fears of land appropriation and restricted use. Even if all the larger intact forest blocks are FRs, there will inevitably be many small patches of forest (which are not included due to economies of scale), which would be impractical to put into reserves. Thus, a lot of forest on village land is not in reserves and remains open for clearing. Therefore, there may be little or no reductions in deforestation until the forest outside the reserves is exhausted and the only remaining forest is that within the reserves. A greater understanding of local priorities and needs over external agendas would facilitate implementing REDD+ on the ground and offers room for policy learning.

National policy development is constraining proponents (REDD+ implementers) in two ways. First, some local elites want to control all REDD+ initiatives through the government. Not all local elites want this, and donors and other stakeholders are also averse to this very statist approach; this has also led to minimal take-up of learning from the REDD+ pilot projects. The negotiations and political ebb and flow have thus stymied emergence of a coherent and fully formed national strategy that could be used as a basis for planning (the second constraint). A third national policy constraint is that project development costs are higher than they might be due to lack of openness with data because NAFORMA is not currently open to non-governmental stakeholders. Finally, actors linked to the business-as-usual trajectories have certain political power which does not favor the reforms in policy and measures that would be required to achieve REDD+.

REDD+ in Tanzania, as elsewhere, is progressing at a slower pace than anticipated. The complexities involved engender more questions than answers and the lack of clear direction is compounded by the unavailability of a definitive REDD+. There is no established best practice to follow and adhere to and there is legitimate concern from local leaders, officials and other opinion makers regarding the future progress of REDD+. One of these debates is the legitimate concern from local leaders, officials and other opinion makers regarding the future progress of REDD+. The political environment is risk averse, creating reluctance to back something (REDD+) that does not guarantee success. Equally, there is a lacuna of data and technical information that interferes with developing strategic plans. For example, a pilot project may begin to address a driver, the significance of which is not fully known and which may not be the most effective intervention. This concern is commonly debated among the various actors in Tanzania.

Although, the complexities and debate related to these lessons learned from the pilot projects engender more questions than answers, there are

some clear mechanisms in place to ensure transfer of skills and effective learning if the direction and definitive REDD+ are internationally agreed. Data lacunae related to carbon stores and dynamics and baselines need to be addressed as part of the requirements for functioning MRV. Generating sufficiently robust and accurate data will be expensive and take time but there are international and national mechanisms to do this. However, there is a lack of consensus regarding the role of involved stakeholders for REDD+ and the associated MRV to function properly. For example, NAFORMA was an ambitious national program, however, perhaps building it up district-by-district would have been more effective. From the district level, it could have delivered useful results potentially more compatible with local projects and even with participatory carbon monitoring systems. Also, lessons learnt from these district and local level systems would have been incremental for ultimate inclusion in a national system.

6 Implications for the effectiveness, efficiency and equity of REDD+

The Tanzanian REDD+ Strategy document is expected to facilitate the delivery of an effective, efficient and equitable REDD+ program. Here we draw on recent experience in forest management in Tanzania and movements towards realizing REDD+ to speculate on how the 3E aspects (carbon-effectiveness, cost-efficiency and equity including co-benefits) in Tanzania's REDD+ realities may develop in the future. We will first provide a very brief overview on how REDD+ policies and policy options have evolved, while then discussing 3E implications of particular major REDD+ policy aspects, such as participation in section 6.2.

6.1 3Es and progress with national policy and policy options

To realize effective progress with REDD+ policy design, research indicates the need for national ownership over the process (Brockhaus and Di Gregorio 2014; Korhonen-Kurki et al. 2014). Tanzania has not set aside funds to operationalize the REDD+ policies and framework, and national ownership of REDD+ in this regard is lacking (most of REDD+ piloting activities are donor funded and implemented by civil societies). However, bilateral agreement between Norway and Finland provide most of the financial backing and technical assistance with each contributing USD 58 and USD 5.9 million, respectively (FAO 2014; NORAD 2014b). Though initiated with great enthusiasm, most of these funds dried up in 2014 and the new pledges have not yet been made. In addition, Tanzania's national REDD+ strategy seems to favor a centralized approach to REDD+. Findings from a study by Rantala and Di Gregorio (2014) confirm this and indicate that the national REDD+ strategy largely reflects the positions of the discourse coalition that is controlled by powerful state actors who support central control of REDD+ financial mechanisms. In addition, they found that a competing coalition, led by CSOs, had limited influence on the national strategy, even though this coalition shows discursive congruence and concerted political action. For example, in the strategy, the formation of an NCTF and its operationalization has been drafted, however, until a new climate change treaty (including REDD+) is in place, the government seems to be reluctant to proceed with more robust institutional and policy frameworks that enable a finance mechanism and possible legal definition of carbon property rights. In addition, past experience with government-led initiatives with intended benefit-sharing relationships with local communities i.e. JFM, hunting blocks and tourism, failed to deliver and have led some to question the efficiency as well as the effectiveness of a strictly national fund approach.

With regard to the design and implementation of the overall REDD+ strategy, a framework and institutions for REDD+ was created with strong stakeholder engagement in its development and presence in climate change platforms (i.e. UNFCCC and COPs). However, clarity is lacking on how to operationalize the strategy and some of the key elements (i.e. equitable benefit sharing, funding mechanism and carbon rights) in the strategy are still contested by civil societies. The future of REDD+ beyond a pilot phase is unclear. At the beginning (2010), REDD+ implementers on the ground wanted to align their activities with national strategy so that they would not fall into a vacuum. However, once finalized, the document was criticized for lacking an implementation plan. So, the strategy is currently just a document, and is not yet followed by the implementers of REDD+ (mostly NGOs for the case of Tanzania).

A central prerequisite for REDD+ is sufficient data in order to understand deforestation and degradation and their drivers to be able to design proper mitigation interventions through REDD+ and other schemes. The data available is outdated (interpreted from 1984 satellite imagery; Millington and Townsend 1989) and, compared with data from 1995 (Hunting Technical Services 1997), not representative of current patterns nor sufficient to inform on REDD+ efforts and progress. For example, some forest types have an almost complete data lacuna (Burgess et al. 2010; see Appendix 2). Subsequently, directing resources into developing the necessary robust data sets is a pivotal requirement for Tanzania.

6.2 3E assessment of major REDD+ aspects

6.2.1 3E implications for the broader governance and institutional context

The broader governance context in Tanzania suffers myriad inadequate governance structures (e.g. poor transparency and accountability) and limited budgetary allocations to forestry. Routinely corrupt practices often favor personal and elite interests over community rights to forest resources and, while not new phenomena, they are proving problematic to REDD+ progress. A complex interplay of social (need for food security), economic (need for income and economic development) and political factors (interference with governance) have shifted the balance of forest management in unsustainable directions, and this does not auger well for REDD+ in Tanzania. The system requires some transformation to ensure that forest resource extraction and trade in forest products can provide equitable benefits in line with national and local development goals, without compromising forest and carbon integrity. Particular challenges will be the weak forest governance and property rights arrangements to forest and land resources, which will likely affect the ability to deliver 3E REDD+. Strengthening forest governance and securing local land rights (and especially their institutional functions) are central to the development of effective REDD+ policies, strategies and outcomes (see section 2.1. on drivers).

6.2.2 3E implications of the tenure and property rights conditions

The 1998 National Forest Policy recognizes that substantial areas of forest fall outside of the formal forest reserve network. Deforestation and degradation rates are pronounced in these open access areas due to poor management and uncertain tenure (URT 1998). Tanzania's 1998 National Forestry Policy (currently in the final stages of review) attempts to increase tenure equity and address some of the shortfalls experienced under the original framework. The overall goal of the 1998 Forest Policy is to enhance the contribution of the forestry sector to sustainable development (potentially via carbon revenues) for the benefit of present and future generations. For example, it supports participation in forest management through the establishment of village FRs, where communities are both managers and owners of forests, as well as JFM, where local communities co-manage national FRs or local authority FRs and this provides the basis for positive institutional changes, if the political will exists.

However, it is often difficult to change institutions in practice, given the strong interests involved and institutional stickiness. However, the National Forestry Program has made progress supporting reforms as well as improving governance and management of the forest sector. Who legally owns and controls access to carbon, land and trees, and who will benefit, or lose out, from potential REDD+ scheme remain points that require clarification in Tanzania. NGOs propose that carbon rights should be legally linked to land tenure, and where communities are both owners and managers of forests, ownership and sale of carbon rights should be at the local level.

Linking carbon and tree ownership will require the harmonization of the two national land acts, proper registration of village land and conducting an analysis of the factors that lead to insecure tenure. Community-level forest managers implementing PFM provide an invaluable global service by reducing emissions of greenhouse gases from deforestation. In recognition of the services they provide they have the right to be compensated through the sale of forest carbon produced on their land (Luttrell et al. 2013).

6.2.3 MRV capacities

Discussions with REDD+ pilot project implementers in Tanzania highlight the struggle of meeting the MRV demands of REDD+. This is partly because adequate data of forest cover and rates of forest loss are currently not available. Data is being collected by NAFORMA, CCIAM and pilot projects to improve the situation (see section 5.4.3 for a full account of these activities), at the same time UN-REDD+ and FAO are working with the government to generate the data needed for calculating baseline, reference emission level and potential emission reduction level. However, these institutions may struggle to deliver the required resolution and detail needed to assess the effect of conservation interventions.

At the project level, community-based monitoring systems (i.e. involving local governments and community residents) are in place and allow for data collection at a relatively low cost. Using this approach allows for monitoring social, equity and governance aspects of community-based natural resources management with little extra cost. Further such a system may serve to remove the notion held by local communities that their existing forest-use rights and benefits will be undermined by top-down REDD+ implementation (Burgess et al. 2010). While cost effective, CBFM will also require sufficient management support, particularly in the start-up phase[22].

6.2.4 Financing and cost-benefit policy options

According to the REDD+ National Strategy (URT 2013), all revenues will be received as grants and deposited directly in the trust account. The strategy lists various sources of funds including bilateral and multilateral donors, the private sector, carbon traders, as well as mining industries. Donor funding features heavily in the implementation plans yet can lack sustainability at times. It proposes that the NRTF will then be responsible in distributing these payments to the communities. Government agencies however are divided as to whether NRTF should centralize all funds. In addition, it is not clear how cost-effective a NRTF (and the associated processes) would be.

The FBD, with its practical experience on CBNRM and PFM, is flexible and responsive to various options. The DoE, however, would prefer that all forms of payments (including markets and international funds), transit through the state. Similar funds have been tried in Tanzania, e.g the Tanzania Social Action Fund (TASAF)[23] has been applied in most of the villages in Tanzania. TASAF has had a positive effect in empowering villagers and building community assets for social service provision in the villages. Yet, the cost of the fund administration and related processes is relatively high. The implementation of TASAF has faced challenges and been slow. For example, implementation of subprojects is not on schedule, out of 3106 funded projects only 362 subprojects (12%) were completed as of end of 2007 (TASAF 2007). TASAF operates within a model in which recipient communities are required to match TASAF inputs in-kind (e.g. providing mannual labor or collecting raw materials). Community in-kind contrbutions have been lagging behind TASAF investments, and it is not clear how much of the allocated TASAF funds goes into administration (i.e. TASAF operations) and how much is allocated for intended activities (community development).

22 Personal communication with JGI REDD+ Manager, 2012

23 Tanzania Social Action Fund is a Government of Tanzania funding facility organization that provides a mechanism that will allow local and village governments to respond to community demands for interventions that will contribute to the attainments of specific Millennium Development Goals. Towards this endeavor, TASAF contributes to achieving the goals of the Tanzania Poverty Reduction Strategy as stipulated in the National Strategy for Growth and Reduction of Poverty. The objective of TASAF is to empower communities to access opportunities so that they can request, implement and monitor subprojects that contribute to their livelihoods, linked to MDGs indicator targets in the Poverty Reduction Strategy. TASAF is organized in a decentralized manner to facilitate greater autonomy and empowerment for local government structures and the community in conformity with the provisions for the Local Government Act No. 7 and 8 of 1982 for mainland Tanzania. TASAF II is set to operate within the three spheres of government i.e. national, LGA and village levels in mainland Tanzania. Similarly, in Zanzibar, the operational set up will be at national, island (Unguja and Pemba) and village/Shehia. Roles at the national, LGA/island and village/Shehia/Mtaa levels are defined in line with the main operational framework of community subprojects' realization and management of created assets.

CSOs and NGOs, tend to prefer a nested approach, in which villages negotiate with international market players. Concerns are held that a national trust fund would not be sufficiently independent and that if villagers would need to negotiate with the National REDD+ Trust Fund, then there must be suitable safeguards in place. To this end pilot project proponents (NGOs especially) are trying to experiment and understand how a nested approach (with direct payments from international carbon markets to REDD+ proponents or communities) may be more efficient and equitable. In Tanzania, it is anticipated that the REDD+ payments would be sufficient to enable communities to cover the administration and management activities.

The National REDD+ strategy does not propose benefit-sharing options at a more local village level. This is perhaps counterintuitive, given the fact that over half of all REDD+ projects are implemented on a PFM-style arrangement (i.e. by the local community at the village government level). Any future REDD+ will require a transparent system of benefit sharing. Benefits will need to be shared equitably and avoid elite capture.

If REDD+ is to be economically viable under PFM arrangements, it will be necessary to reduce transaction costs, potentially through an aggregation of individual forest areas and a collective marketing process using agreed standards and procedures. Further, for PFM to be viable, benefits gained must exceed or at least equal the costs associated with management. REDD+ financing offers one potential revenue stream that could help cover at least some of the local-level forest management costs and thereby create local incentives that could sustain PFM, and REDD+ over the long term.

6.2.5 Participation and vertical coordination

Vertical participation in the implementation of REDD+ in Tanzania has been hard to realize. The MNRT and DoE are supposed to issue policy directives to the implementers of REDD+. However, implementers of REDD+ have complained that they were not given a chance to contribute to the REDD+ policy process. For example, in the development of the REDD+ strategy, CSOs initially raised complaints that the strategy drafting was a closed door process. Following this, the developers decided to call for all actors to contribute to the draft version of the REDD+ strategy. The shift in approach and inclusion of more stakeholders generated delays in finalizing the strategy.

Most of the implementation of REDD+ in Tanzania is happening at the lower, village level of government through the establishment of village FRs under PFM. While significant decisions (e.g. concerning tenure, funding, market price), which will shape REDD+ are expected to happen at the central level. At the same time the REDD+ proponents are supposed to implement the project at the district level but follow all the directives from the central level (i.e. from MNRT and DoE). This is not very efficient considering the characteristic and persistent lack of coordination.

Moving forward, strategic documents, like the National REDD+ Strategy, may consider proposing a clear process for conducting consultation that would help to ensure participation. This may include guidelines to demonstrate also how stakeholder feedback will be in incorporated into decision making.

6.2.6 Horizontal coordination

The success of REDD+ hinges on cross-sectoral integration, between sector ministries such as water, agriculture, land, finance, trade and marketing. Climate change is already considered a cross-cutting issue in Tanzania and all sectors are supposed to address it in their action plans. However, the two leading departments (i.e. the TFS under the MNRT and VPO-DoE), are comparatively weak, and cannot respond sufficiently to the weight of climate-change-related issues. Nevertheless, REDD+ in Tanzania is managing to engage in interventions that are the mandate of other sectors. For example, agricultural extension and the improvement of farming techniques is used to ensure communities maximize production and reduce their reliance on shifting cultivation.

In addition to working with other sectors, REDD+ will benefit more if it complements existing development and planning strategies including the National Growth and Poverty Reduction Strategy, Vision 2025 and other planning process at the national and local level. In fact, a government

requirement is that sectors should work together and align their objectives with national plans and development strategies. The R-PP (URT 2010a) recognizes the importance of a cross-sectoral approach to REDD+ and states that the National REDD+ Strategy will be closely linked to the current national growth and development strategies. The Government of Norway is also channeling funds through the REDD+ Task Force to review the legal and institutional framework for REDD+ in an effort to increase sectoral linkages. Such efforts will ensure that REDD+ is immersed in existing structures and should facilitate implementation and increase efficiency.

6.2.7 General outlook of the 3Es and prospective REDD+ policy outcomes

REDD+ Tanzania is in its infancy and much work remains to be done to secure long-term 3E REDD+. Currently, the bulk of the technical work is executed by outsiders (third party) and not in-country. Efforts to avoid creating an unsustainable intervention and a culture of dependency have included an active focus on training, education and research focusing on moving towards an efficient REDD+. Considerable support has been channeled to universities and the vocational realm more broadly through CCIAM and the Forest Training Institute (Olmotonyi).

Discussion with REDD+ proponents in Tanzania revealed that the Tanzanian forest context (mostly low carbon storage, heavily degraded miombo, coral rag or coastal forests) might not yield the substantial amount of cash (i.e. due to the low levels of carbon) that is expected by the villagers. Other initiatives, such as PFM, have struggled to attain their goals via behavioral change when they did not provide substantial tangible benefits to the managers and custodians of the forest. Therefore the cost–benefit analysis of the intervention (and related actions) needs to be understood, and supported where necessary, by other interventions that also strive to curb deforestation and degradation. Working on capacity building with communities to improve their business and entrepreneurial skills is important for REDD+ and to encourage sustainable resource use.

Efficiency will be enhanced if specific, community-level measures to reduce the risks of leakage from PFM to non-PFM areas. This could include a range of options (e.g. including development activities in the REDD+ intervention such as livelihood diversification, investments in improving agricultural capacity, etc.) that address the use and management of forest resources at a landscape level including the drivers of deforestation.

To ensure equity and Free Prior Informed Consent (FPIC) there is a continued need for simplifying some of the REDD+ methods and promoting participation of local communities backed by intensive training and capacity building. Continued and timely outreach and communication remains essential and it will be important to demystify the terms, procedures and process associated with REDD+ for district officials, local NGOs and most importantly communities and individuals taking part in REDD+.

REDD+ will be most effective if the main drivers of deforestation and land degradation can be addressed. The detection of some drivers (e.g. natural forest land conversion to agriculture land and charcoal production) is problematic and will require additional costs and time on the part of implementers. MRV is complex technically, and potentially very expensive, so determining the right cost-effective method to use is difficult. Moreover, such MRV can only follow from a clear-cut strategy to reduce deforestation which, at least nationally, is still lacking.

Current pilot projects are experimenting with various strategies and methods to identify which management interventions are most successful in avoiding or reducing emissions. For example, TFCG and MCDI are making progress in tackling two of the most important drivers of deforestation and degradation, fire and shifting cultivation. The project plans to sell the carbon offset though a third-party partner (e.g. eco-lodges), as part of their corporate social responsibility programs.

7 Conclusion and policy recommendations

Tanzania has vast forest resources yet they are undergoing high rates of deforestation and forest degradation. The estimated deforestation rate is 370,000 ha per annum and this is concentrated in the *de jure* open access 'general land' or 'unregistered land' (NAFORMA 2014). The forest loss and forest degradation in Tanzania is due to several factors, notably small-scale farmers who clear forests for agriculture, largely because access to alternative agricultural technologies (such as mechanization, artificial inputs, etc.) does not exist. Other important drivers include timber extraction for charcoal production which is widespread and unsustainable. National markets for charcoal, especially close to growing cities, are vast and, in addition, charcoal is illegally exported. Finally, illegal logging represents a serious threat to Tanzanian forests. The industry is perpetuated by the high national and international market demand, the weak forest management and the governance failures, which feature even in commercial (i.e. legal) logging. In this context, REDD+ faces the challenge of influencing those powerful actors which are invested in and which drive the business as usual model. REDD+ must work to create an environment of good governance, transparency and equity while addressing these drivers of deforestation and degradation. Despite initial enthusiasm for REDD+, readiness efforts slowed by 2013 due to delays and political challenges. These include the challenge of developing the national framework, the on-going stalemate in international climate agreements, and the underanticipated involved technical nature of the process of REDD+ (NORAD 2014b).

Currently, the REDD+ policy framework to address forest management, deforestation and forest degradation acknowledges these drivers but falls short of outlining a comprehensive intervention plan. The prospects for REDD+ are questionable given uncertainty on a number of issues: tenure arrangements, forest governance, long-term funding, benefit sharing, and technical, human and financial capacity represent just some of the challenges facing REDD+ in Tanzania. The transformational change required to steer away from business as usual trajectories of development and into a REDD+ model of avoided and reduced emissions is as yet not evident in Tanzania. Rather, business as usual remains the norm with the backing of powerful sectors invested in such activities (e.g. agriculture). A significant implementation gap exists between policy and practice, and the government's efforts to improve law enforcement have not borne expected results.

REDD+ payments are expected to catalyze behavioral change at the local level. However, REDD+ faces governance challenges that will need to be well navigated to secure equitable outcomes. For example, the tendencies towards elite capture of benefits will need to be avoided. Additional accountability mechanisms, such as electoral institutions, legal structures and transparency will be essential in order to enhance equitable benefit-sharing schemes. We suggest that there is scope for REDD+ benefit sharing to build on the existing PFM system. However, while largely embedded in the PFM context, REDD+ appears to be adopting benefit flows that are distinct (i.e. that will flow to the national level) from those designed for PFM (i.e. village level). Even within PFM, benefit sharing has been a challenge and highlights the need for careful attention and planning in the context of REDD+. For example, PFM institutional structures have struggled to show tangible forest benefits where communities and central government manage forest jointly (JFM) while CBFM has been more successful (Blomley

and Iddi 2009; Treue et al. 2014). Clearly REDD+ must take efforts to ensure that the benefit-sharing mechanisms are locally appropriate and legitimate if they will secure behavioral change. Issues of land tenure are central in the Tanzanian context. For example indigenous land claims are not formally acknowledged in Tanzania, and around 60% of the forest estate is under contested ownership and *de jure* open access. These issues hold significant implications for equitable REDD+ and are further complicated by the ambiguity that surrounds rights to carbon and trees.

At the local level in Tanzania, livelihood diversification is regarded as a tool to reduce poverty, a secondary goal of REDD+ in Tanzania. Diversifying livelihoods in coordination with the forest management plan (e.g. integrating activities such as beekeeping and eco-tourism, or even supporting FSC certification for additional income) will require good governance, transparency, cross-sectoral action, participation in forest management and accountability measures in all levels of forest governance. Some progress is underway already in the various REDD+ pilot interventions. These have gained much from being well connected to national PFM strategies, within which some accountability mechanisms have been implemented by locally responsive representation. Locally responsive representation and good governance could ensure forest product trade to provide equitable benefits in line with national and local development goals, without compromising forest and carbon integrity. Further, by having good governance in place, forest degradation and deforestation caused by illegal and corrupt activities could be considerably minimized.

More importantly, mechanisms to include the public domain and vulnerable groups are needed to ensure that the design of REDD+ does not exclude vulnerable citizens or generate negative impacts. Such mechanisms could include: (1) the careful consideration of the scale (considering accessibility, capacity, etc.) and timing of activities (e.g. when people are not engaged in other livelihood activities) and payments; (2) the use of reliable methods for MRV carried out by disadvantaged actors (e.g. participatory MRV through community training and capacity building) and a transparent system of benefit tracking (e.g. posting all community income and expenses for public review, sometimes done at the community notice board), (3) assessment of the opportunity costs of different land uses based on profitability and carbon.

While much REDD+ implementation is happening at the village government level, the policy and strategy decisions which will shape REDD+ implementation are expected to happen at the national and international level (e.g. within MNRT and DoE). REDD+ proponents are supposed to implement projects through district and village councils but follow the directives issued by the MNRT and DoE. Given the lack of coordination between MNRT and DoE this is perhaps not the most efficient structure. This report argues that the need for more cross-sectoral and vertical participation is of paramount importance to REDD+. Strategic documents like the National REDD+ Strategy have so far failed to detail a clear process for conducting consultation and ensuring participation in REDD+ implementation.

In Tanzania several REDD+ related interventions (funded by donors) came to an end in 2014 and early 2015, including many REDD+ pilots projects as well as the NAFORMA initiative working on issues to feed into MRV. The uncertain future funding in Tanzania has significant implications for making more progress with REDD+ and the large investments needed to improve MRV capacities and baseline data also need to be addressed. Currently, it is difficult to see a positive future for REDD+ if these donor sourced funding for REDD+ activities ceases. REDD+ is unlikely to maintain priority on the political agenda without outside funding. Likewise, the future of the national REDD+ fund will depend largely on bilateral donors', mainly Norway's, interest in continuing REDD+ funding in the near future. An international REDD+ mechanism is designed to become an internationally driven performance-based payment mechanism. Yet, in many of the forested areas of Tanzania, it is expected that the carbon stock enhancement will not be high enough, and performance-based payments in connection to carbon markets will likely not generate sufficient tangible benefits, if there is not additional funding from other sources, for example, through fund-based mechanism.

To what extent REDD+ is 'old wine in a new bottle' in Tanzania? Largely yes, but old wine

is good when it is kept well. We recommend continuing support towards decentralized sustainable forest management and participatory land-use planning practices, as well as developing and improving mechanisms against illegal logging and unsustainable land-cover changes. Designing the REDD+ mechanism locally on the current PFM model, could provide an avenue to long-term support for local forest carbon stock enhancement activities. However, the implementation of this type of mechanism is only possible if the national, sub-national, local and private sector actors are committed towards avoiding forest degradation as well as counter the business-as-usual pressure for land cover changes in natural forest areas.

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9 Appendices

Appendix 1. List of multi-stakeholder forums

	Abbreviation	Full name of organization (or individual)
Government and state agencies	FBD-MNRT	Ministry of Natural Resources and Tourism – Forestry and Beekeeping Division
	VPO-DoE	Vice President's Office – Division of Environment/ DNA
	IRA-UDSM (REDD+ Task Force)	Institute of Resources Assessment, University of Dar es Salaam
	PMO-RALG	Prime Minister's Office – Local Government Authority
	TAFORI	Tanzania Forest Research Institute (TAFORI)
	SUA	Sokoine University of Agriculture
	UCLAS	Ardhi University
	DFNRNR Zanzibar	Department of Forestry Zanzibar
Unions, community-based and non-governmental organizations	TFCG	Tanzania Forest Conservation Group
	MCDI	Conservation and Development Initiative
	JGI	Jane Goodall Institute
	AWF	African Wildlife Foundation
	TaTEDO	Tanzania Traditional Energy Development and Environment Organization
	MJUMITA	Community Forest Conservation Network
	TNRF	Tanzania Natural Resource Forum
	WWF	Worldwide Fund for Nature
	ESRF	Economic and Social Research Foundation
	JET	Journalists Environmental Association of Tanzania
	LARRRI/HAKIARDHI	The Land Rights Research and Resources Institute
	LEAT	Lawyers Environmental Action Team
	CCF	Clinton Climate Foundation
International organizations	UN-REDD+ (UNEP, FAO and UNDP)	United Nations REDD+programme
	WB-FCPF	World Bank/Forest Carbon Partnership Facility
	RNE	Royal Norwegian Embassy
	CARE International	Thabit Masoud and Bakar Amour
	FAO	In case of NAFORMA funded by Ministry for Foreign Affairs of Finland
	Terra Global	Terra Global
Businesses and business organizations	CT	Carbon Tanzania
	DASS	Development Associates

Appendix 2. Tanzania main forest types with description of their main structure, driver of deforestation and degradation, height and biological values, historical pre-1850 area, area in 1990 and 2000 , percentage loss from 1990 to 2000, estimate of carbon (stem, branches and roots; not soil carbon) in pristine and degraded forest and indicative loss through degradation.

Ecosystem/ Forest type	Description	Main DD drivers and threats	Historical area (ha)	Area in 1990 (ha)	Area in 2000 (ha)	%loss 1990-2000	Carbon in pristine forest (t ha^{-1})	Carbon in degraded forest (t ha^{-1})	Loss (t ha^{-1})
Miombo woodland	Closed canopy forest on poor soils; deciduous in dry season; to 30 m; moderate biodiversity value	Medium level pressure from agriculture (e.g., tobacco in Tabora area) and charcoal	40% of land area	Only partial data	Only partial data	13	70	40	30
Acacia savannah woodlands	Open canopy forest in dry areas; deciduous in dry season; to 20 m; moderate biodiversity value	Medium-low pressure from woodfuel, poles, subsistence farming, grazing	No data	No data	No data		No estimate available	No estimate available	
Eastern Arch mountains (upper and montane forest areas	Closed canopy evergreen forest on crystalline mountains; to 40 m; exceptional biodiversity value	High pressure from fire, encroachment, illegal logging for valuable timber spp., slash & burn farming	1,799,200	355,000	353,100	1	306	83	223

Ecosystem/ Forest type	Description	Main DD drivers and threats	Historical area (ha)	Area in 1990 (ha)	Area in 2000 (ha)	%loss 1990-2000	Carbon in pristine forest (t ha^{-1})	Carbon in degraded forest (t ha^{-1})	Loss (t ha^{-1})
Coastal forerst (exluding mangrove	Semi-evergreen closed canopy forest within a mosaic of other vegetation types located along E coast; to 30 m; high biodiversity value	High pressure from illegal logging, charcoal, biofuel plantations and agriculture	1,500,000	704,200	684,100	7	157	33	124
Guineo-Congolian lowland forest	Closed canopy evergreen forest found in NW lowlands; to 50 m; high biodiversity value	Medium-high pressures from agriculture, esp. livestock, charcoal, near urban areas	<1,000,000	No data	670,000		No estimates available	No estimates available	
Mangrove forests	Closed canopy evergreen forest in marine mud; to 25 m; low biodiversity value	High pressure for poles, timber, boat building (especially near towns), shrimps & salt pans	No data	109,500	108,100	2	No estimates available	No estimates available	
Albertine rift forests	Closed canopy evergreen forest on crystalline mountains; to 40 m; high biodiversity value	No data	No data	No data	No data		No estimates available	No estimates available	

Ecosystem/ Forest type	Description	Main DD drivers and threats	Historical area (ha)	Area in 1990 (ha)	Area in 2000 (ha)	%loss 1990-2000	Carbon in pristine forest (t ha^{-1})	Carbon in degraded forest (t ha^{-1})	Loss (t ha^{-1})
Southern rift forests	Closed canopy evergreen forest on crystalline mountains; to 40m; high biodiversity value	No data	No data	No data	No data		No estimates available	No estimates available	

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CIFOR Occasional Papers contain research results that are significant to tropical forest issues.
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Since 2009, CIFOR has implemented the policy component of the Global Comparative Study of REDD+ in fourteen countries: Bolivia, Brazil, Burkina Faso, Cameroon, Democratic Republic of Congo, Ethiopia, Indonesia, Laos, Mozambique, Nepal, Papua New Guinea, Peru, Tanzania and Vietnam. In analyzing national REDD+ policy arenas and emerging strategies, researchers have developed five areas of work for each country. These include a country profile, media analysis, policy network analysis, strategy assessment and a fifth area of specific policy studies to be determined by emerging research results.

This country profile for Tanzania provides an overview on the socioeconomic and political context within which REDD+ policies and processes emerge. It explores the Tanzanian REDD+ policy processes and strategies at the national level, identifying barriers, limits and opportunities in national REDD+ arenas to inform future REDD+ design by providing research-based options for achieving efficient, effective and equitable REDD+ (i.e. the 3Es of REDD+). Both direct and indirect drivers of deforestation and forest degradation are at work, including forest conversion to small-scale agriculture, timber extraction driven by demand from national and international markets, fuelwood and charcoal, and population growth. The prospects for REDD+ rest on improving a number of issues: tenure arrangements, forest governance, reliability of long-term funding, benefit-sharing mechanisms, and technical, human and financial capacity. We recommend the continuation of support towards decentralized sustainable forest management and utilization of the participatory forest management model as an entry point for REDD+ initiatives. Participatory land-use planning practices coupled with improved spatial planning and strengthening mechanisms against illegal activities entrenched in driving forest degradation are needed. In addition, for REDD+ to succeed it will need to challenge and overcome the powerful actors invested in and driving the business-as-usual model.

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