

REPORT

Forest Carbon Partnership Facility (FCPF) Readiness Preparation Proposal

- **Component 2a:** Assessment of land use, forest policy and governance
- **Component 2b:** REDD strategy options
- **Component 2c:** REDD implementation framework

Sara Namirembe

Contents

LIST OF ACRONYMS	4
BACKGROUND	6
1.0 COMPONENT 2A: ASSESSMENT OF LAND USE, FOREST POLICY AND GOVERNANCE	8
1.1 Deforestation and Forest Degradation in Uganda	9
1.2 Trends in Land Tenure	12
1.2.1 Forest resource rights and implications on REDD	13
1.2.1.1 Forest and carbon tenure in forest reserves	14
1.2.1.2 Forest and carbon tenure in private forests	16
1.2.2 Proposed Land Policy	17
1.2.2.1 Land administration	17
1.3 Forest Policies and Governance	18
1.3.1 Policy and legal framework	18
1.3.2 Forest governance	18
1.3.3 Institutional framework	21
1.3.4 Forest management	22
1.3.5 Forestry research and training	23
1.3.6 Trans-boundary forest management	23
1.4 Deforestation and Forest Degradation in Uganda	23
1.4.1 Agricultural expansion into forested land	24
1.4.1.1 Underlying causes	24
1.4.1.2 Interventions	26
1.4.2 Unsustainable cutting of trees for charcoal	26
1.4.2.1 Underlying causes	27
1.4.2.2 Interventions	28
1.4.3 Unsustainable cutting of trees for firewood	28
1.4.3.1 Underlying causes	29
1.4.3.2 Interventions	29
1.4.4 Unsustainable harvesting of timber	29
1.4.4.1 Underlying causes	30
1.4.4.2 Interventions	31
1.4.5 Livestock grazing and bush burning	32
Summary of REDD+ strategy development activities and budget	34
2.0 REDD STRATEGY OPTIONS FOR UGANDA	35
2.1 Background	35
2.2 Context	35
2.3 GOVERNANCE REFORMS	36
2.3.1 Enforcement	36
2.3.2 Addressing legal gaps in forest management	37
2.3.3 Clarification of property rights	37
2.4 PARTNERSHIPS AND STAKEHOLDER ENGAGEMENT	37

2.5	CAPACITY BUILDING.....	38
2.6	INFORMATION	38
2.7	Strategies for addressing key deforestation/degradation drivers.....	38
2.7.1	Unsustainable fuelwood extraction (charcoal and firewood).....	38
2.7.2	Expansion of agriculture into forest	40
2.7.3	Unsustainable timber harvesting	40
2.8	Major thematic studies	41
2.9	Road map for REDD strategy options.....	43
2.10	Conceptual framework for monitoring the REDD strategy	43
	Budget for developing the National REDD Strategy	45
3.0	TERMS OF REFERENCE FOR THE DESIGN OF A NATIONAL REDD IMPLEMENTATION FRAMEWORK IN UGANDA.....	46
3.1	COORDINATION	46
3.2	NEGOTIATION AND ACCESS TO FINANCING MECHANISMS	48
3.3	FINANCIAL AND INCENTIVE MANAGEMENT AND CHANNELING.....	49
3.4	INFORMATION GENERATION AND MANAGEMENT	49
	Budget for developing REDD Implementation Framework	50
	References	51
	List of persons Consulted	53

LIST OF ACRONYMS

ADB	African Development Bank
APRM	African Peer Review Mechanism
CARE	Cooperative American Relief Everywhere
CBFM	Community Based Forest Management
CBO	Community Based Organisations
CCOs	Certificates of Customary Ownership
CDM	Clean Development Mechanism
CFR	Central Forest Reserves
CFM	Collaborative Forest Management
CLAs	Communal Land Associations
CRM	Collaborative Resource Management
CSOs	Civil Society Organisations
CWAs	Community Wildlife Areas
DD	Deforestation and forest Degradation
DDP	District Development Plan
DFO	District Forest Officer
DFS	District Forest Services
EIAs	Environmental Impact Assessment
EMPFORM	Strengthening & Empowering Civil Society for Participatory Forest Management
ENR	Environment & Natural Resources
EPRC	Economic Policy Research Centre
EU	European Union
FAO	Food & Agriculture Organisation
FCPF	Forest Carbon Partnership Facility
FD	Forest Department
FIEFOC	Farm Income Enhancement & Forest Conservation
FNCMP	Forest Nature Conservation Master Plan
FR	Forest Reserve
FRMCP	Forestry Resources Management & Conservation Programme
FSSD	Forest Sector Support Department
GDP	Gross Domestic Product
ICDP	Integrated Conservation and Development Project
IDP	Internally Displaced people
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IGG	Inspector General of Government
IRDI	Integrated Rural Development Initiatives
ISSMI	Integrated Stock Survey & Management Inventory
IUCN	International union for Conservation of Nature
JMR	Joint Management Reserve
LC	Local Council
LFRs	Local Forest Reserves
LG	Local Government
LIS	Land Information System
MBICT	Mgahinga & Bwindi Impenetrable Forest Conservation Trust Fund
MEMD	Ministry of Energy & mineral Development
MoFPED	Ministry of Finance, Planning & Economic Development
MoLG	Ministry of Local Government
MoU	Memorandum of Understanding
MW	Mega Watts
MWE	Ministry of Water & Environment
NAADS	National Agricultural Advisory Services
NaFORRI	National Forestry Resources Research Institute
NEMA	National Environment Management Authority
NEMP	National Environment Management Policy
NFA	National Forestry Authority
NFTPA	National Forestry & Tree Planting Act

NGO	Non Governmental organisation
NP	National Park
PA	Protected Area
PEAP	Poverty Eradication Action Plan
PES	Payment for Ecosystem Services
PEMA	Participatory Environment Management
PFE	Permanent Forest Estate
PFS	Private Forests
REDD	Reduced Emissions from Deforestation and forest degradation
RPP	Readiness Preparation Proposal
SACCOs	Savings and Credit Community Organisation
SCOUL	Sugar Corporation of Uganda Limited
SNRs	Strict Nature Reserves
SPGS	Sawlog Production Grant Scheme
THF	Tropical High Forest
ToR	Terms of Reference
UBOS	Uganda Bureau of Statistics
UFRIC	Uganda Forestry Resources & Institutions Center
UGX	Uganda Shillings
UNBS	Uganda National Bureau of Standards
UNDP	United Nations Development Programme
UNETCOFA	Uganda Network for Collaborative Forestry Association
URA	Uganda Revenue Authority
USAID	United States Agency for International Development
UWA	Uganda Wildlife Authority
UWASP	Uganda Wildlife Authority Strategic Plan
VAT	Value Added Tax
WB	World Bank
WRs	Wildlife Reserves

BACKGROUND

The total surface area of Uganda is 241,038 km² with about 82% land area and 18% water and swamps (Uganda Bureau of Statistics 2001). The western, central and southern regions are generally more moist while the northern and eastern sides of the country are drier. Highlands cover about 5.9% of the country (Bekunda and Manzi 2003). The population grew from 4.8 million in 1948 to 29.7 million in 2008 and is currently increasing at a rate of 3.2% per annum (Uganda Bureau of Statistics 2008). The National Population Policy of 2008 (MOFPED 2008) provisions aim at 'planning and investing in the increasing population', but not at population control. About 88% of the population lives in rural areas depending on rain-fed subsistence agriculture, which currently covers 41% of the land area. Average land holding per household ranges from 0.98 to 1.35 ha - far less than the ideal 5 ha that a rural farmer can use sustainably (Knopfle 2008). Poverty levels are high and infrastructure development is still very basic.

The economy depends mostly on the exploitation of natural resources. In general, Uganda has low energy consumption at 60 kWh/capita compared to South Africa at 4,200 kWh/capita, Egypt at 1,200 kWh/capita and Malaysia at 3,200 kWh/capita. The country's energy sources include firewood (88%), charcoal (5%), petroleum products (6%) and electricity (1%). Between 2001 and 2007, the annual contribution of the forestry sector to GDP ranged between 3.2% and 3.6%. Actual earnings from the sector (mainly from timber and fuelwood) increased steadily from UGX 405 billion in 2001 to UGX 825 billion (MFPED 2008). The total economic value including all marketable and non-marketable values of Uganda's forests could be more if ecosystem services such as watershed protection, soil stabilization, carbon sequestration and biodiversity conservation services are factored in (Bush et al, 2004). The sector employs 850,000 persons in the formal and informal sectors.

About 2.7 million people live in parishes adjacent to forest reserves and another 6 million live within access of private forests (APRM 2007). Forestry contributes approximately 11-27% of annual earnings (Bush, et al. 2004) or \$78/year to adjacent households through activities such as raising and selling tree seedlings, bee keeping, making crafts, harvesting and selling timber, poles, firewood, charcoal, medicinal herbs and vegetables. Income earned from non-wood forest products such as bush meat, bamboo, crafts, medicine and rattan cane is estimated at US\$ 35 million/year (APRM 2007).

At a rate of forest loss ranging from 0.7% to 2.27% (NFA 2009), the country has one of the highest rates of forest loss globally. According to the REDD regional consultative meetings conducted by NFA this year, indirect causes of deforestation include *population pressure, limited income options for forest adjacent people and inadequate awareness of the consequences* (Kiconco, unpublished). Addressing deforestation and forest degradation requires taking into consideration other landuse trends with which forestry is intimately linked. Under the support of the World Bank's Forest Carbon Partnership Facility, Uganda is in the process of developing a Readiness Preparation Proposal (RPP) aimed at achieving Reduced Emissions from Deforestation and Forest Degradation (REDD) countrywide.

This report presents the findings covering the following sections of Component 2 of the Readiness Preparation Proposal (RPP) for FCPF:

- a) An assessment of Uganda's landuse, forest policies and governance to inform REDD strategy development.
- b) REDD strategy options or candidate activities

- c) Terms of reference for the design of a national REDD implementation framework and risk assessment of a REDD strategy

The first section deals with how the forest resource is impacted by trends in land use, land tenure and governance. It analyses the deforestation forest degradation drivers and their underlying causes and reviews the extent to which past interventions to address these have been effective. The second section recommends strategies that should be put in place in order to reduce deforestation and forest degradation in the country detailing the institutional and resource requirements to achieve effective reduction that is socially and economically sustainable. The third and final section of the report outlines the terms of reference for the implementation framework of the REDD strategy based on an analysis of changes required in existing institutional and legislation frameworks.

The findings presented in this report are based review of in-depth studies made in Uganda, reports from community consultations, a stakeholder workshop with participants from relevant sectors, and focus consultation with leaders of key sectors of REDD in Uganda.

1.0 COMPONENT 2A: ASSESSMENT OF LAND USE, FOREST POLICY AND GOVERNANCE

This section analyses trends in forest resource management in the context of the general land use trends in Uganda. Apart from protected areas, large commercial agricultural estates, and key state-driven infrastructural developments, land use on the larger fraction of the country is dominated by disjointed, unsustainable small-scale activities not guided by a master plan. Agricultural zonation and district environment plans are not conformed to mainly due to poor financing, sweeping political statements with no technical basis and inadequate staffing and enforcement. Rapid urbanization is also resulting in destruction of the environment due to increased demand for charcoal and fuelwood energy. In addition, land use and land management, lie in many institutions often uncoordinated or in competition with one another for recognition and resources.

Land cover has been divided into twelve major cover classes by the National Biomass Unit as outlined in Table 1. Natural forest vegetation, which is the main focus of REDD, is categorized into three broad types: Tropical High Forest (THF) well stocked, Tropical High Forest low stocked, and woodland; and the area under all three types declined between 1990 and 2005. In contrast, the area under subsistence agriculture and bush cover increased. Wetlands also increased especially in Teso district because of heavy rains and blockage of drainage into Lake Kyoga (NEMA 2009b).

Table 2 shows land cover change in terms of biomass loss. Management of woodlands has been generally neglected until FRMCP piloted woodland management activities, such as protection against fires and enrichment planting (Nsita 2010). Although standing biomass (living/above-ground biomass) stocking in woodlands is almost five times lower than that in THF well stocked and over 3 times lower than that in THF low stocked, the widespread loss of woodlands between 1990 and 2005 was equivalent to over five times the biomass loss from THF well stocked. This is equivalent to a loss of about 200,000 ha of THF well stocked compared to the 50,158 ha recorded or about one third of the remaining THF well stocked area in 2005.

Table 1. Land Cover change 1990 and 2005

No.	Land cover type	Area 1990 (ha)	Area 2005 (ha)	Change %
1	Broad leaved	18,682	14,786	-21
2	Conifer	16,384	18,741	-14
3	Tropical High Forest (well stocked)	651,110	600,957	-8
4	Tropical High Forest (low stocked)	273,062	191,694	-30
5	Woodland	3,974,508	2,777,998	-30
6	Bush	1,422,193	2,968,675	109
7	Grassland	5,115,426	4,063,582	-21
8	Wetland	484,030	753,041	56*
9	Small scale farmland	8,400,789	8,847,592	5
10	Large scale farmland	68,447	106,630	56
11	Built up area	36,572	97,270	166
12	Impediments	3741	7,804	109
	Open Water	3,689,603	3,706,489	0
		24,155,246	24,155,347	-

Source: NFA 2009

*The observed increase in wetland area is yet to be confirmed by Wetland Management Department, which is using a slightly different classification method

Bush lands, grasslands and wetlands, are not considered to be part of the forest cover, although they contain different forms of trees and shrubs in their landscapes. While expansive loss of grassland also resulted in significant loss of biomass, the expanding bush lands (1990-2005) resulted in very little gain in standing biomass.

Wetland vegetation is dominated by papyrus, which contains very low living biomass (0.31 tons/ha), but follows a C4 photosynthetic pathway, predicted to sequester about 16 t C/ha/y (Jones and Humphries 2002). Its peat-like sediment contains about 2.5 t C/ha (Mitsch and Bernal, 2008). Wetland vegetation has a neutral to positive overall carbon sequestration effect, balancing its carbon sequestration capacity against its release of methane (op cit). REDD incentives should be explored for protection of wetlands against destruction, which exposes accumulated rhizomes to aerobic conditions resulting in a potential net release of 10 t C/ha/y (Jones and Humphries 2002).

Table 2. Biomass changes due to land–use change in Uganda

Vegetation type	Area 2005 (ha)	Difference in area 1990- 2005 (ha)	Biomass in standing stock, 2005 (000, tons)	Biomass density in 2005 (tons/ha)	Difference in standing biomass 1990-2005 (000 tons)*
THF well stocked	600,952	-50,153	136,491	227.13	-11,390
THF low stocked	191,694	-81,367	27,596	143.96	-11,710
Woodland	2,777,997	-1,196,510	126,014	45.36	-54,280
Grassland	4,063,581	-1,051,844	46,852	11.53	-12,130
Bush	2,968,675	1,546,482	14,008	4.72	7,300
Wetlands	753,041	269,011	236	0.31	80
Area of the Country	24,155,347				

Adapted from: NFA 2009

Tons = metric tons

** Assuming no change in stocking density over time*

1.1 Deforestation and Forest Degradation in Uganda

The current (2005) forest cover is estimated at 3,570,643 ha, having declined from 4,900,000 ha in 1990. FAO estimated the forest cover to have been as much as 10,800,000 ha in 1890 (35% of Uganda's land area). Well stocked tropical high forests (THF) are mainly in the western part of the country (Bugoma, Budongo, Kibale, Rwenzori Mountains, Kalinzu-Maramagambo, Katsyoha-Kitomi, Bwindi Impenetrable and Mgahinga) and in the east around Mt. Elgon. Low stocked THFs are around the shores and on the islands of Lake Victoria while woodlands are in the northern central and western regions. The eastern part of the country is mostly forest-poor (Table 3).

Over 1,900,000 ha of the forest area is protected under the Permanent Forest Estate (PFE), defined in the Forestry Policy, 2001 as *"land set aside for forestry activities in perpetuity"*. The PFE is for ensuring sustainable availability of forest resources for the people of Uganda including conserving biodiversity and protecting steep slopes, water catchments, riverbanks, lakeshores and wetlands. The PFE is held in trust for the people of Uganda by Government in the form of central forest reserves managed by the National Forestry Authority (1,270,797 ha) and the Uganda Wildlife Authority (731,000 ha), and local forest reserves managed by district governments (4,997 ha). Within the PFE, currently 78% (1,468,000 ha) is under forests and woodland, while the rest is mainly grassland (Kayanja and Byaruhanga 2001).

The rest of the forest estate (almost 64% of the total forest cover), which is mostly woodland (Kayanja and Byaruhanga 2001), is under private ownership (State of the Environment Report 2004/5). This is where deforestation and forest degradation mainly occur (Plumptre 2002).

Table 3. Geographical distribution of natural forests in Uganda

<i>Forest type</i>	<i>Extent in 2005 (ha)</i>	<i>Districts with > 20,000 ha of forest</i>
Tropical high forests, well stocked	600,956.81	<u>WEST</u> : Kyenjojo (84,000), Bushenyi (68,231), Hoima (58,889), Kibaale (58,268), Kasese (49,794), Bundibugyo (45,612), Kabarole (39,177), Masindi (31,933), Kamwenge (26,769)
Tropical high forests, Low stocked	191,694.36	<u>CENTRAL</u> : Mukono (63,977), Mpigi (27,170), Kalangala (21,079)
Woodland	2,777,997.8	<u>NORTH</u> : Abim, Ajumani, Amuru, Apac, Arua, Gulu, Kitgum, Kotido, Moroto, Moyo, Nakapiripirit, Nebi, Pader, Yumbe <u>WEST</u> : Bundibugyo, Bushenyi Hoima, Kabarole, Kamwenge, Kasese, Kiruhura, Kyenjojo, Masindi <u>CENTRAL</u> : Kayunga, Kiboga, Mubende, Nakaseke, Nakasongola,

Source: NFA, 2009

Between 1990 and 2005, forest loss was estimated at 88,638 ha/year - approximately 0.7% (7,000 ha/y) in protected areas and 2.27% outside protected areas (NFA 2009). Table 4 shows the districts with the largest forest area lost between 1990 and 2005. Loss of tropical high forests (in hectares) occurred mainly in Kibaale (52,745), Mukono (36,649), Wakiso (24,679), Hoima (16,254) and Mayuge (14,711). Deforestation on previously forested steep terrains, especially in Mount Elgon and the surrounding foothills, the Ruwenzori mountains and the south-western mountainous region (NEMA 1996) has led to soil erosion. Deforestation in Kiboga-Mubende hills, Bududa district on the slopes of Mount Elgon and along the western border between Uganda and the Democratic Republic of Congo has led to siltation of rivers Kafu, Manafwa and Semliki respectively.

Table 4. Highest loss of total forest area (1990-2005)

<i>District</i>	<i>Area lost (ha)</i>	<i>% loss</i>
Kitgum	297,147	63
Kiboga	87,131	52
Amuru	81,406	21
Kibaale	80,585	43
Nakasongola	63,127	49
Hoima	62,250	39
Kamuli	19,998	81
Bugiri	20,297	76

Source: NFA, 2009

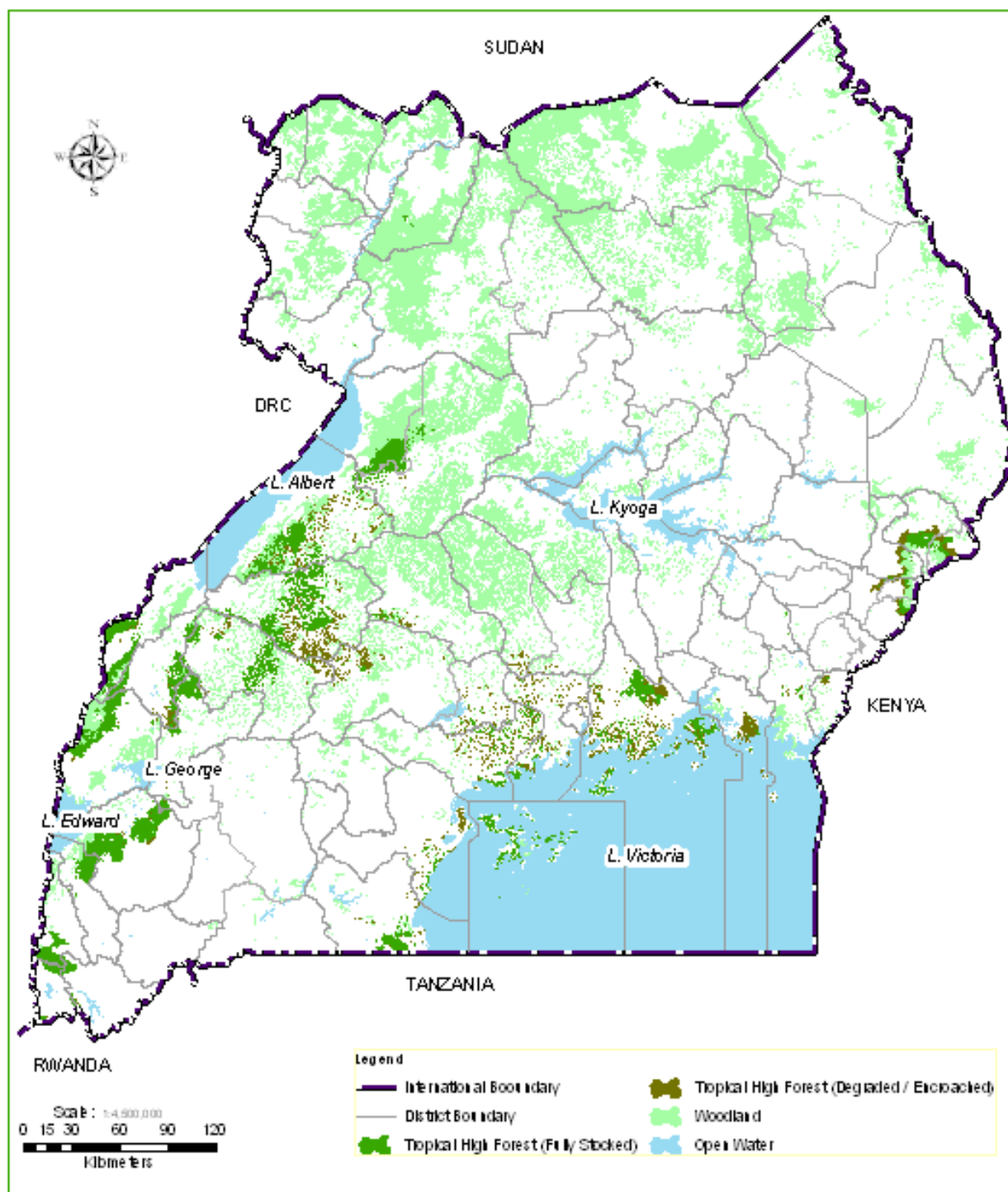


Figure 1. Uganda natural forest cover in 2005 (from the National Biomass Unit).

1.2 Trends in Land Tenure

Land tenure in Uganda is governed by the Constitution of Uganda 1995, the 1998 Land Act, the Registration of Titles Act and the Customary Land law. The Constitution lays down the fundamental principles with regard to land ownership; the Land Act governs land ownership, land administration and resolution of land disputes while the Registration of Titles Act deals with the registration and transfer of titles to land. Deriving from Article 237 of the 1995 constitution, the 1998 Land Act vests ownership of land in the citizens of Uganda. The Act empowers people to use the land they own in any way but it also subjects the use to other existing laws. Land is vested in the citizens of Uganda and can be classified under the following land tenure systems¹— (a) Customary; (b) Freehold; (c) *Mailo*; and (d) Leasehold.

Freehold tenure involves the holding of registered land in perpetuity that enables the holder to exercise full powers of ownership of that land, including using and developing it, and obtaining any produce from it. It also allows the title-holder to enter into any transaction in connection with the land, including selling, leasing, mortgaging or pledging, and subdividing.² Most private forests owned by individuals and companies fall on freehold lands.

Mailo tenure involves the holding of registered land in perpetuity. It differs from freehold in that it permits the separation of ownership of land from the ownership of developments on land made by a lawful or *bona fide* occupant (lived on land for 12 years or more). It enables the holder, subject to the customary and statutory rights of those persons lawful or *bona fide* in occupation of the land, to exercise all the powers of ownership of land as that under a freehold title.³ *Mailo* tenure mainly includes large blocks of land owned by former chiefs and elders of cultural institutions. These people exercised jurisdiction in distant areas and in certain instances became absentee landlords. In the late 1960s, the central government abolished cultural institutions and seized their estates including forested land. In the early 1990s, cultural institutions were reinstated, but the return of their land, including forested land, has not yet been effected. These cultural institutions and absentee landlords still assert claims over these lands and forests.

The *mailo* tenure system also preserves woodlands or forests by restricting access through leasing/renting, especially where landlords are resident. This is because Individual land rights are strong and owners have both incentives and capacity to manage land and tree resources intensively (Place and Otsuka 2000). Because the claims to land by *bonafide* occupants or settled squatters overlap with those of the landlord (especially absentee landlords), ownership of carbon rights in forests on such land could be contested.

While land and tree resource rights are to an extent clear and formally defined under *mailo* and freehold, these forms of land tenure have the disadvantage that they give the owners so much authority over their property that regulatory agencies can exercise only limited control (Kamanyire)

Leasehold tenure is a form of tenure created either by contract or by operation of law; under which one person, namely the landlord or lessor, grants another person, namely the tenant or lessee, exclusive possession of land usually for a period defined, in return for a rent. On expiry of the lease, land tenure reverts to the lessor/landlord. When land under natural vegetation is leased, it is

¹ Article 237 of the Constitution and s. 2 of the Land Act, 1998.

² *ibid.*

³ *ibid.*

generally for purposes of development (agriculture or construction), which will create returns over the leasehold cycle (maximum 49 years). In many cases there is little incentive for leaseholders to invest in forest conservation.

Because of the clearly defined resource rights under freehold and leasehold lands, these forms of land tenure lend themselves favourably into the land market, often for land development. Implementing REDD on forests under these tenure systems would have very high opportunity costs and non-permanence risks.

Customary tenure is a form of land tenure applicable to a specific area of land and a specific class of persons, and is governed by rules generally accepted as binding by the latter. It is applicable to any persons acquiring land in that area in accordance with those rules. Customary tenure is the most common form of land tenure in the rural parts of northern eastern and western Uganda. Land is owned at a tribal level held in trust for the people⁴ by a paramount chief in Masindi, Arua Hoima, Buliisa and entire northern region. In Eastern Uganda Customary land is owned at family lineage level (Tukahirwa). Individuals only have user rights, but not rights of disposal without the permission of the chief/or leader. There is no clear system of registration of members who can lay claim to the land. Individual tenure security seems to be dependent on active agriculture or settlement. Land is generally not officially surveyed or registered. Boundaries (marked by natural features such as trees, rivers, valleys etc.) often demarcate only the utilized (agriculture and settlement) part of the land and are mutually known among neighbors.

Although the 1998 Land Act recognizes customary tenure and the fact that it is governed by traditional laws, the Act gave administrative power to modern institutions, stipulating issuance of Certificates of Customary Ownership (CCOs) as proof of ownership. This undermines traditional institutions and triggers land disputes. No CCOs have been issued, depriving landowners of a sense of security (Foundation for Environmental Security and Sustainability)

Under customary tenure, the use of forests and woodlands is virtually open-access, and there is no incentive for an individual to invest in sustainable practices (Kamanyire). As such, expected profits from woodlands are low and there are strong benefits from conversion to private tenure and agriculture (Place and Otsuka 2000).

1.2.1 Forest resource rights and implications on REDD

In the 1998 Land Act, land is defined as land and all that grows on it. Therefore a landowner is the tree owner except in situations where additional arrangements such as leases and licenses have been made. The 2003 National Forestry and Tree Planting Act, classifies forests according to tenure as (a) Central Forest Reserves under National Forest Authority (NFA) or Uganda Wildlife Authority (UWA); (b) Local Forest Reserves under local governments; (c) Community Forests under community ownership once declared by the minister; (d) Private Forests under private individuals, cultural and traditional institutions; (e) Joint Managed Forests usually forming part of a wildlife conservation area under both the UWA and NFA. According to current legal provisions, there are ten specific arrangements for forest management, with implications on ownership of carbon rights (Table 6).

⁴ *ibid.*

1.2.1.1 Forest and carbon tenure in forest reserves

According to the Constitution of Uganda (1995) and the 1998 Land Act, Central Forest Reserves are managed on behalf of the Ugandan citizens by the UWA or NFA as semi-autonomous central government statutory bodies. Local forest reserves (4,995 ha) are also managed on behalf of the Ugandan citizens by the local governments in line with the Decentralisation Policy. However implementing the trustee-beneficiary relationship has not been without challenges. For example, in 2001, there were efforts to amend the Land Act by providing an exception where the natural resources protected under Section 44 could be leased out in special circumstances by government with the approval of cabinet. This was followed by efforts by Government to degazette Butamira Forest Reserve (2001-2003), Pian Upe Game Reserve (2003-2004), and Mabira Forest Reserve. This fluid state of resource tenure puts in question whether clear governance processes can be established and adhered to in order to ensure effective management of forest reserves (NEMA 2010 draft).

Concessions awarded by Government under Section 14 and 41 of the 2003 National Forestry and Tree Planting Act, entitle concession-holders to rights over forest resources within the forest reserves as specified in their licenses or permits. Forest concessions have been awarded to: harvest mature trees in both natural and plantation forests, plant trees, develop portions of the forest reserve for forestry functions such as saw-milling and wood processing industries, manage eco-tourism sites, undertake Collaborative Forest Management and extract non-timber forest products for commercial purposes (Kiyingi 2006).

Local communities also have access and user rights in forest reserves. The 2001 National Forestry Policy, the 2003 National Forestry and Tree Planting Act, and the 2002 Guidelines for Collaborative Forest Management (CFM) provide for development of ten-year co-management agreements between a Responsible Body (a government entity like NFA or other forest owner) and an organized community group. Under CFM with NFA, the policy and the law are clear that the land and tree tenure of the central forest reserves rests with NFA. In such cases, carbon tenure belongs to the responsible body unless the community group negotiates for it and specifies it in the agreement. NFA also gives the opportunity for CFM communities to acquire a license for 10% of the plantable area within forest reserves. Under the license arrangement, communities own the trees and therefore (presumably) the carbon rights during the licensing period (25 years).

Under the UWA Community Resource Management agreements, communities have only access and user rights to the specified forest reserve sections and have no claim on land or tree tenure.

Table 6. Tenure/institutional system for forest management and implications for REDD/Carbon finance

Tenure	Institution	Management arrangement	Main Characteristics
National Forestry Authority (NFA)	National Forestry Authority (NFA)	Strict Nature Reserves (SNRs) and Sites of Special Scientific Interest	Large forest blocks Normally located inside forest reserves. Tree felling is prohibited.
	NFA with other stakeholders	Buffer zones	Large forest blocks At least 500-1000 m belts around SNRs Low-impact use
	NFA with private sector/ communities	Aforestation/ reforestation of CFR production areas	Mostly large forest blocks for supply of timber & firewood Some is ear-marked for afforestation/ reforestation Large patches are licensed to the private sector; Small patches (< 500 ha) are licensed to individuals or local communities. Licensees have tenure rights for trees they have planted.
	NFA with communities	Collaborative Forest Management in CFR Production Areas	Small patches in degraded central forest reserve sections adjacent to local communities. Local communities have user rights negotiated via a Collaborative Forest Management Agreement.
District or sub-county local governments	District or sub-county local governments	Local Forest Reserves	4,997 ha ⁵ Small < 500 ha highly degraded forests
Uganda Wildlife Authority	Uganda Wildlife Authority	Wildlife Protected Areas - National Parks (NP) and Wildlife Reserves (WRs)	Adjacent local communities may have user rights negotiated via a MoU for Collaborative Resource Management (CRM) in zones not exceeding 20% of the PA.
	Local community committees under local governments with technical assistance from UWA	Community Wildlife Areas (CWAs)	Can be large forest blocks e.g., Amudat (202,500 ha)
UWA and NFA	UWA and NFA	Joint Management Forest Reserves	Large forest blocks e.g., Bwindi National Park (119,200 ha).
Private Forests (can be registered with District Land Board)	Individuals or institutions outside government	Variable	Mostly small fragmented forest patches. None has been registered yet.
Community Forests (can be declared by the Minister)	Potentially CBO, NGO, co-operative society, communal land association (CLA), company, farmers' group, or traditional/ cultural institution	Forests on formerly public or government land that are completely under community control	None has been declared by the minister yet.

⁵ Second Schedule of the National Forestry and Tree Planting Act 2003

1.2.1.2 Forest and carbon tenure in private forests

Private Forests (PFs) are all forests outside government-protected areas. Private forests in Uganda exist on land under freehold, leasehold, *mailo* and customary tenure systems. In all these cases a certificate of title constitutes a *prima-facie* evidence of ownership.⁶ Where land is titled, the land tenure is relatively clear except in cases where squatters or *bona fide* occupants are settled on land or in case of land fraud raising conflicts over such land.⁷

The 2003 National Forestry and Tree Planting (NFTP) Act⁸ provides for a forest owner (individual or community group) to register with the district land board their forest on land owned in accordance with the Land Act, or under a license granted by the NFTP Act. This provision also includes forests on customary (untitled land). Provided that a forest is registered, the Act states that all produce in that forest belongs to the forest owner and may be used in any manner the owner may determine, provided it falls within the management plan and regulations provided under the NFTP Act. In Section 27, the Act explicitly states that government or local government has no ownership over trees or forest produce situated on private land. Currently however, no Private Forest has been registered in Uganda (Ebeling and Namirembe 2010).

Communal forests are a type of private forests existing on land under customary tenure that is not claimed by an individual, commonly on formerly public land (before the 1995 Constitution). Forests on these 'unclaimed lands' are experiencing the highest threats of deforestation especially in northern and western Uganda. Communal forests can also exist on kingdom land. The 1993 Traditional Rulers (Restitution of Assets and Properties) Statute provides for traditional rulers (kingdoms and chiefdoms) to reclaim the forests that belonged to their kingdoms before 1967. This includes CFRs or LFRs existing mainly under the kingdom of Bunyoro. However, ownership of these forests is still being contested between the national government and the kingdoms because the Local Government Act does not legally define traditional institutions as Local Governments (Nsita 2002).

Communal forests can also be owned by Communal Land Associations (CLAs), constituting local community members that have registered a claim to the land and to manage it as "common property".

Although communities have applied to gazette these as Community Forests as provided for under Section 17 of the 2003 Forest and Tree Planting Act, the Government (Minister of Water and Environment) has not authorized any community forests yet. Under Community Forests, community groups can potentially claim all land, tree and carbon tenure rights. The reluctance of government to implement these provisions is based on negative past experiences where devolution of forest management to local governments (1993) and to a registered community organization in Butto Buvuma CFR (1997) resulted in rampant deforestation. However, until Private Forests and Community Forests are formalised, clear ownership of rights over trees and carbon is not legally defensible.

Local communities can designate a forest area as a Community Wildlife Area under local governments. These receive technical assistance from UWA for managing wildlife. Land and tree tenure under CWAs belongs to the members of the community group.

⁶ Under the Registration of Titles Act, a certificate of title is a *prima-facie* evidence of ownership.

⁷ The 1998 Land Act creates overlapping rights over land by recognizing *bona fide* occupants. Forests on such land are subject of conflicts between the landlords and *bona fide* occupants.

⁸ The 2003 National Forestry and Tree Planting Act, Sections 21, 22 and 25.

1.2.2 Proposed Land Policy

Uganda is in the process of drafting a Land Policy, which will change much of the tenure and the rights to land described above. A key feature of the proposed policy is the emphasis on the regulatory power of the State and its agencies over use of land under all tenure 'for orderly development'. The Policy proposes to categorise the four forms of land tenure (freehold, leasehold, *mailo* and customary) under three major structures: Private Land, Public Land and Government Land. In addition, the Land Policy proposes to reform all land tenure regimes and clarify the land tenure framework as follows:

1. Customary land tenure shall be strengthened to facilitate and promote its orderly evolution into a progressive and productive land tenure system;
2. *Mailo* and native freeholds shall be reformed to resolve and disentangle the multiple, overlapping and conflicting interests and rights on *mailo* and native freehold tenure;
3. Freehold tenure shall be subject to state regulatory power to ensure compliance with planning regulations for orderly development by enacting and enforcing conditional covenants or through positive incentives;
4. Leasehold tenure shall be promoted as the basic instrument of access to land in all tenure systems but improvements shall be made through conversions, registration, and standardization;
5. Common property resources on private land shall be managed in a sustainable manner, in complementarity with community practices through, gazettement for the common good, registration, joint management, and building the capacity of communities to manage such lands.
6. Land rights of ethnic minorities shall be recognized in any use and management of protected areas by government through establishment of regulations to: recognize land tenure rights of minorities in ancestral lands; ensure that minority groups benefit from resources that accrue from other industry such as tourism using their ancestral lands; through establishment of criteria for gazetting and de-gazetting of conservation areas
7. Land rights of pastoral communities shall be guaranteed and protected by the state

1.2.2.1 Land administration

The 1998 Land Act establishes Land Boards at the district level and Land Committees at parish levels to deal with matters like transfer of land ownership, land conflict resolution, allocation of unclaimed land, and review of compensation rates (Nsita 2002). Because of financial implications that were not anticipated, district land boards are not yet functioning effectively.

The proposed land policy recommends that Government: (a) restructures the lands rights administration system to enhance efficiency, access, and cost-effectiveness; (b) modernizes and simplifies the land rights delivery systems, and enhances efficiency and cost-effectiveness in land administration; (c) enhances capacity for land rights adjudication, demarcation, survey, and mapping services; (d) establishes and maintains a reliable, and user-friendly Land Information Systems (LIS) as a public good; (e) reinstates Land Tribunals for speedy and affordable resolution of land disputes; (f) develops the capacity of land sector institutions to effectively generate and manage income.

To address inadequacies in land use, the land policy proposes that Government (a) designs a framework for the proper management of land resources (b) reviews and strengthens the framework for land use planning and regulation; (c) institutionalizes mechanisms to restore, maintain and monitor the quality and productivity of land resources; (d) takes measures to restore and maintain the integrity of natural resources as well as enhancing the effectiveness of environmental management by strengthening environmental planning, regulation,

enforcement and monitoring; (e) formulates a National Human Settlement Policy and National Urbanization Policy to undertake comprehensive planning for orderly development; (f) regulates the use of land for agricultural production in tandem with a National Agriculture Policy; (g) ensures that all land use practices conform to land use plans and the principles of sound environmental management, (h) complies with all international commitments on management of climate change parameters; (i) establishes a harmonized and integrated institutional framework for efficient use, appropriate stewardship and effective management of land based natural resources.

1.3 Forest Policies and Governance

1.3.1 Policy and legal framework

Uganda has changed its development strategy from a “Poverty-reduction Strategy” to an “Enterprise Approach”. The National Development Plan (2010-2015) categorizes forestry as a primary growth sector with prospects for investment both from the national budget and the private sector. The National Development Plan emphasizes “sustainable development through preservation of natural resources such as forests ...” The Uganda government draft Vision 2035 is explicit on carbon trading as a means of conserving forests for climate change mitigation.⁹ It provides that Uganda will promote carbon trade that will increase forest cover, as well as incomes of the rural communities. It further provides for promotion of conservation programs that will not only restore but also sustain an optimum level of forest cover in the country.

The 2001 National Forestry Policy and the 2003 National Forestry and Tree Planting Act provide the legal framework for management of forest resources. The broader framework includes the 1995 Constitution of Uganda, the 1996 Wildlife Act, the 1997 Local Government Act, the 1998 Land Act, the 1992 National Environment Management Policy, the 1995 National Environment Act, the Private Forest Registration Guidelines, and the Collaborative Forest Management Guidelines.

In general, the existing policies and legislation seem to provide adequate basis for REDD. The weaknesses stem mainly from weak implementation, corruption and poor enforcement on the ground, a legacy of the complete break-down of law and order from the 1970s and 1980s (Kamugisha 2007). The Forest Regulations have been drafted but they have not been gazetted, limiting the implementation of the Forest Act. In addition the District Forestry Services Handbook was drafted but it has not been adopted as an official guide for the operation of the DFS. Illegal activities are progressively increasing, sometimes with the connivance of government officials - trees are stolen from forests, timber sizes and volumes are under declared, hammer marks are forged, taxes are evaded and timber is milled using chainsaws (Nsita 2010).

1.3.2 Forest governance

Forest governance deals with how power is exercised, how people are involved in forestry issues, especially those of public concern. (World Resources Institute, 2009). Strategies for sustainable forest management have been evolving over time. Between 1938 and 1967, a double tier system (i.e. CG and LGs) of forest management was used. District officials

⁹ The Republic of Uganda Vision 2035. Toward a Transformed Ugandan Society from a Peasant to a Modern and Prosperous Country within 30 years, para.126-127, p. 14.

mostly worked independently, provided they adhered to approved annual plans and budgets. Forest management concentrated on timber production and conservation. In 1967-88, the government adopted a republican constitution, which centralized virtually all government decision-making powers, bringing the management of all forest reserves under the Forest Department (a central government arm) (Nsita 2002). The main approach of forest management was “policing” or forest protection through foot patrols focusing on forest reserves >5ha. Smaller forest reserves were cut down for agriculture and settlement. Forest protection through policing became increasingly difficult as illegal activities escalated. The greatest barrier to enforcement of forest laws was lack of cooperation of adjacent local communities. Traditional beliefs for maintaining sacred forests or particular trees had been mostly disregarded in these processes.

The National Environment Action Planning Process in the late ‘80s –early ‘90s sought to increase stakeholder participation in decision-making and aimed at re-instating the two-tier system of management with increased incentives for natural resource management. In 1993, the government decentralised (devolved) management of central forest reserves to Local Governments as a way of increasing people’s participation in decision-making. However, this was without adequate prior capacity building and resulted in heavy forest losses as decisions mainly for forest conversion were made based on local politics and not technical guidance. The worst affected areas were South Busoga and Luwunga forest reserves (Nsita 2002). In 1995, forest reserves were recentralized albeit through subsidiary legislation. By this time, illegal activities (encroachment and illegal timber harvesting) had built up so much that rampant forest destruction continued.

Since 1997, forest sector reforms have developed frameworks for increasing active citizenship and participation (especially of the poor and vulnerable) in decision-making in the management of key resources in the country with the aim of enhancing integrity, transparency and accountability. The 2001 National Forestry Policy, the 2002 National Forest Plan and the 2003 National Forest and Tree Planting Act promote public participation and partnership between governments and private companies in forest management. The NFTP Act also requires the Minister to consult before taking major decisions on forest reserves. The National Environment Management Policy emphasises the participation of the private sector and communities in natural resource management and recommends using incentives including sharing of benefits from conservation. In order to enhance forestry understanding, the FAO-supported Farm Income Enhancement and Forestry Project, under FSSD is creating awareness on policies and roles of different government structures and building capacity in forest planning.

The ongoing review of the 2002 National Forest Plan shows mediocre performance (rated at about 50%) of the sector mainly due to inadequate forest law enforcement and institutional inadequacies (Nsita 2010).

Co-management and user groups

Policy provisions for community participation in forest management have been implemented (mostly facilitated by civil society organisations) to a very limited scale although where this has happened, there has been significant improvement in forest status. CFM was piloted in 1998, but so far, only 30 agreements, covering only about 22,000 ha (about 3% of the total area occupied by natural forests and woodlands) (NFA Annual Report 2006/7).

Concerning forest reserves under UWA, Community Resource Management MoUs developed with adjacent communities did not fare any better. Community Resource Management in

wildlife protected areas is governed by the 2003 Uganda Wildlife Policy (1999), the 2004 Uganda Community Conservation Policy, the 2000 Uganda Wildlife Authority Community Protected Areas Institutional policy, the 2007-2012 Uganda Wildlife Authority Strategic Plan (UWASP) and the Uganda Wildlife Act (Cap 200). Partnerships that had been attempted in the 1980s and 1990s between the forest department and user groups especially aimed at organising pit-sawyers in order to timber harvesting were not successful either.

This was mainly because of inadequate incentive and benefit-sharing provisions. It is too early for the recently formed agencies (UWA and NFA) to commit themselves to benefit sharing arrangements before they generate experience to understand the burden of their new responsibilities as against the potential financial flows. For example, UWA hardly covers its operational costs and in 2008, depended on central government to support 30% of its budget. The NFA capacity to manage its own costs of operation is becoming increasingly questionable as mature timber plantations are getting exhausted.

The negotiation of these agreements/MoUs takes too long and they tend to be poorly implemented as only a few community leaders have access to them and can read and understand them. NFA and UWA still retain the greater power and control over forest sections covered under these arrangements e.g., the granting of permits and license for product extraction.

Community participation in forest management is sometimes overwhelming and fatiguing as they have to engage with multiple government institutions. Although CFM agreements are co-signed by district leaders, LGs play no role in their implementation. CFM communities develop byelaws, which should be passed and enforced by the LGs, but no mechanism has been developed to link the two systems.

Licensing

Involving community and private sector stakeholders in forest reserve management through licensing has worked successfully to an extent. Licenses or concessions are awarded to members of the public for conducting different forest activities. In case of harvesting forest products from the forest reserves, licenses are awarded after conducting an Exploratory Inventory (EI) and Integrated Stock Survey and Management Inventory (ISSMI) either through open bidding if the quantities are large or via a Pricing Committee if quantities are small. A new system of bidding for concessions and royalties introduced in 2004 under NFA where NFA fells the trees and then holds a public auction for the round wood, however, tends to favour mobile sawmillers over pit-sawyers.

Irregularities have been identified in the licensing process. For example, in some cases, there was no competitive bidding, or the bidding process was poorly implemented resulting in choice of not necessarily the best bidder, under-pricing of the wood and the bidder failing to make full payment to the NFA¹⁰.

Although licensing private tree growers to establish forest plantations on central forest reserves has created some success in increasing forest cover especially under the Sawlog Production Grant Scheme (SPGS), much of the land leased out is not planted. Currently, a Presidential directive has put a ban on this provision and reduced license cycles from 50 to 25 years. Nonetheless private sector involvement in forestry has been quite successful and the growing interest in forest/timber certification is generating experiences that will guide carbon markets.

¹⁰ Advocates Coalition for Development and Environment (ACODE) Report. 'Trouble in the Forest'

The provision by NFA to license (for 25 years) 10% of the plantable area within forest reserves to CFM communities has been tried only to a limited extent, but has significant potential since communities own the trees and therefore (presumably) the carbon rights.

On the other hand, the need for licenses in order to harvest timber (FSSD) or charcoal (from the district forest officer) from private forests, has acted as a disincentive for investment in forest land use as opposed to agriculture where harvesting is more or less unregulated.

1.3.3 Institutional framework

Forestry falls under the Ministry of Water and Environment (MWE), which is responsible for formulating policies, standards and legislation for environment management. Forest management was restructured from one unit (Forest Department) to being under four key institutions. The National Forestry Authority (NFA) and the Uganda Wildlife Authority (UWA) are the semi-autonomous Responsible Bodies for managing Central Forest Reserves (CFR) while local government District Forestry Services (DFS) are mandated to manage Local Forest Reserves (LFR) and provide advisory support for forests outside protected areas. NFA and UWA share responsibilities in Joint Management Reserves (JMRs), which are forested areas between CFRs and either National Parks or Wildlife Reserves. The Uganda Wildlife Authority is under the Ministry of Trade and Tourism. According to the law, the management of CFRs is majorly via regulation, while the management of forests outside protected areas is through provision of advisory support services. The local government DFS structure includes for each district, a district forestry officer (bachelor's degree in Forestry), assistant forestry officer (Diploma in forestry), rangers (certificates) and guards (not certified). Community groups or private forest owners manage what is collectively referred to as Private Forests.

The Forest Sector Support Department (FSSD) is the technical arm of the MWE for formulation and oversight of appropriate policies, standards and regulations for the forestry sector. It coordinates and supervises technical support and training of district forest staff; and inspects and monitors performance in the forest sector under NFA and local governments. It is also responsible for coordinating the National Forest Plan, cross-sectoral linkages, mobilising funds for the forest sector and promoting public information and advocacy for the sector (Nsita 2010). The FSSD was given no powers or instrument to coordinate the DFS. The DFS report only to the Chief Administrative Officer in the District, who is not required to in turn report to any forest agency or even the Ministry of Water and Environment.

Other key actors in forest management include the National Environment Management Authority (NEMA) which coordinates and supervises all environment issues in the country, the Climate Change Unit under the office of the Permanent Secretary, Ministry of Water and Environment; the Environment and Natural Resource Sector Working Group. The Ministry of Finance, Planning and Economic Development (MOFPED) is responsible for setting the pace for national development and allocating the necessary financial resources.

Donors, NGOs and the private sector contribute strongly to forest management especially by implementing those activities constrained by funding, bureaucracy and political interference. The Farm Income Investment in Conservation (FIEFIC) Project under Forest Sector Support Division facilitates 50 districts in forestry extension. It is supporting development of district forest development plans to be incorporated into district development plans (DDP). There is an estimated 200 CSOs working in the environment and natural resources sector (MWE, 2009). The challenge is the short-term cycle of their projects and duplication activities due to

poor coordination. Most of these CSOs have come together in a somewhat loose alliance called the Uganda Forestry Working Group (Nsita 2010).

Others include Department of Lands and Surveys, forestry training institutions, Ministry of Energy and Mineral Development, Justice, Law and Order Sector (police, courts of law and other law enforcement agencies), Uganda Bureau of Statistics and Ministry of Agriculture, Animal Industry and Fisheries.

1.3.4 Forest management

The financing of forestry comes under the natural resources sector, which has been receiving a declining national budgetary allocation from 19% in 2008/9 to 2.4% in 2011/12 (Nsita 2010). This is supplemented by revenues generated by the semi-autonomous institutions. At the moment, Central forest reserves (covering about 36% of the total forest estate) are relatively well facilitated and well managed.

In contrast, there has been virtually no planned management of forests on private lands (Nsita 2010), which are often small but aggregate to over 2 million hectares - about 64% of the total forest estate. As such, the heaviest forest losses have occurred in private forests (Table 7). Private forests exist mostly in small fragmented units, but there is no mechanism for coordinating their management.

The DFS, which is responsible for providing advisory support for the management of private forests is not fully rolled out in the 112 districts and it is also not adequately financed. The forest sector in the decentralized government system is still dependent on government funding, but being bundled under the natural resource department, competes poorly for funding. In return it generates very little or no revenue. There is some vague reference to the National Agricultural Advisory Services with respect to forests outside protected areas, but this has not been fully planned and budgeted. The DFS has tended to focus on revenue collection in form of movement permits of harvested forest products, thus indirectly encouraging deforestation activities. However there are no district mechanisms to ensure that the revenue collected is ploughed back into the forest sector. In Kabarole district for example, UGX 1 m from charcoal in 2008 was not used to boost forestry in that district.

The existence of a central forestry authority tends to create laxity in investment in forestry at district level. According to the Ministry of Local Government, forestry does not feature as a priority in plans and budgets that reach the ministry level. This is also caused by the very low capacity in the DFS to take advantage of the planning processes in the decentralized system.

The recently produced guidelines for registration of private forests are not well publicized and have not been implemented anywhere. The lack of recognition of rights of private forest owners leaves them open to harassment by local government officials and has contributed greatly to the decisions to deforest. One general view coming out from consultation with different persons is that the fragmentation of forest management into different institutions has crippled efficient management and created loopholes for illegal activities.

Concentrating forest management in forest reserves while neglecting private forests shows that the success in forest reserve management is only short-lived. The sharp edges between forest reserves and agricultural lands show that forest resources are getting depleted and the pressure on reserves will soon escalate. A study on Kibale National Park in 1984-2003 showed that the forest was maintained within park boundaries, but many forest fragments outside of the park were lost.

Table 7. Deforestation under different tenure/institutional frameworks in Uganda

<i>Responsible Institution</i>	<i>Forest area 2005 (ha)</i>	<i>Forest area lost since 1990 (ha)</i>	<i>% Loss</i>
Uganda Wildlife Authority	643,149	36,344	5.3
National Forestry Authority	627,951	124,192	16.5
Dual/ Joint Management (UWA & NFA)	30,748	6,812	18.1
District Forest Services	1,211	418	25.6
Private owners	2,301,117	1,161,876	33.6
Total area of forest in the country	3,604,176	1,329,570	26.9

Source: NFA (2005)

Having forest management in multiple institutions without clear coordination often limits management of forest resources in a logical and straightforward manner. The State of Environment report for example showed that the forest ecosystem was disappearing in 23 districts both within and outside CFRs. However there is not clear mechanism to bring together the 23 districts or to link them with NFA in order to address this situation coherently. The public tends to believe that NFA is in charge of all forests. Sometimes even NFA officials make statements implying that they control also forests outside CFRs (Orumuri Monday, 22nd June, 2009).

1.3.5 Forestry research and training

Formal training in forestry occurs in Makerere University (graduate level) and Nyabyeya Forestry College (Diploma level). This is supplemented by informal training by SPGS and staff mentoring.

Forestry research has been generally weak and poorly coordinated. NAFORRI has been poorly funded, inadequately staffed and is weakly linked to universities and training institutions. NAFORRI could play a key role in analyzing the scientific and socio-economic aspects of REDD in order to advise on the potential for REDD in Uganda.

Perhaps, the worst challenge in forest management is the inadequate management of information at the central and district levels. Most of the historical trends relevant to the new structures can no longer be traced.

1.3.6 Trans-boundary forest management

Forest governance reforms have also sought to address trans-boundary forest management although this has been done at project level. For example, the four-year UNDP/GEF East African Biodiversity Project, which focused on Sangobay swamp forests extending to Tanzania and Mt. Kadam forest extending Kenya. Others include catchment forest management as part of the Lake Victoria Management Programme (LVMP), and the International Gorilla Conservation Programme (IGCP) with DR Congo. Currently, in the East African Community Climate Change Policy 2010 the member states propose a number of regional initiatives.

1.4 Deforestation and Forest Degradation in Uganda

Deforestation and forest degradation are caused by activities of the growing human population, mostly driven by poverty, but to an extent also by commercial objectives. By 2002 50% of the tropical high forests (THF) on private lands were degraded and 17% of those in protected areas were degraded. The main reasons for the degradation include harvesting for timber, firewood and charcoal, and encroachment for agriculture and human settlement

(Nsita 2002). Deforestation occurs mostly in woodlands especially outside protected areas.

While degradation drivers are well known, the impact of degradation is not as obvious as for deforestation. Deforestation and degradation drivers will be analysed in the following subsections laying out the extent of threat and levels of success of past interventions.

1.4.1 Agricultural expansion into forested land

Between 1990 and 2005, agricultural land area expanded by 2% (480,000 ha), mostly in form of small-scale agriculture - from 8,400,789 to 8,847,591 ha (NFA 2005). Subsistence agriculture expanded into wetlands, grasslands, and forests (Olson and Berry 2003). Agricultural expansion is the major deforestation driver in Uganda (Knopfle 2008), especially in high population areas or areas with high influx of immigrants. By 2008, there were over 300,000 illegal settlements in central forest reserves.

Outside protected areas, land under natural resource cover is considered to be 'idle'. This has been the case also in west-central (Luwero, Kiboga, Kibale and Masindi districts) and northeastern parts of the country (Wood and Bolwig). In Ruhiira, clearing of forest to open land for small-scale agriculture is estimated to have left only about 5% of the land under tree cover.

Agricultural interests can sometimes be the primary driver for deforestation and the wood that is cut is used for poles/timber, charcoal production, fuelwood or burned off as waste (Kayanja and Byarugaba 2001). In other instances e.g. well stocked forests near urban centres, agriculture follows degradation from timber, charcoal and fuelwood extraction.

Large-scale agriculture is not so wide-spread, and has increased from 68,446 to 106,630 ha between 1990 and 2005 (NFA 2005), but it has also caused significant threat to forestry. Key examples include the signing over of 7,000 ha of forest on the islands (Bugala and Kalangala) by the Ugandan government to BIDCO for establishment of an oil palm plantation (Foundation for Environmental Security and Sustainability 2006), and the controversial consideration of signing over 7,100 ha of Mabira forest reserve to a private firm to grow sugarcane.

Agents: Small-scale farmers (88 % of the population of Uganda), immigrants and private large scale companies (e.g. BIDCO, Mukwano, SCOUT, Kinyara & Kakira Sugar Co.).

1.4.1.1 Underlying causes

Population growth: The primary cause of agricultural expansion is the demand for more land to meet the increasing demand for food for a growing population (UFRIC 2002; Nagujja 2001). In the eastern region, population density is highest in the highlands. Bududa for example has 952 persons/km² compared to the national average of 124 people/km².

Internal migration: According to regional REDD consultative meetings, local people migrate from densely populated areas to settle and establish agricultural fields in forested lands especially in the Albertine region (Hoima, Masindi and Bulisa).

Commercialisation: The expansion of cultivated area into forest and wetlands during the 1990s has been caused by a general increase in agricultural specialization and commercialization (Petja). The growing market in nontraditional agricultural exports (maize beans, bananas, ground nuts, simsim, soybean, pepper, vanilla fruits and cut flowers) and the

removal of price regulation by government has increased the demand for agricultural land (Kamanyire 2000).

Soil degradation: While Uganda's climate offers great potential for food production and economic growth, the country's agriculture, which is predominantly rain fed (UNDP 2007), produces only a quarter to half of potential crop and livestock yields, even with present technologies (NEMA, 2008a). The declining soil fertility, especially in the high potential bimodal rainfall areas in the lakeshore region (Serunkuuma) and in the eastern highlands (Pender et al) has also resulted in expansion of agricultural land. Uganda has low fertilizer use because it is not profitable (Nkonya et al.) due to poor infrastructure, inadequate advisory support and low market access (Sserunkuuma). Organic practices are too labour intensive and can only be achieved on small land parcels (Sserunkuuma).

Soil erosion and landslides are common especially in Sironko, Kapchorwa, Mbale, Kabale, Rukungiri, Mbarara, Kasese, Bushenyi, Bundibugyo, Kanungu and Bududa districts.

Weak extension system: The poor have limited options for agricultural intensification since they are often excluded from programs that improve agricultural productivity (e.g., NAADS - improved seeds, fertilizers and mechanisation) and commercialization. Therefore they tend to expand or practice shifting agriculture. Cultivation methods on steep slopes are generally poor (Knapen et. al. 2006) as smallholder farmers lack the institutions, resources or incentives to construct soil conservation structures such as embankments and terraces (NEMA 2006).

Commercial Agricultural Estate Development: Converting forests to agriculture pays more. The decision to invest in oil palm plantations at the expense of natural forests in Bugala islands, for example, was based on the International Fund for Agricultural Development (IFAD) study showing that Malaysia's oil palm plantations directly employ 580,000 people compared to the few rural people that were not generating much income from the natural forests.

Problem animal control: Forests are cleared to remove habitats of crop-destroying animals (mainly monkeys, baboons and wild pigs). The campaign for growing upland rice, for example, caused substantial destruction of forests and trees to remove nesting areas for birds. However, cutting trees and forests reduces on the amount of food available to these animals in their natural habitats and therefore results in increased crop raiding, hence the need for more land to produce enough. Problem animals therefore are a cause and effect of forest degradation.

Culture: For the better off people, agricultural land is sometimes expanded due to need for income, prestige, accumulation of assets.

Political challenges: Evicting encroachers on forest land is particularly challenging during election times when field officers are countermanded by highly placed leaders. This was highlighted also during the regional consultations by NFA. Without a clearly agreed eviction plan, evictions are often misunderstood and resisted. For example, the evictions of internally displaced persons from Wiceri forest reserve in 2007 (Africa Travel Magazine) and 700 families from forests in Kibaale District in 2009 were mistaken for land grabbing and questioned by Parliament (The Daily Monitor September 2009).

Unclear forest boundaries: Boundaries of the encroached reserves are not clearly demarcated.

1.4.1.2 Interventions

Patrolling and eviction of agricultural encroachers has been the most common method of controlling agricultural expansion into forests. This has encountered resistance especially during political campaigns. Out of the 240,000 ha occupied by encroachers countrywide, NFA has only managed to recover 372 ha. There is an inability of the responsible institutions to protect forests from crimes due to weak institutional capacities (i.e. human, financial and technical resources) and inadequate political will to deal with illegal activities.

Clear demarcation of forest boundaries has also been used to curb agricultural encroachment, but this has achieved mixed results as any forest patches outside the boundaries are quickly removed.

Outside CFRs, commendable work was carried out in the area of watershed management and tree planting with ADB and Nordic Development Fund through the Farm Income Enhancement and Forest Conservation (FIEFOC) Project. Deforested areas are being re-vegetated through replanting and 1,000 ha of degraded forests are being enriched through planting indigenous species.

Uganda has supported agricultural intensification through the removal of taxes on agricultural inputs and machinery coupled with the NAADS program in 2002, which has provided advisory support and increased access to inputs (fertilisers, herbicides, improved varieties) and markets. Programs such as Prosperity for All, channeled through NAADS, have also increased farmers' access to credit or savings. The implementation of the NAADS program has, however, been suspended off and on due to fraud and corruption and has so far not achieved significant improvement in agricultural practices. A new approach of focusing on just a few nucleus farmers per parish is likely to achieve a demonstration effect, but will leave out many poor farmers who are the biggest threat to forestry.

1.4.2 Unsustainable cutting of trees for charcoal

Charcoal is produced through selective removal of trees. *Combretum* spp. *Acacia* spp. *Albizia* spp, *Terminalia* spp, *Azelia africana*, *Piliostigma thonningii* are mainly targeted as they make the highest quality charcoal. However, the species range has expanded to include also highly valuable fruit trees like mango, jack fruit and shea butter. Natural regeneration may occur in the canopy gaps created. In the woodlands, these gaps also enhance pasture growth for grazing of cattle and other livestock. In the recent years, charcoal extraction has risen to unsustainable levels resulting in forest degradation and deforestation, especially in the woodlands. In 2004 there were 747,000 full time jobs in charcoal production (Kisakye 2004).

The FAO-FOSA study in 1995 estimated an annual increase of 6% in charcoal production, with a total of around 400,000 tons per year. Between 1996 and 1997, charcoal production increased by 7% from 418,000 tons to 447,000 tons (State of Environment Report for Uganda 1998). Charcoal consumption in Kampala, the main consumer, increased from 200,000 tons in 1995 to 300,000 tons in 2004 (Kisakye 2004). Another key demand point for Ugandan charcoal (mostly from Zuka forest in West Nile) is Southern Sudan, which is emerging from war and has disposable income. Kampala charcoal is mainly from Luwero and Nakaseke (25.3%), Nakasongola (14.5%), Kiboga 13.6%, Mpigi 10.8% and Masindi 6.9% (Kisakye 2004). Other charcoal producing districts are Kapchorwa (S. Bukwe), Mubende, Mityana, Masaka, Lyantonde, Sembabule and Mpigi supplying Jinja, Entebbe, Wakiso and Mbale.

The majority of wood for making charcoal comes from private or community-owned land. However, as the trees are getting rapidly depleted and as land owners are charging more for harvesting of trees from their land (Knopfle 2008), an increasing amount of wood is obtained

(often illegally) from forest reserves. Charcoal is sometimes a bi-product of clearance of land for agriculture. For every 4 ha cleared, 1 ha is used for charcoal (Kayanja and Byarugaba 2001).

Despite being mostly illegal, the combined earning from charcoal by local governments and the Forest Department in 1995 was about US\$ 8m in form of charcoal movement licenses and permits (Sankayan and Hofstad 2000). By 2008, charcoal contributed US\$ 20m/y in rural income (Knopfle 2008). There are over 20,000 people employed in production, transport, distribution and marketing (Kayanja and Byarugaba 2001).

Agents are mainly young men with limited basic education and skills in alternative income generation. These men are often poor with little access to land and credit. Increasingly, larger businessmen are getting involved in charcoal production.

1.4.2.1 Underlying causes

High demand: The charcoal business has been growing due to the increasing demand, mainly (70%) by the growing urban population.

Infrastructure development: Indirectly, the increased road access and large numbers of youth with little basic education and limited access to formal employment contribute to the growth in charcoal business.

Limited access to alternative sources of energy: Although hydropower infrastructure exists in most urban centres, the unreliable supply and heavy tariffs force the population to rely mostly on charcoal for cooking. Grid access covers only 5% of the whole country and connection reaches only 200,000 people countrywide (Energy policy for Uganda. Ministry of Energy and Mineral development 2002). Charcoal on the other hand is abundant and believed to be relatively affordable although a recent energy research, found that the cost of using charcoal over a month is the same as that for electricity excluding the cost of installing electrical appliances.

Price: The price of charcoal is too low at UGX 6,000 at the kiln site, and up to UGX 30,000 in Kampala per bag of approximately 50 kg. This reflects mainly the labour, handling and transportation investment, but not the value of the wood itself. Producers pay as little as UGX 400/bag to produce charcoal from private idle land (Knopfle 2008). License costs are negligible at only UGX 36,000/month for production and UGX 62,000/lorryful for transportation (Knopfle 2008). Charcoal production is easy for resource poor people as it only requires labor investment and has lower economic risk than agriculture.

Weak regulation: No clear strategy has been made for charcoal in the national development plan (2010). Regulation of charcoal production and movement is inadequate and unclear. Ideally, in order to fell trees for charcoal from forest reserves, producers must obtain licenses from either the National Forestry Authority (NFA) or UWA or the District Forest Services. For trees felled from private forests, producers are required to obtain consent from the tree owner as well as from the district officers, who advise on what is permissible according to the district environment plan. In addition, a movement permit should be obtained from the District Forest Officer in the district of origin in order to move the charcoal. This multiplicity of institutions regulating the same resource is confusing and prone to abuse both by the producers and government officials.

Poor technology: The most common kiln used is the earth mound constructed at the site of tree felling in order to avoid transportation costs of unprocessed wood. The earth kiln has very low recovery rate of only about 10–22% calculated using oven-dry wood with 0% water content (Adam 2009). However, in most cases, charcoal conversion efficiency is not more than 10%. Poor charcoal handling also leads to further loss. Bags are often smashed on the ground while reloading or offloading increasing the proportion of fines up to 20% (on the average 5%) (Knopfle 2004).

1.4.2.2 Interventions

In 1999 MBA-CASA kilns with a charcoal yield efficiency between 30-35% were introduced in Luweero, Masindi and Nakasongola districts (Knopfle 2004). These were not adopted as they are expensive to construct. Also because they are not mobile, they result into increased transportation costs, which the producers cannot afford. The Ministry of Energy is organizing youths in Nakasongola to regulate one another in the production of charcoal and to form cooperatives that will enable them to obtain licenses and operate legally and get better prices.

The Ministry of Energy and Mineral Development (MEMD) developed a strategy for sustainable charcoal production and promoted energy saving cook stoves. Promotion of efficient charcoal cook stoves has also been supplemented by NGO activities such as IRDI. At household level, fuel-efficient charcoal stoves are getting increasingly used in urban areas and in the long run, these should contribute to reduced demand for charcoal. A study by UNIQUE Forestry Consultants (2006) showed that these initiatives by the government, private sector and NGOs to improve wood/charcoal production and use efficiency have started to have an impact. The impact of these interventions on charcoal producers and industrial consumers is not yet evident.

Promotion of efficient charcoal production kilns (achieving up to 27% efficiency) in Kiboga, Luweero, Nakaseke, Nakasongola by MEMD resulted in low uptake because the technology was expensive and involved permanent structures yet charcoal burners were nomadic. Other MEMD interventions to provide alternative energy sources include: Rural Electrification at district headquarters, institutions, agro-processing industries and fish landing sites; promotion of biogas technologies and solar energy. However, overall, only about 1 % of Ugandans use these forms of energy. The adoption is limited by the high upfront costs and limited operation and maintenance capacity.

The Green police and judicial system has just been established to enforce environmental laws. However, it has not yet been allocated any funds.

1.4.3 Unsustainable cutting of trees for firewood

Uganda consumes 16-18 million tons of firewood annually (or annual per capita consumption of 0.6 tonnes of air-dried wood (Kayanja and Byarugaba 2001). Firewood consumption is highest in rural areas, but is also substantial in urban areas, commonly using the highly inefficient three-stone fire place. It is mostly a free resource in rural areas. Firewood is also the main energy source for businesses such as lime production, fish smoking, schools, hospitals, prisons and barracks, bakeries, tobacco curing and brick-making.

Fuelwood for cooking comes mostly from farmland (48%), bushland (30%) woodlands (20%) and natural forest (2%). Commercial fuelwood for small industries comes from woodlands 58.9% (mainly in Mbarara, Lira, Nakasongola, Kumi and Adjumani Districts) and 34.6% is

collected from plantation/planted forests (mainly from Masaka, Bushenyi and Kasese Districts). (Kayanja and Byarugaba 2001; Draft National Forestry Plan, July 2010).

In the central, western and south western parts of the country, firewood extraction does not seem to be a very high threat to deforestation and forest degradation and in most cases, the existing regulation of forest access by rural families is working well. It is the commercial extraction for small and medium scale industry as well as urban households that are causing deforestation and forest degradation. However, in northern and eastern districts (e.g. Tororo, Iganga, Nakasongola, Maracha, Arua, Soroti, Kumi, Palisa, Rakai, Adjumani) resulting in more than double the distance walked by women and children from 0.73 km in 2000 (Poverty Eradication Action Plan - PEAP, 2004/5-2007/8), to 1.5 km (APRM 2007). In some instances agricultural residues, which would have replenished soil nutrients are used for energy. From the FIEFOC 2007 survey, only about 20% of the households use fuel-saving technologies.

Agents: Rural households; youth; commercial dealers

1.4.3.1 Underlying causes

Income generation: Firewood selling offers an alternative source of income to many rural households. In Karamoja, income generated from selling firewood ensures food security (Lüdecke et al. 2004).

Concentration of people in internally displaced camps: Severe deforestation has been observed in northern Uganda especially in a radius of 5-8 km around IDPs. All trees are converted to fuelwood including the *Borassus* palm and the high value Shea butter nut tree.

Growing energy demand by the small and medium industries: Firewood demand has escalated due to expanding businesses especially tobacco and fish smoking, bakeries, brick-making, charcoal making and institutions such as schools and hospitals.

Weak enforcement of laws governing firewood harvesting especially from private forests: Firewood is often considered to be a minor forest product and not strongly regulated.

Wasteful utilization: There are no processes to enforce use of more efficient firewood technologies in homes, institutions and industries.

1.4.3.2 Interventions

To reduce demand for firewood, energy efficient stoves were introduced mainly promoted by IRDI and other NGOs e.g, World Food Programme (WFP) in Karamoja. These reduce firewood consumption by up to 50%. However it is only effective if each household uses such stoves. It also requires households to have alternative and more attractive income-generating ventures to work effectively (Okello Bioenergy lists).

1.4.4 Unsustainable harvesting of timber

Timber harvesting is a key driver for deforestation and forest degradation in Uganda. It is often the first step in forest conversion. In central forest reserves the process often ends at charcoal and fuelwood extraction resulting in degradation, but in some cases, agricultural farms ensue. Although logging used to target only a few species in the past, it has become increasingly indiscriminate and affects a wide range of species and tree age classes. Logging has therefore become severe enough to prevent forest recovery.

The demand for timber was estimated at 750,000 m³/year (Kayanja and Byarugaba 2001)

compared to the current sustainable timber harvesting levels of 53,000m³/year over the next 30 years in central forest reserves. Illegal timber extraction is one of the major drivers of deforestation and forest degradation in central forest reserves. Most timber is extracted mainly from private lands using wasteful methods. The MWE (2009) estimates that timber from private forests will be exhausted by 2013. Timber sources include THFs (280,000 m³/year), plantations (100,000 m³/year) and woodlands (19,300,000 m³/year) on government and private land (FAO, 2005). Timber markets are mainly domestic and key destination points are Kampala, Entebbe, Masaka, Jinja, Mbale, Mbarara, Gulu, Arua, Kabale, Fort Portal, Soroti and Tororo. There is also a considerable volume of illegal timber imported into the market. In 2010, National Forestry Authority confiscated a dozen tons of timber from businessmen operating in Nebbi district.

Legal timber production from natural forest in CFRs comes from timber production zones¹¹ totaling 141,000 ha¹². Of the approximately 300,000 ha of THF under NFA, about 100,000–200,000 ha can be considered to be “productive” and only 50,000 ha of this is exploitable.

In general, however, records of timber volumes cut and traded whether legally or illegally are incomplete. Timber from private forests is estimated based on only the movement permits, and excludes timber sold within districts. Also the volume of illegal timber is often underestimated based on the figures of those confiscated. In 1999, 715,000 m³ of illegal timber was confiscated¹³ by the Forest Department (FAO 2005).

Agents: Pit sawyers supply over 90% of the sawn timber, mainly from natural forests (FAO, 2005). The current management of central forest reserves favours “low-impact harvesting practices” in natural forests - the maximum allowed off-take under a typical license is 15 m³/ha in bole volume, or 5-6 trees/ha. This suits the low-investment pit-sawing with annual timber output of only about 25–50 m³. Since pit-sawn timber is converted at the stumps and head-hauled from forest, pit-sawing avoids construction of skid roads and use of heavy and expensive tractors or log-transporter trucks. It is considered to be eco-friendly and pro-poor, although it tends to cream the forests of very high value timber species.

Sawmillers supply only about 10% of the total timber and this comes mainly from forest plantations.

1.4.4.1 Underlying causes

The *demand* and market for timber has almost doubled mainly due to the expanding construction and furniture industries. The urban construction industry has grown at an average of 11% over the last 3 years leading to high demand of timber, poles, and furniture. The MWE (2009) estimates the country’s demand for timber to be 750,000m³/year compared to the 200,000 m³ consumed in 1999. This demand is projected to rise to 1.5 million m³ by 2025¹⁴. Despite a ban on timber exports, Kenya and now Southern Sudan are key market destinations for Ugandan hardwoods. The price of timber has escalated.

Wasteful methods of wood conversion: Pit-sawing results in timber recovery of only 20-40% of the tree. The mobile circular sawmills can also be wasteful. Sometimes even the highly wasteful chain saws are used for converting wood.

¹¹ The Forest Nature Conservation Master Plan (FNCMP) divides Uganda’s forest reserves into three management zones: 50% of the THF FRs comprises timber production zone, 30% buffer zones and 20% is set aside as strict nature reserve.

¹² FAO (2005) *supra*

¹³ Kayanja and Byarugaba (2001)

¹⁴ MWE (2009)

There are no national or regional guidelines and standards to guide timber harvesting and processing. Certification of forests and labelling of forest produce to verify its legal origin from sustainable sources of supply had been included under Section 92, Subsection 2v of the Draft Forest Regulations of 2003 but these Regulations have not been gazetted by the Minister of Water and Environment.

High operating costs for legal harvest of timber: Adokonyero (2005) found that the total operating costs (i.e. sum total of the concession/licence fee, royalty and transporting timber) of pit-sawing in CFRs of UGX 275,800/m³ exceeds the average sale price of UGX 200,000/m³. The majority of pit-sawyers, therefore, operate on private land or illegally.

Inadequate management planning: Out of 506 forest reserves under NFA, only 12 have approved forest management plans, the rest are in draft form. Even then, management plans are not implemented adequately because of lack of resources. The staff on the ground are not adequate to effectively implement management plans. For example, there are only 5 NFA staff members to manage the 499 km² of Kasyoha-Kitomi forest reserve. On the other hand, the lack of institutional coordination of the DFS has led to a fragmented approach to private forest management where forestry officials in each district are completely disjointed from their counterparts. Many DFS positions are not filled or have staff with inadequate skills. Staff is often poorly paid and not adequately facilitated to conduct their duties.

Districts have focused on generating local revenue from timber rather than providing advisory support for sustainable private forest management. For example Bushenyi district leadership gladly license heavy timber production - about 20 lorries of timber/day to Kampala.

Unclear legislation: The forest law does not sufficiently control harvesting timber from private forests. According to the law, there is no requirement for owners of forest outside protected area boundaries to seek authorization for harvesting a few trees from their own land or clearing it for agriculture. For harvesting trees for commercial timber from a large area, however, a forest owner (individual or community) must be authorized by the district forest officer. No formal proof of land ownership is required.

Some district officials have exploited this gap to register pit-sawyers to harvest timber from local forest reserves, and to clear timber from central forest reserves (e.g., in Mt. Elgon). Also the recently introduced use of *special hammers* by NFA and URA is still confusing – DFS have found themselves clearing timber from CFRs and vice versa. DFS tend to levy extra charges from private tree owners including felling fees and a timber royalty fee of UGX 3000/tree. Over-regulation of timber markets also creates avenues for corruption and bribery.

Low price: Information is inadequate to guide forest owners so they tend to ask for a very low price for their trees.

Timber concessions are often given to businesses from other locations and not to local people. This has fueled *mistrust* of forest officials leading to escalation of illegal logging and conflict. Cases of communities attacking forest officers have escalated. For example in January 2009 two NFA officer were killed in Jubia FR (Africa Travel Magazine), in June 2009 two officers were nearly killed and a NFA truck was burned in Buikwe FR (New Vision Uganda), and in July 2009 a Forest Patrol officer was burned by pit-sawyers.

1.4.4.2 Interventions

Management zoning of central forest reserves, into the 20% SNRs, 30% buffer zone and 50% timber production zones has had significant success in controlling timber harvesting. The ban

by NFA on use of chain saws to produce timber has also been successful to a large extent in combating over-harvesting of timber and its effectiveness could be greatly enhanced if the occasional notes given by officials to make exceptions to this ban are totally halted. Collaborative forest management has resulted in protection of forests through social pressure, but it is not wide spread and is likely to be short-lived due to inadequate benefit sharing.

The NFA produces periodic land-cover assessment reports and maps to guide forest planning and management. This needs to be made more accessible for users – by creating awareness and reducing/removing the cost for the information. The NFA itself needs to use this information to develop management plans for all its reserves.

The NFA and URA track timber by conducting impromptu operations on timber outlets in Kampala to capture ‘illegal’ timber (not bearing a NFA or URA stamp). These operations unfortunately tend to also confiscate legal timber from private forests. Apparently, this activity is outside NFA’s mandate as controlling, tracking and restricting timber movement within the country should be by Order of the relevant Minister through a Statutory instrument (Section 45 of the forest law). The Green Police that has been established should be able to take over this role effectively.

Private sector interest in forest management has been increased through licensing reserve land for private tree growing and selling high quality seedlings. The Sawlog Production Grant Scheme, providing a fifty percent subsidy for establishment of timber plantations has been successful and is expected to play a key role in reducing pressure on natural forests. Timber certification programs are getting initiated. However, all these are targeting plantations and have not been attempted in ensuring sustainable timber management in natural forests.

Donor-funded projects including Farm Income Enhancement and Forest Conservation (FIEFOC); Mt. Elgon regional ecosystem conservation (MERECP); LVMP and PrimeWest have focused more on tree planting and not really on timber control and regulation.

NFA has worked with civil society organizations to curb illegal timber harvesting. For example, earlier in 2010, forestry officials working with an NGO called Forestry Concern Uganda impounded about 10 trucks carrying illegal timber using forged documents. The timber had been illegally cut from forests in Mpigi, Mukono, Kayunga, Masaka and Mityana districts.

1.4.5 Livestock grazing and bush burning

Nomadic livestock grazing is not a major DD driver in Uganda since in addition to forest vegetation, it relies also on bushland, grassland and wetland vegetation. It causes forest degradation especially in the woodlands where fire and selective tree cutting are done occasionally to increase pasture growth. Cattle-raiding tribes e.g., in Karamoja occasionally cause destructive forest fires (Rodgers et al.) Cattle population grew from 7.5 million in 2005/6 (Uganda National Household Survey) to 11.8 million in 2008 (UBOS 2008). Cattle population is distributed as 22.3% in western region, 21.8% in eastern Uganda 21.7% in central region, 19.8% in Karamoja and 14.4% in northern Uganda (UBOS 2008). In a study by IFPRI (Benson and Mugarura 2010), the correlation between livestock population and woodlands was low because of the less-than-ideal pasture in such landscapes and tsetse-related constraints in some areas.

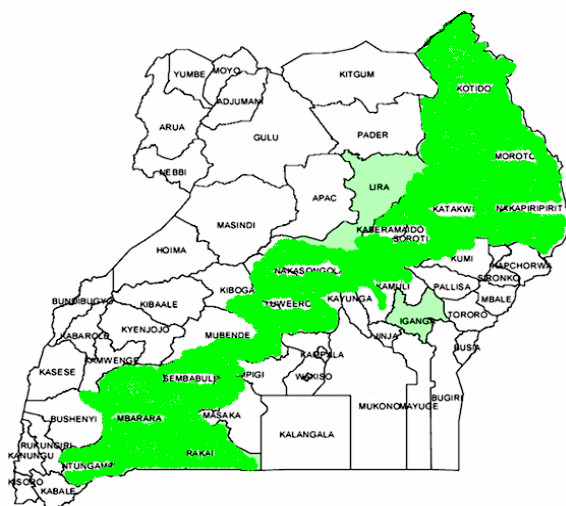


Figure 2. The cattle corridor (green) covers about 84,000 km² (From Uganda Investment Authority, 2009).

Wild fire (by hunters and livestock herders) was highlighted as a driver of deforestation/forest degradation in regional consultations (Kiconco). According to Nangendo (2005), fire in Budongo woodlands is often of low intensity and well managed on small patches, leading to low carbon woodlands mainly consisting of fire-tolerant species. The study shows that the control of fire results in succession of fire tolerant woodlands by closed forest vegetation (higher carbon stocking) with tree species that are less adapted to fire.

Agents: Nomadic herdsmen, ranchers and hunters.

Interventions

Wild fires have been linked to nomadic herdsmen. The government program to construct dams to settle pastoral communities was implemented poorly due to corruption. On the other hand, environmental education by civil society and development of byelaws against setting fires have had significant local success.

OTHER DEFORESTATION FOREST DEGRADATION DRIVERS

There is insufficient information on the impact of other deforestation/forest degradation drivers such as urbanization, oil exploration. Studies are needed to establish the impact of these drivers and whether they can be addressed through REDD.

Summary of REDD+ strategy development activities and budget

Activity	Sub-activity	Estimated cost (US\$)			
		2011	2012	2013	Total
Background studies on deforestation, degradation drivers and underlying causes; prioritization of DD that can be addressed through REDD; identification of hotspots	Consultations	10,000			10,000
	Site visits	20,000			20,000
	Drafting and validating with stakeholders	10,000			10,000
Assessment of past experiences	Consultations and document review	7,000			7,000
	Site visits	10,000			10,000
	Drafting and validating with stakeholders	8,000			8,00
TOTAL		65,000			65,000

2.0 REDD STRATEGY OPTIONS FOR UGANDA

2.1 Background

Given that Ugandan forests are generally degraded with relatively low carbon stock value, the carbon credit potential from avoided deforestation (RED/REDD) is low. However, this state of affairs on the other hand increases the potential gains from regeneration (REDD+). The national potential for REDD+ needs to be carefully determined through studies and thorough consultation.

The Katoomba Group (2009) study observes that REDD should focus on tropical high forests (THF), which have high biomass per unit area compared to woodlands. Given the potential economic gains associated with the drivers of woodland deforestation and degradation, the opportunity cost is likely to be too high for REDD. Implementing REDD in local forest reserves, which add up to just 4,997 ha countrywide would not be economically feasible. Woodland REDD activities may include stock enhancement (assisted natural regeneration, enrichment planting), which have been successful in enhancing stock in woodlands in Ethiopia (World Bank Biocarbon Fund).

The REDD approach would also work best where deforestation/forest degradation threats are moderate to low. Other forest management approaches should be considered for the high-pressure areas, e.g., agricultural encroachment by landless immigrants, immigrant pastoralists and charcoal making near major high ways and urban centres.

A REDD feasibility study for UWA and NFA-managed forests should be conducted to gauge the level of extra investment and projected incomes from sale of carbon credits. All management plans need to be reviewed to include REDD by taking into consideration activities to address DD drivers, how these will be addressed and monitored and how REDD revenues will be allocated and shared. More studies are needed to map out forests both within and outside reserves where REDD has potential.

In this section, strategy options for achieving REDD are evaluated in the context of policy, legal and institutional frameworks. Discussions presented are built from outcomes a consultative one-day workshop held in July 2010, where strategies for addressing key drivers of deforestation and their underlying causes were discussed. This is supplemented by information emerging from regional consultation reports. The first part is a description of the strategy options and the linkage of candidate activities with drivers of deforestation and forest degradation and with relevant sectors/policies for the REDD strategy. The final sub-section lays out information and capacity needs required for the final selection of REDD strategy options concluded with a REDD strategy roadmap and monitoring plan.

2.2 Context

The forest strategy in the National Development Plan aims to increase forest cover from 3,604,176 ha of 2005 to 4,933,746 ha (1990 cover) by 2015. It is committed to enhancing capacity for enforcing laws targeting mainly reserves, private tree planting and farm forestry. In line with this, the National Forestry Plan (NFP), is currently being reviewed based on past performance within and outside forest reserves.

The REDD strategy supplements the National Forest Plan by focusing on reducing deforestation and forest degradation through performance-based financing. As such it aims at designing activities that address DD, monitoring emission reduction, marketing REDD

credits, distributing benefits equitably among relevant stakeholders including the poor and vulnerable, and engaging partners to implement these activities. REDD will not be the answer to all the country's deforestation and forest degradation challenges.

The strategy should be built into a broader national land-use plan such that growth of other landuse sectors does not increase deforestation and forest degradation or vice versa. National landuse zoning based on ecological mapping and consultations would inform national landuse planning. REDD regulation systems should be developed mainly to ensure that the national accounting systems tally with the IPCC approved methodologies.

Likely key sectors for REDD+ include Forestry, Energy, Agriculture, and Land. Some of these have developed sector investment plans and frameworks recognizing their inter-relations with forestry (e.g., Agriculture, Sustainable Land Management and Energy). The building of the REDD strategy should be in consultation with these plans and frameworks in order to coordinate activities falling under different sector mandates.

Finally, it should be noted that because of the long time it takes to fully implement the various project activities and provide the envisioned incentives to local land-owners, REDD success may be limited. Also, the eventual incentives may prove not to be sufficient to compensate (perceived) opportunity costs incurred by some potential participants, or they may choose not to alter their baseline behavior for other reasons.

2.3 GOVERNANCE REFORMS

Given that REDD will entail actions involving a series of stakeholders that will be rewarded after proof of performance, governance systems and quality are critical at all levels. REDD will involve new activities including monitoring, fund management and channeling that require high levels of transparency and accountability. Laws must be developed to govern monitoring to ensure truthful reporting and attribution of changes to activities and therefore to particular stakeholders.

2.3.1 Enforcement

Effective legal enforcement is going to be crucial for the success of REDD in Uganda. REDD will require an increased number of forest officials who have the capacity to enforce forest laws, regulations and standards and are well motivated and facilitated with sufficient operational funds. District staff tends to focus on those issues that the MoLG rewards or penalizes based on regular inspections. Forestry needs to be included in such standards to elevate its importance at district level.

A study should be conducted to identify solutions to the low performance in the enforcement of forestry legal provisions, its underlying causes and potential for pro-poor mechanisms to safeguard against negative impacts on the vulnerable, including gender issues. The required number and skills of enforcement officers needs to be determined as well as incentives for good performance. Collaborative enforcement across different agencies in forest management and also with other sectors especially at the district level should be explored.

The study should also look at what needs to change in laws governing contractual agreements with the private sector including identifying ways of curbing corruption. Civil education and awareness programs are also necessary to get REDD understood. These programs should engage politicians.

The FSSD should lead in the development of programs to promote awareness of legal provisions for forestry among the legal enforcers (e.g., police and the judicial systems) and to develop formal linkages with them. The existing Regional Environment Support Units (established by NEMA) provide a potential structure to achieve this. Enforcement activities in REDD implementation will rely heavily on the recently (2010/11) formed Green police under NFA and NEMA.

2.3.2 Addressing legal gaps in forest management

A benefit-sharing mechanism should be developed and gazetted based on assessment of its potential to provide sufficient incentive to all stakeholders in an affordable and sustainable way within the existing resource limitations. Addressing the legal gaps highlighted in the on-going review of the NFP is also crucial to the implementation of REDD, particularly, gazettment of the Forestry Regulations, now in draft form, to support policy implementation and enforcement of the NFTP. To support the DFS role in REDD, the District Forest Services Handbook should be developed and gazetted.

2.3.3 Clarification of property rights

Policy review should be made as early as possible to make explicit provisions on carbon rights, which are crucial in determining whether Uganda can lawfully generate and commercialize carbon credits, and how carbon revenues will be distributed among stakeholders. If Uganda is to use a nested approach where project level activities will take place transact at the same time as the national level activities, then systems (licensing or taxation) need to be developed in the regulatory framework for the central government to grant explicit formal acknowledgement of carbon rights to landholders and their unrestricted right to enter into commercial transactions at the project level.

The rights to carbon protected in existing forests (REDD) are likely to be tightly linked to land ownership (the trees are considered to be 'natural fruits'). The extent to which formal declaration of Community Forests is crucial to the implementation of REDD outside protected areas needs to be understood. The NFTP safeguard of passing on Community Forests to Local Government DFS in case of mismanagement should be revisited given the poor track record of LG forest management. The FSSD can spearhead this working with NGOs. The right to carbon for communities participating in central forest reserve management also needs to be made explicit in the agreements developed with them. Civil society organisations e.g. CARE and ACODE could play a key role in defining and advocating for this.

2.4 PARTNERSHIPS AND STAKEHOLDER ENGAGEMENT

The REDD strategy will need to address the poor coordination and collaboration across sectors, themes, stakeholders and partners. In CFRs, *community collaboration* has significant potential to reduce moderate to low levels of deforestation/degradation via community social pressure. The cost-effectiveness of scaling up the CFM/CRM should be investigated especially by addressing the benefit sharing issues, mapping out potential CFM/CRM areas and identifying ways of bringing down the cost of the negotiation process. The Uganda Network for Collaborative Forestry Associations (UNETCOFA) – facilitated by the CARE EMPAFORM program - could provide an entry point for scaling up CFM. Options need to be determined for widening the private sector engagement e.g., in forest management, aggregating REDD carbon, brokering, or buying the REDD projects.

In PFs, the DFS, which is mandated to provide forest advisory support, will play a key role in mobilizing communities, developing and implementing REDD activities at the local level. The

possibility of LGs to aggregate and transact in REDD credits generated within their boundaries should be explored.

Civil society organizations have significant potential in ensuring equitable and transparent implementation of REDD. Socio-economic monitoring of REDD activities should be done in partnership with universities and UBOS.

Project level *demonstration* (government or through partnerships with civil society organisations) is important to generate lessons for broader country level processes. Linkages should be developed with REDD projects already being implemented by e.g., Jane Goodall Institute, Wildlife Conservation Society and the experimental pilot coordinated by NEMA in western Uganda.

2.5 CAPACITY BUILDING

New technical skills and information will be required in marketing, contract structuring, accounting, working with communities, fund channelling, monitoring and business planning. These could be channelled through educational curricula and advisory support systems. Research and information management capacity will also need to be strengthened to enable cost-effective planning. NAFORRI and universities will play a key role in this.

The country needs to define (and demarcate) key focus areas where the potential for REDD is feasible. Relevant institutions also need to be strengthened in order to take on REDD activities. Notably, the FSSD, which is well positioned to play a key role in REDD according to its mandate will need to be strengthened in terms of staff numbers and technical skills, financial and equipment support.

2.6 INFORMATION

Uganda should invest in a REDD Information and communication strategy for information generation, analysis and management especially as it relates to deforestation and forest degradation drivers and agents, REDD activities, carbon accounting, carbon financing mechanisms and REDD governance socio-cultural, environmental and economic impacts. Mechanisms (e.g., Uganda REDD web site, posters, media etc.) should be developed to enable information accessibility for the needs of different stakeholders. A REDD information Unit needs to be established either in NFA, the Climate Change Unit, a university or at the National Forestry Resources Research Institute (NaFORRI).

2.7 Strategies for addressing key deforestation/degradation drivers

2.7.1 Unsustainable fuelwood extraction (charcoal and firewood)

As observed in the Katoomba (2009) study, REDD has limited potential to overcome charcoal extraction especially in forests near urban centres. Close collaboration is required with Ministry of Energy and Mineral Development and NGOs that have developed a number of initiatives in addressing charcoal. For example, the MAAIF Sustainable Land Management Sector Investment framework will support the promotion of woodlot establishment and train local artisans in the fabrication of energy saving stoves and charcoal production kilns. The key charcoal districts are very near highways that can easily access the Kampala markets.

Ministry of Energy and Mineral Development is facilitating *formation of registered groups among charcoal and commercial firewood producers* as a first step in regulating charcoal production. According to Dr. Justine Namaalwa (personal communication), this is not likely to succeed without linking it to resource ownership. Focused studies should analyse this and

other related approaches in achieving REDD taking into consideration the fact that charcoal is extracted both from reserves and private forests, and accessibility to alternative sources of energy and alternative livelihoods is limited especially among the rural youth. Regional consultations by NFA (Kiconco) also recommended promoting household level tree planting and alternative livelihood options.

Clarification of land and tree tenure rights on private land is crucial in controlling loss of natural forests on especially on land under customary tenure. Most of the charcoal and firewood comes from private forestry mainly as a bi-product of clearing land for agriculture and timber harvesting. Forest conversion is sometimes used as a cheaper means of laying claim to land as formal registration is very expensive, not transparent and takes a long time. The proposed Land Policy makes provisions for simpler and more transparent mechanisms for land surveying and registration. Consultative studies with forest owners are required to determine the extent to which clear formalisation of land rights enhances forest conservation. The reluctance of government to approve community forests where communities sought rights to maintain forests as forests, and also why only a few community organizations and no private owner applied for forest registration, should also be investigated. A policy review is needed to make explicit provisions about tree and carbon rights. Finally the opportunity cost for keeping trees for carbon payments versus producing charcoal should be analysed against underlying rural poverty pressure and access to alternative options. The FSSD could take lead in this.

There is potential in promoting agroforestry and woodlot establishment on farmlands e.g., by distributing tree seedlings and licensing land in degraded forests. This requires strong participation of the DFS, which is currently under-funded and poorly coordinated. A focused study should be made to design a national tree planting strategy including potential areas and species to plant. The WRI study on potential for afforestation and reforestation provides a good basis. The potential to work this strategy into the annual National Tree Planting campaign should be investigated. The paper mulberry (*Broussonetia papyrifera*), an aggressive exotic, could yield 90–100 tonnes of good light charcoal per hectare managed on a 4–5 year rotation (Kayanja and Byarugaba 2001). Acacia and Albizia species are more likely to be accepted for charcoal plantations because they are fast-growing and produce charcoal of good bulk density.

Enhancing enforcement mechanisms may include increasing forest patrolling staff in government-managed forests, more community partnerships, increased checkpoints to regulate charcoal transportation. However, from past experience, increased regulation tends to degrade into more avenues for corruption and may necessarily result in net impact on the forest. The increased cost of enforcement also needs to be seriously considered.

Reducing wastage in charcoal production and usage may entail long-term and expensive activities like training and promotion of improved kilns and cookstoves. It is estimated that over 17,000 tonnes of charcoal can be saved if only 15% of urban households use improved, well-made, energy-efficient charcoal stoves with end use efficiencies of 30% (Knopfle 2004). There is need to assess the cost-effectiveness of such programs and whether they are feasible from the perspective of charcoal producers and users. Whether reduced waste translates into reduced deforestation and forest degradation is still questionable unless this is coupled with strong enforcement on reduced extraction. Partnerships with NGOs like IRDI should be strengthened to widen adoption.

Options for promoting *alternative clean energy substitutes* should be explored by linking the REDD strategy with the Energy Strategy by MEMD. The possibility of adjusting the geographical and social focus of plans to increase hydro-power generation along river Nile, promote solar energy along with the Rural Electrification Project needs to be explored.

2.7.2 Expansion of agriculture into forest

Expansion of small-scale agriculture can be potentially addressed through REDD especially in areas of low population pressure. The Forestry Sector should work closely with the MAAIF especially the Sustainable Land Management unit to harmonise actions for achieving REDD. The SLM Investment Framework covers the Southwestern and Eastern highlands, Lake Victoria Crescent Region, the Cattle Corridor, Eastern and Northern Uganda.

For reserves, it is important to determine what is needed to achieve the more straightforward actions such as demarcation of forest boundaries, development of partnerships with adjacent communities and increased patrolling. Based on lessons from the UWA-FACE Foundation project, social and political sensitivities of conducting an eviction program for forest encroachers need to be determined in order to achieve a win-win situation. Collaboration mechanisms including consultative planning should be strengthened between forest institutions and district community development and agricultural officers.

Clarification of property rights to private forests through land registration, community or private forest declaration can potentially prevent their conversion to agriculture. REDD incentives need to be evaluated against opportunity costs of foregoing large income earners such as rice, sugarcane and maize. There should be systems to allow forest owners to trade their forested land with other available land in case they wish to expand their agricultural areas.

According to the IFPRI findings, the areas in Uganda where agricultural expansion highly threatens forests (southwestern Uganda and around Lake Victoria), agricultural intensification can be achieved profitably. A joint program of ensuring food security and household income generation through *agricultural intensification* should be explored between the forestry and agricultural (NAADS) sectors. The costs and institutional requirements of designing and implementing such a program should be weighed against potential REDD benefits and the potential for improved market access for agricultural crops. Safeguards need to be developed to ensure that increased agricultural profitability does not result into increase in appetite for expansion of agricultural area. Governance systems should be identified for achieving collective self-regulation among smallholders to ensure that forest resources are in turn protected and managed sustainably.

The feasibility of options to mitigate the potential risk that REDD may reduce the farmers' cheapest option of controlling *crop-raiding animals* should be evaluated. An assessment should be made on the extent of mobility of agricultural activities given land tenure constraints. Leakage control measures such as zoning of potential arable land, imposing regulatory measures on clearing forestland for agriculture need to be analysed taking into consideration genuine need for land and access to services and markets.

2.7.3 Unsustainable timber harvesting

Management planning to regulate timber harvesting needs to be enhanced for central forest reserves. Management planning for private forests is likely to be more complicated and costly given the large number of stakeholders managing small forest patches – and may need

to be focused on controlling leakage in those with timber stocks. The feasibility of developing subsidiary district-level or range¹⁵-level forest plans should be considered as this would enable leakage control between forest reserve and private forest management. Lessons could be derived from the FSSD FIEFOC project (supported by the African Development Bank and the Nordic Fund) assisting management planning for private forests at watershed level. FMP templates and guidelines should be developed to enable field officers and private forest owners to develop management plans according to approved procedures for sustainable forest management.

Weaknesses in the current *timber tracking* system should be addressed to inform timber regulation. A specialized centralized timber monitoring Unit may need to be established to achieve this.

The governance framework should be reviewed to develop structures for *regulating logging and timber processing*, providing advisory support and promoting technologies that reduce waste. The ban against the use of chain saws should continue. Expanding the use of band saws, which give more recovery than pit-sawing needs to be measured against the risk of excluding the rural based pit sawyers.

To meet timber demands, an average of 13,000 ha of *tree plantations should be established* annually, building up to about 200,000 ha. The World Resources Institute has developed a map of where Uganda afforestation programs can potentially be developed successfully and contribute to poverty reduction. There are strong of achieving cost-effectiveness and private sector buy-in. The success of the sawlog production grant scheme which targets medium to large scale investment needs to be supplemented with options to include smallholders. Partnership with EcoTrust to expand the Plan Vivo scheme, for example, could be one way of ensuring inclusion of smallholders.

Dealers in forest products should be supported with alternative livelihood options to reduce their dependence on forests. Income generation options such as tree nursery management, agricultural enterprises, craft making, medicinal plants and tourism should be prioritised and barriers to their potential to make significant contributions to rural households analysed and addressed.

2.8 Major thematic studies

This section indicates the major thematic studies required before going to full implementation of REDD. REDD+ readiness requires carrying out some researches and studies to fulfill the gaps in the data and improve the current level of knowledge.

Prioritisation of deforestation degradation drivers and REDD strategy actions that will be effective in achieving emission reductions and net benefits for the country requires pragmatic approaches based on the criteria reflecting the situation prevailing in Uganda and what can be best achieved through REDD compared to other approaches of forest management. Information on forest management is available, but is sometimes patchy and further investigation is needed to design strategy actions that conform to Uganda's development aspirations and can be implemented within the available means.

¹⁵ A range demarcation by NFA includes a number of contiguous forest blocks existing within a group of districts

a) Prioritisation of REDD strategies

The strategies need to be prioritised according to potential costs (investment, transaction and opportunity costs) and benefits; feasibility and sustainability (synergies, linkages, conflict mitigation).

b) Livestock grazing and other drivers – impact on deforestation and forest degradation

The strategies for addressing livestock grazing are not discussed in this report because the existing information on the impact of livestock grazing on forests is insufficient. Currently, the cattle corridor districts contain low forest cover, but it is not clear if this is caused by cattle grazing. An analysis of the impact of grazing on deforestation/forest degradation is needed to inform REDD strategy development. Similarly, the future impact of other drivers such as urbanisation, oil mining, infrastructure development etc. needs to be analysed. All in all DD drivers will need to be reviewed and prioritised

c) Opportunity costs and barrier analysis

Understanding opportunity costs, possible risks and barriers for implementation of REDD especially as it relates to the poor is key in designing and selecting studies that will work sustainably without aggravating the hardships faced by forest-dependant households. Hand in hand with this study there should also be potential gains or opportunities for private sector investment.

d) Timber movements

A survey of timber inflow/entry volumes into major urban centres including a record of the sources will inform the design of a national timber strategy. The survey should seek to understand the agents, distances traveled in order to design programs that reach all stakeholders concerned. Issues of pricing should also be incorporated in the study in order to inform mechanisms that overcome under-pricing and ensure that the tree value is fully incorporated.

e) Potential impacts of REDD strategy options on poverty and livelihoods

Strategies should be analysed in terms of their potential to contribute to rural livelihoods and living standards of rural men, women and children.

f) Potential domestic leakage

Leakage studies require understanding of the forest resources accessible by agents of deforestation and forest degradation. This study will build on the mapping of the focal REDD forest blocks to identify those forests outside the REDD focus boundary that are accessible by DD agents and are likely to be affected through displacement of DD activities. It should be linked to potential forest eviction programs. The study will entail understanding of the agents themselves in terms of age, mobility and resources. The study also needs to project the extent of impact of the displacement of activities on the accessible forests. The study should therefore recommend the leakage belt and potential mitigation measures and what institutions should be involved in managing leakage.

g) Trans-boundary forest management issues

The study should understand the impact of trans-boundary activities on forest management in Uganda. It should look at trans-boundary forest reserves and determine if management arrangements within Uganda are harmonised with counterparts in adjacent countries. The study should also study forest product movement (especially charcoal and timber) and assess the extent which these aggravate DD in Uganda. It should identify hot spots and recommend

policies and programs to ensure that REDD strategy options in Uganda are effective and regionally feasible and sustainable.

h) REDD Fund

Analysis of need and cost-effectiveness for establishing a REDD fund taking into consideration already existing Environmental funds (e.g., Tree fund, environmental fund, adaptation fund).

i) Feasibility of proposed REDD strategy options

Strategies need to be reviewed further for applicability/feasibility within Uganda's capacity means. Assessment should be made of the costs and benefits of the candidate activities including their associated opportunity costs, investment costs, transaction costs, feasibility, and sustainability. Forest types and areas where REDD is feasible should be identified and mapped out

2.9 Road map for REDD strategy options

A three-phase plan of implementation is recommended.

Phase 1: Situational analysis and stakeholder consultation –

Issues directly relevant for REDD: assessment of deforestation/ degradation drivers and agents, national capacity to address them, potential volume of REDD credits that can be generated nationally, mapping out hot-spots for REDD implementation; identification and prioritization of changes required and feasibility studies for sustainable REDD implementation

Assessment of cross-cutting/support issues for REDD implementation e.g., law enforcement, property rights, fund channeling

Phase 2: Training, consultation and design of text for regulation and institutional changes on direct and cross-cutting aspects of REDD. Implementation of pilot and demonstration activities to inform further actions.

Phase 3: Making the legal and institutional changes and implementing actions according to the changes of direct and cross cutting aspects of REDD.

2.10 Conceptual framework for monitoring the REDD strategy

A transparent system should be developed that enables standardized and honest approaches to forest carbon accounting. Monitoring of the REDD+ strategy shall consist of regular collection and analysis of information on performance, process and impact. Performance monitoring will use a robust sampling strategy to determine firstly if carbon emission reductions are being achieved as planned over and above the baseline scenario. It will also take into consideration impacts of REDD on socio-economic and biodiversity status. Potential institutions for performance monitoring are NFA or the REDD Secretariat working in partnership with communities, REDD working group (R-WG) members and local governments. UBOS, universities and NAFORRI should play key roles. Transparent reporting of information should be made regularly to R-WG membership and to national level stakeholders.

R-WG members, the Forest Governance Learning Group, the IGG and community representative could be some of the organizations that will conduct Process monitoring of institutional and management systems seeking determine whether activities are being implemented efficiently and equitably. Other CSOs may include Environmental Alert (EA), Uganda Forest Working Group, and Advocates Coalition for Development and the Environment (ACODE). Some focus areas for process monitoring may include:

- how proponents engage with local communities and other forest stakeholders
- land, forest and carbon tenure arrangements
- stakeholder power relations – how decisions are made
- logistical aspects, including budgeting
- baseline data collection
- verification and audit processes
- direct costs and risks in implementing REDD and how these are shared
- how benefits are shared and channeled to relevant stakeholders.

Impact monitoring seeks to establish whether the desired safeguards and co-benefits in REDD implementation are being achieved. It involves, early in the implementation of REDD, the development of baselines and a sampling strategy for evaluating the impact of project actions on rural communities (especially the poor and vulnerable) and on biodiversity and other ecosystem services. The existing Environment Impact Assessment procedures should be strengthened and adapted for REDD Impact monitoring. Results should be reported regularly to key proponents and policy makers.

It encompasses identification of stakeholders, decision making about activities that promotes sustainability, better integration of local knowledge and capabilities, systematic learning from experience and more efficient use of funding. The impact monitoring will be done by independent third party focusing on:-

- changes in carbon emissions and income derived from the forest
- changes in forest cover and household wealth
- maps of tenure and forest use
- Changes in livelihoods of local communities

While designing a standard impact monitoring system, the following steps shall be followed including:-

- Identification of core issues;
- Formulation of impact hypothesis;
- Identification and selection of indicator sets;
- Selection and development of methods
- Data analysis and assessment
- Information management

Conclusion

The design of the REDD strategy must be realistic, taking into consideration the national development priorities and ambitions on the one hand and capacity limitations in terms of institutions, finances, governance and human resources on the other. Programs should be pragmatic and realistic aiming to work within the existing means and then based on success, projecting more ambitious endeavours. The sharing of roles and responsibilities including projection of costs and financial mechanisms also need to be thoroughly analysed. Clear linkages should be developed between the REDD strategy and key strategies in Uganda's development in the National Development Plan. The REDD strategy should be monitored regularly against milestones in the National Development Plan.

Risk assessment should be conducted through carbon, financial and socio-economic feasibility studies of REDD. Mitigation measures should be designed early on in planning. The process should begin with stock-taking, analysis and consultations required to refine a national REDD strategy.

Budget for developing the National REDD Strategy

Main activity	Sub-activity	Estimated costs (US\$)			
		2011	2012	2013	Total
Prioritisation of strategy options according to development priorities and on-going sector programs	Desk studies	10,000			10,000
	Stakeholder consultation	25,000			25,000
	Publicity	20,000	10,000		30,000
Training	REDD training – principles, methodologies, monitoring, transactions, revenue channeling; REDD planning and budgeting	25,000	25,000		50,000
Studies	Desk studies; financial, institutional, political, social feasibility; policy legal and institutional review; potential financing; costs, benefits & risks; and others as will be identified	50,000	50,000	50,000	150,000
	Stakeholder consultation and workshop	10,000			10,000
	Technical Assistance in strategy development	50000	50000	50000	150,000
	Documentation			10,000	10,000
	Workshops	20,000	20,000	20,000	60,000
	Consultation, study tours	25,000	25,000		50,000
	Supporting political processes	20,000	20,000	10,000	50,000
	Supporting civil society	30,000	50,000	20,000	100,000
	Support through international expertise and advisory services	50,000	50,000		100,000
Pilot projects	Management of pilot initiatives (expertise, assistance)	50,000	100,000	50,000	200,000
	Coordination, meetings and working committees	50,000	50,000	50,000	150,000
TOTAL		435,000	450,000	260,000	1,065,000

3.0 TERMS OF REFERENCE FOR THE DESIGN OF A NATIONAL REDD IMPLEMENTATION FRAMEWORK IN UGANDA

This section presents key elements of institutional arrangements necessary for the envisioned REDD implementation plan in Uganda. Figure 3 outlines a theoretical representation for REDD credit generation, selling, buying and regulation in Uganda. Uganda needs to decide whether REDD will be Fund-based, private sector-based or a mix of both. REDD carbon generation may occur in protected reserves, which may include collaborative agreements with adjacent local communities. These could sell their credit to private sector buyers or to the National REDD Fund. REDD carbon could also be generated from forests outside protected areas. In this case, forest owners may need to be organized into networks. Aggregator(s) may be necessary to bulk these REDD credits from different forest owner groups and sell them. Alternatively generated REDD credits may be sold directly without having to go through an aggregator. Payments will have to be channeled to stakeholders in an accountable and transparent manner. These transactions need to be supported and regulated by the different institutions as outlined on the right-hand side.

It is likely that the REDD strategy in Uganda will take a nested approach. In this case transactions will be occurring directly from both national and sub-national levels. In order to achieve this, the REDD strategy should develop mechanisms for clear registration to avoid double accounting and to ensure that the two levels do not compete.

The country needs to work out the activities to implement at the national level or at sub-national level including strategies for civil society and private-sector involvement. National level frameworks should include development of rules, procedures and guidelines for generating, monitoring, validating and verifying REDD credits, structuring contracts, implementing agreements and channeling payments. National level approaches may focus on protected areas mainly spearheaded by UWA and NFA working in collaboration with communities via agreements. Sub-national activities are likely to occur predominantly in forests outside protected areas coordinated by the FSSD working directly with local governments. Sub-national activities can also occur in protected areas. Political support is crucial and highly placed champions are required for the success of the REDD program in Uganda.

3.1 COORDINATION

Coordination within the forest sector

National level coordination of the forest sector is an existing institutional gap that needs to be addressed as far as general forest management is concerned, but especially for REDD. The coordinating institution could play a key role in building REDD into other approaches of forest management. Within this, a REDD Unit may be established and its coordinator should be placed at a high technical and political level, say at Prime Minister's Office. The role of the REDD Unit may entail:

1. **Oversight functions:**
 - a. Overseeing adoption, implementation and review of the REDD+ strategy;
 - b. Guiding benefit-sharing and channeling arrangements;
 - c. Approving and registering REDD+ programs and projects

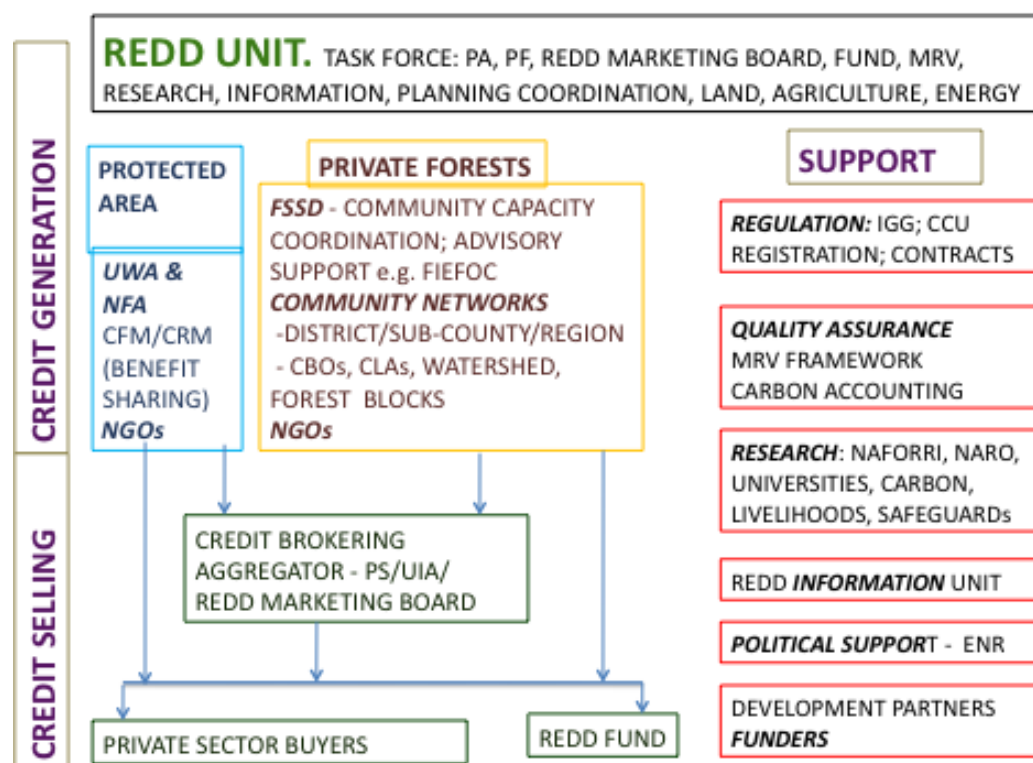


Figure 3. Schematic framework for REDD credit generation, selling and support in Uganda. PF – Private forests; PA – Protected areas; MRV – Monitoring, Reporting and Verification; CLA – Communal Land Associations; NGO – Non-governmental organizations; CBO – community based organisations; IGG is Inspector General of Government; CCU is Climate Change Unit; UIA – Uganda Investment Authority, ENR – Environment and Natural Resources

- d. Managing REDD information (carbon, socio-economic information, registration of REDD projects, contracts, buyers and sellers of carbon credits, monitors, verifiers and validators, etc.)
- e. Developing laws and regulations for REDD implementation including agreements with stakeholders, monitoring, contract development, benefit sharing and revenue channeling.
- f. ensuring the promotion and international marketing of carbon
2. **Standards functions:**
 - a. Developing national standards for REDD+ metric, for Measurable, Reportable and Verifiable (MRV) actions, and for social and environmental safeguards.
 - b. Providing guidance on standards, MRV methodologies, and other technical procedures.
 - c. Communicating REDD+ strategies and develop performance metrics;
 - d. Coordinating technical support from international sources.
3. **Finance functions:**
 - a. Allocating resources according to REDD+ strategy;
 - b. Disbursing resources to approved REDD+ plans, programs, and projects;
 - c. Ensuring compliance with national and internationally agreed financial, fiduciary, and reporting procedures;
 - d. Managing program and funding cycle.

A monitoring, reporting and verification (MRV) unit could be established to develop systems for monitoring and accounting for all REDD carbon credits generated and also all socio-economic and biodiversity safeguards addressed in the implementation of REDD. The Unit should also be in charge of REDD impact assessment. The existing National Biomass Unit in NFA could provide a good starting point. The Uganda Forest Working Group also stands to play a key role in achieving wide consultation and strong civil society voice in REDD governance.

Coordination with other key sectors

A Task Force could guide the functions of the REDD Unit to ensure that it conforms to overall government development plans, mandates and investment plans of relevant sectors as well as existing international commitments. The task force should determine procedures for auditing REDD strategy implementation and monitoring it against national development goals and milestones. Mechanisms should be developed to ensure inter-sectoral planning, budgeting and monitoring and if other financing streams can be developed alongside REDD to increase net revenues generated.

The already-established CLIMATE CHANGE UNIT should develop policies and regulations to govern:

- REDD alongside other climate change mitigation and adaptation strategies
- Information on REDD in the overall climate change strategy
- Negotiation

The Natural resource Sector Working group would play a key role in building the REDD strategy into the overall natural resource sector planning.

Governance

The IGG and other key anticorruption institutions should monitor REDD to ensure accountability and transparency. Police and judiciary roles in REDD implementation need to be clearly spelt out including enabling dialogue and handling complaints among stakeholders.

Civil Society organizations such as the Forest Governance Working Group hosted by the Advocates Coalition for Development and Environment (ACODE), Environmental Alert, Nature Uganda and others need to play a key role in ensuring adherence to the law and social and biodiversity safeguards.

3.2 NEGOTIATION AND ACCESS TO FINANCING MECHANISMS

The architecture and rules of a potential REDD mechanism are still being debated among scientists, technocrats and political negotiators. Mechanisms should be developed for

- a. Managing relations with UNFCCC and other REDD+ technical bodies;
- b. Managing relations with the international REDD+ mechanisms, partnerships or other arrangements;
- c. Managing international REDD+ relations (e.g., with other national or regional REDD+ programs);
- d. Reporting to international REDD+ regulatory levels.
- e. Applying for and managing relations with international Funds such as the GEF, or any other fund(s); agreeing on international funding, fiduciary, and reporting procedures.

- f. Managing relationship with international multilateral and bilateral sources of (REDD+) funding;
- g. Overseeing international carbon markets;
- h. Structuring transactions and managing risk related to international carbon markets.

3.3 FINANCIAL AND INCENTIVE MANAGEMENT AND CHANNELING

In case Uganda decided to establish a REDD Fund through which to channel all REDD revenue, the institutional set up for administering this needs to be worked out. The Tree Fund established in 2007 is not yet operationalised yet it could potentially be an avenue for setting up and administering a dedicated REDD Fund. An assessment is needed to evaluate whether REDD funds can be channelled transparently and efficiently to relevant stakeholders through existing systems such as the transfer of central government funds to local governments, NAADS, NGO approaches such as the Mgahinga-Bwindi National Park Fund or use of village banks by Ecotrust.

From consultation with IUCN, Uganda could learn from the experience of Ghana by setting up an agency outside government that will manage REDD funds. This would work out specific percentages to be allocated for forest management at the local level, forest management at the national level, community development programs, administration of community organizations (CBOs/NGOs) involved in REDD activities, administration of the agency and government. The country should also ensure that sites benefitting from REDD Funds are not disadvantaged from receiving other mainstream funds.

The Public Accounts Committee and other existing institutions should be explored for auditing the management of the REDD Fund and channeling of REDD revenues. Increasing private sector involvement for example through domestic forest carbon credit trading as piloted by Uganda Carbon Bureau should be explored further. Stakeholder consultation is required to decide on the taxation and other regulatory processes regarding REDD revenues and which institutions would be most appropriate in achieving these.

3.4 INFORMATION GENERATION AND MANAGEMENT

A REDD information hub should be developed at a central institution such as FSSD or NEMA or the Climate Change Unit to collect, process and make accessible all relevant information. Rules of transparency and access to the REDD database should be adapted from existing rules guiding overall access to information. Key players may include the NFA Biomass Unit, NAFORRI, UBOS, Makerere University Faculty of Forestry and Nature Conservation, etc.

Budget for developing REDD Implementation Framework

Activity	Cost in USD			
	2011	2012	2013	Total
Situational analysis – policy legal and institutional set up	30,000			30,000
Consultation scoping and analysis of changes needed		20,000		20,000
Assessment of options for fund management		30,000		30,000
Consolidation and writing of the strategic and detailed vision			20,000	20,000
Writing of draft texts of reform			100,000	100,000
Study on required management capacity and skills	25,000	25,000		50,000
Supporting the first implementation phase of the programme			200,000	200,000
Training and lobbying	30,000	30,000	30,000	90,000
Consultations and completion of legal texts		50,000	50,000	100,000
Institutional administrative costs	20,000	20,000	20,000	60,000
Monitoring of the implementation			30,000	30,000
Total	105,000	175,000	450,000	730,000

References

- J.C. Adam 2009. Improved and more environmentally friendly charcoal production system using a low-cost retort-kiln (Eco-charcoal). *Renewable Energy*, Volume 34, Issue 8, August 2009, Pages 1923-1925
- Arthur Baguma 2010. The New Vision Online: Uganda. Friday July 30, 2010. Cooperating for action on climate change. <http://www.enteruganda.com/brochures/euhomepage04.html>
- Bush, G.K., Nampindo, S., Aguti, C. and Plumptre, A.J. (2004) *Valuing Uganda's Forests: A Livelihood and Ecosystems Approach*. Unpublished report to National Forest Authority, Uganda.
- Todd Benson and Samuel Mugarura 2010. Livestock Development Planning in Uganda: Identification of Areas of Opportunity and Challenge. IFPRI Discussion Paper 01008
- Economic Policy Research Centre 2007. Poverty and social impact analysis (PSIA) of the proposed national land use policy qualitative fieldwork report.
- FAO 2005. Forest Harvesting Case Study No. 22. Pit-sawn Timber Production in Natural Forests of Uganda by G.G.O Adokonyero. FAO, Rome.
- Forest Department 2003. The Forest Nature Conservation Master Plan, MWLE, Government of the Republic of Uganda
- Forest Department 2002. The National Forest Plan. Ministry of Water, Lands and Environment, Uganda.
- Foundation for Environmental Security and Sustainability 2006. A Pilot Case Study.
- Kamanyire M EPRC 2000. Natural resource management and policy in Uganda. Overview paper. Sustainability indicators for natural resource management and policy. Working paper 3.
- Kamugisha-Ruhombe J. 2008. Forest law enforcement and governance, Uganda Country Assessment And Issues Paper.
- Steve Amooti Nsita 2010. In search of forest governance reform in Uganda. Background Paper for the Workshop On Forest Governance In Uganda, 15-16 June
- F. I. B. Kayanja and D. Byarugaba 2001. Disappearing forests of Uganda: The way forward. Special Section: Science in the Third World 81 (8).
- Kisakye, Richard 2004. Final Report: Study on the Establishment of Quantity of Charcoal Produced per Parish and Recommended Reserve Prices for Masindi District
- Markus Knöpfle 2004. Charcoal monitoring report. Ministry of Energy and Mineral Development (MEMD). Energy Advisory Project (EAP). A Study on Charcoal Supply in Kampala Final Report
- Lüdecke, Matthias K.B., Petschel-Held, Gerhard & Schnellhuber, Hans-Joachim, 2004. Syndromes of Global Change: The First Panoramic View. *Gaia*, 13, pp. 42-49.
- Daudi Migereko 2008. Investment opportunities in power generation in Uganda. Paper presented at symposium. Hamburg, Germany.
- Ministry of Finance and Economic Planning 1995. The republic of Uganda national population policy for sustainable development.
- MWE 2009. Water and Environment Sector Performance Report

- Ministry of Water and Environment 2009. Water and Environment Sector Performance Report.
- Ministry of Lands, housing and urban development 2007. The National Land Use Policy.
- Yakob Moyini 2000. The role of forests in Uganda's National Economy. Innovation-Special issue on Valuation of Forest Resources in East Africa.
- Mwima Musimami P., Gombya Ssembajjwe W. and Eilu G. 2004. Forest Certification in Uganda. Paper presented at the Symposium, Forest Certification in Developing and Transitioning Societies: Social, Economic, and Ecological Effects Yale School of Forestry and Environmental Studies New Haven, Connecticut, USA.
- Nagujja Stella. The relationship between socio-economic characteristics of maize farmers and household food security in eastern Uganda. Department of Agricultural Economics and Agribusiness, Makerere University
- Grace Nangendo 2005. Changing forest-woodland-savanna mosaics in Uganda: with implications for conservation. PhD Thesis. Wageningen University, Enschede, The Netherlands. ISBN: 90-8504-200-3. ITC Dissertation Number: 123.
- NEMA 2010. Protected areas governance and biodiversity conservation in Uganda. Advance draft report prepared by advocates coalition for development and environment for the national environment management authority (NEMA)
- NFA 2009. Land cover of Uganda 2005 by NFA
- Steve Amooti Nsita 2002. Decentralisation and forest management in Uganda - in support of the Intercessional Country-Led Initiative on Decentralisation, Federal Systems of Forestry and National Forestry Programmes
- Olson and Berry 2003. A pilot study to examine the extent and impact of land degradation in Uganda.
- Brilliant M. Petja. Review of Case Studies on Successful Measures to Manage Land Use, Protect Land, and Mitigate Land Degradation. National Agro-meteorological Committee, Agricultural Research Council – Institute for Soil, Climate, and Water. Pretoria, South Africa
- John Pender, Pamela Jagger, Ephraim Nkonya, and Dick Sserunkuuma 2001. Development pathways and land management in Uganda: causes and implications. International Food Policy Research Institute. EPTD DISCUSSION PAPER NO. 85. presented at a Workshop on Policies for Improved Land Management in Uganda. Kampala June 25-27, 2001.
- W.A. Rodgers, R. Nabanyumya, E. Mupada and L. Persha. Community conservation of closed forest biodiversity in East Africa: can it work? Communities need incentives to conserve biodiversity - some examples from the GEF-UNDP-FAO project "Reducing Biodiversity Loss at Cross-Border Sites in East Africa".
- Dick Sserunkuuma. Land management problems and potentials in the lakeshore intensive banana-coffee farming system. Department of Agricultural Economics and Agribusiness, Makerere University
- Stanley Wood and Simon Bolwig. A spatially based strategic planning framework for sustainable land use in Uganda. International Food Policy Research Institute
- The National Forestry and Tree Planting Act, 2003. Government Printer, Entebbe.
- Uganda Forestry Resources and Institutions Centre (UFRIC) 2002. Kajjonde forest and its users. A Site Monitoring Report prepared for presentation to the local people and officials of Kajjonde Forest Reserve.

Uganda Investment Authority 2003. Investing in Uganda's Forestry Industry

UGANDA NATIONAL COMMISSION OR UNESCO 2000. Task Force Consultation on UNESCO for the 21st Century http://www.unesco.org/webworld/taskforce21/documents/sept_oct/uganda1.html

Zziwa A., Ziraba Y.N. and Mwakali J.A. 2009. Timber use practices in Uganda's building construction industry: current situation and future prospects. The Wood Technology Society of the Institute of Materials, Minerals and Mining. The Journal of the Institute of Wood Science Vol. 19

Zziwa A., Kaboggoza J. R. S., Mwakali J.A., Banana A. Y., and Kyeyune, R.K. 2006. Physical and mechanical properties of some less utilised tropical timber tree species growing in Uganda.

Uganda strategic investment framework for Sustainable Land Management 2010 – 2020.

New Vision (Uganda) JUNE 2009. Forest Protectors Need Protection.
<http://www.accessmylibrary.com/article-1G1-202748012/forest-protectors-need-protection.html>

Africa Travel Magazine January 2009. The dangers of protecting forests
http://www.africa-ata.org/atm_thome.htm

The Daily Monitor 1 September 2009. Explain NFA Evictions, Environment Minister Told.
<http://allafrica.com/stories/200909010531.html>

Travel Hemispheres 22 June 2007. National Forest Authority in another land row
<http://www.travelhemispheres.com/tours/2007/06/22/national-forestry-authority-officials-in-another-land-row/>

Uganda Investment Authority 2009. Investing in Uganda. Investment potentials for beef processing.
www.ugandainvest.com/admin/.../Beef%20processing%20Final.pdf

Democratic Republic of Congo Ministry of Environment, Conservation of Nature and Tourism (July 2010). Readiness Plan for REDD, 2010-2012

Ghana Readiness Preparation Proposal 2010.

List of persons Consulted

Name	Institution
Margaret Lwanga	Ministry of Local Government
Francis Esegu	National Forestry Resources Research Institute
James Otala Epila	National Forestry Resources Research Institute
Bill Farmer	Uganda Carbon Bureau
Martin Fodor	World Bank
Lesya Iverheijen	World Bank
Barbara Nakangu	IUCN
Aryamanya Mugisha	National Environment Management Authority
Edith Kabesiime	CARE