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## **REDD at the crossroads? The opportunities and challenges of REDD for conservation and human welfare in South West Uganda**

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**Abstract:** Reducing emissions from deforestation and forest degradation (REDD) in the tropics could slow climate change while contributing to biodiversity conservation and to improvement of people's livelihoods. In this

study, we assessed the opportunities and challenges of implementing REDD in South West (SW), Uganda. We consulted key stakeholders and reviewed regional literature particularly focusing on the opportunities for conservation and human welfare benefits. We structured our study using the Simpson and Vira's (2010) framework for assessing policy interventions. The leading drivers of forest loss and degradation include escalating timber trade, fuel-wood extraction and agricultural expansion. Forestry authorities were poorly funded, largely uncoordinated and widely accused of corruption. Land tenure was a concern with many de-facto owners lacking legal titles. Generally, local stakeholders had limited awareness of REDD, and local expectations appeared un-realistically high. Mechanisms for allocating and administering REDD payments remained unknown. However, civil society organisations appeared the most popular option to manage REDD funding as government agencies had limited credibility. For REDD to succeed, the challenges we have highlighted will need to be addressed: key to success will be improvements in foundational knowledge, enabling institutions and social conditions. Our results have implications for potential REDD activities around the world which face similar challenges.

**Keywords:** REDD; governance; conservation; climate change; forests; Uganda.

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Douglas Sheil is an ecologist focusing on tropical forests and their assessment, conservation and management. He did his doctoral work in Uganda and then worked with CIFOR in Indonesia from 1998 to 2008. From 2008–2012, he was the Director of the Institute for Tropical Forest Conservation in the Bwindi Impenetrable World Heritage site in Uganda.

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## 1 Introduction

Deforestation and forest degradation are believed to contribute approximately 12% of total anthropogenic atmospheric carbon emissions (Rogner et al., 2007; Van der Werf et al., 2009). Reducing emissions from deforestation and forest degradation (REDD), is considered key to combating climate change (Tollefson, 2008). REDD has been part of official negotiations of the United Nations Framework Convention on Climate Change (UNFCCC) since 2007, when a ‘demonstration’ phase was launched at the 13th Conference of the Parties in Bali (Brown et al., 2008). There has been considerable debate concerning the practices, carbon components, social, governance and environmental goals, mechanisms and safeguards to be included [for overviews and discussions of these issues see Angelsen (2008) and Angelsen et al. (2009, 2012)]. This has led to various proposals often grouped under more general labels such as ‘REDD+’ – here we shall refer to all these proposals as ‘REDD’. Despite the debates, and some setbacks at Cancun in 2011 and Doha in 2012 (Coad et al., 2008; Kossoy and Ambrosi, 2010), the recent 2013 Warsaw Conference of the Parties saw significant progress on REDD, suggesting that some form of REDD is likely to be adopted by the UNFCCC as part of the post-2012 climate change framework (Allan et al., 2013). This may result in a fund-based system or provisions for market-based trading of carbon credits generated by verified projects (Allan et al., 2013). In any case, we anticipate that richer countries will continue to seek ways to off-set their own carbon emissions by paying the opportunity cost of forest conservation to developing countries (Kanowski et al., 2011).

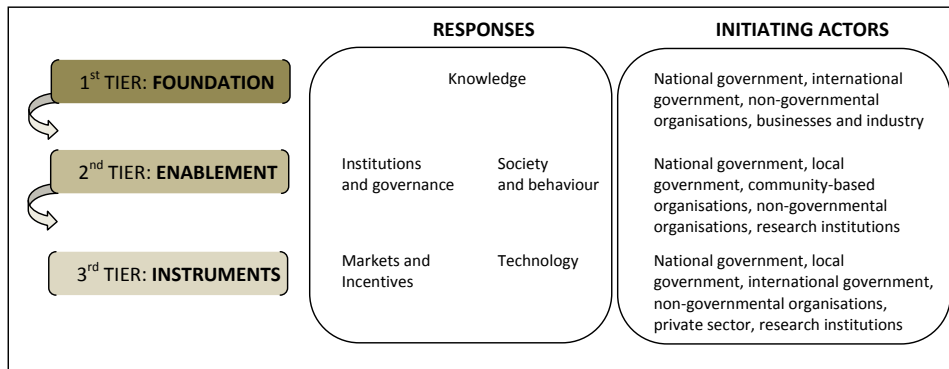
REDD schemes have the potential to boost funding for forest conservation, to provide income to rural communities, and to spur reforms in forest governance (Blom et al., 2010; Venter et al., 2009). However, recent research suggests that if poorly implemented, REDD interventions might actually have perverse, negative outcomes for forest cover and local livelihoods (Phelps et al., 2010; Sandbrook et al., 2010). There are thus many challenges to consider. Notably, any REDD mechanism must be internationally applicable, yet implementation must address a broad range of national and local contexts. To be efficient and credible REDD initiatives must also build on existing forest conservation initiatives and institutions at national and sub-national levels (Kanowski et al., 2011).

To help prepare for REDD, agencies such as the World Bank (The Forest Carbon Partnership Facility; Davis et al., 2009), the UN (UN-REDD Programme; Verchot et al., 2009), and national governments (such as Norway) are funding country level activities intended to clarify and create the conditions required to implement REDD successfully. Obvious challenges include the limited capacity and coordination of the managing institutions in the countries developing REDD (Peskest and Brockhaus, 2009). The concern is that if REDD projects are implemented with insufficient planning and awareness and without sensitivity to local needs and concerns – they may be ineffective or have unintended negative consequences.

The stakes in the REDD debate are high. The viability of global carbon markets to address a changing climate is under intense scrutiny, and effective links between policies and actions at different levels are increasingly highlighted as key to addressing the global challenge (Newell et al., 2014). In this context local shortcomings can undermine global processes by undermining credibility and sapping political will.

To date much of the discussion of matching REDD projects to local actors has focused on large, forest rich nations, such as Indonesia (Angelsen et al., 2009). However, there is also considerable interest in applying REDD in other tropical regions. In this paper we consider REDD in South West Uganda and how it might bring conservation and development benefits to the region. To structure our investigation we apply the analytical framework of Simpson and Vira (2010; henceforth ‘SV-framework’). This framework comprises three ‘tiers’: foundation, enablement and instruments (Figure 1). Each tier can be viewed as providing the foundation on which the subsequent tier rests. At each level responses, and actors likely to initiate these responses, are identified (Figure 1). Within this framework, the expected market-based UNFCCC REDD mechanism would be characterised as an instrument within the third tier. It is dependent on the first tier’s foundation of existing and available knowledge about forest cover change, and monitoring, reporting and verifying carbon storage. In the second tier, there must be appropriate institutions and governance along with appropriate social conditions. It is acknowledged that other linkages exist and that the cascade is not strictly one-directional. For example, pilot studies inform policy improvements and identify knowledge gaps.

**Figure 1** Schematic representation of the tiered framework for intervention strategies, or ‘responses’ including the actors likely to initiate responses in each tier (see online version for colours)



Source: Adapted from Simpson and Vira (2010)

If the elements of the framework are not met to a sufficient level project success is expected to be less likely. Knowledge failings require research; institutional and governance failings require capacity building; while for ‘failures’ in society’s conditions, broader social changes are required (Simpson and Vira, 2010). These issues are distinct from the technical design of REDD but remain fundamental to success. Such issues tend to receive less attention in the research literature. To address this gap, this paper focuses on the first 2 tiers.

By applying the SV-framework to REDD in SW Uganda, we seek to identify opportunities, challenges, and research needs. We draw on in-depth interviews, discussions, the published and unpublished literature and our personal experience to identify key issues under Tier 1 and 2 of the SV-framework. Based on our analyses we identify some recommendations to improve outcomes in SW Uganda, and conclude with some wider lessons for implementing REDD in similar contexts.

### *1.1 Uganda and REDD*

Uganda has a predominantly (85%) rural population and agricultural economy (Statistics 2005/06, ubos.org). About 40% of these rural people – some 10 million – live in absolute poverty on less than US\$1 per day (ruralpovertyportal.org). Uganda's population is growing at over 3.2% per year, among the highest in the world, and the country's tree cover has been halved over the last century (Nakakaawa et al., 2011). Much of the population makes use of forest-based goods and services. Fuel wood and charcoal remain the principle sources of energy for cooking (Nakakaawa et al., 2011). Land use, land conversion for agriculture and associated forest loss and degradation accounts for around 80% of Uganda's total green house gas emissions and the country is among the top 20 on a global list of tropical countries emitting carbon from deforestation (Nakakaawa et al., 2011).

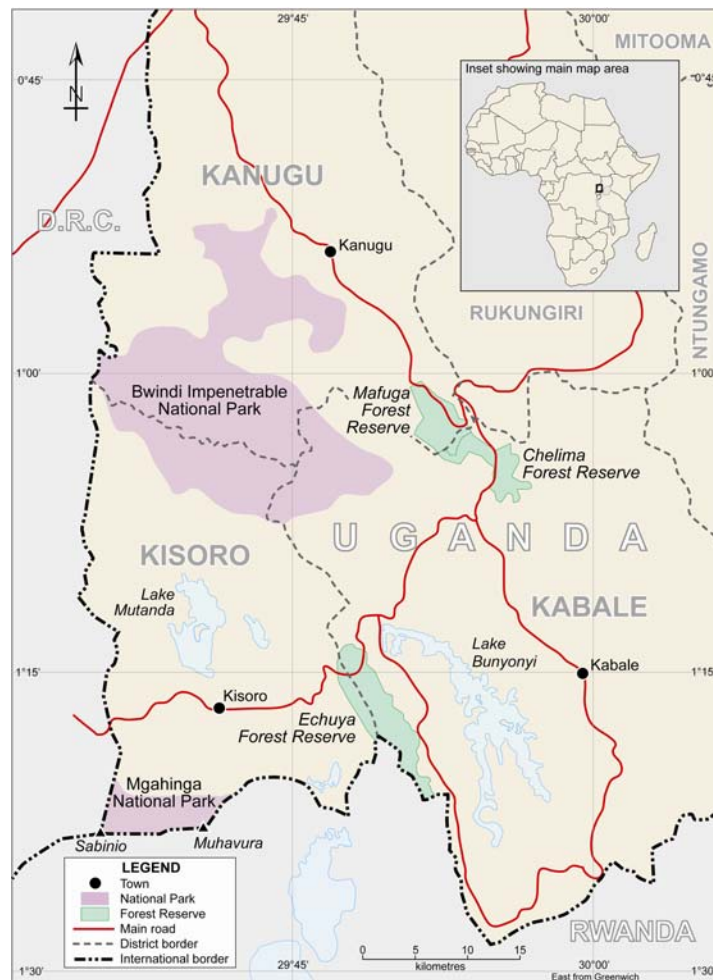
Uganda's formal timber market is regulated through permits and taxes. But there is a major informal market based on small, technically illegal, producers. Much of this production comes from private land and the lack of enforcement is blamed on staff shortages and corruption (Kambugu et al., 2010). Forests on private land account for 64% of Uganda's total forest area. These private forests are managed under the oversight of District Governments and District Forestry Officers. Only 35% of Uganda's forest is state controlled, with the National Forest Authority's (NFA) central forest reserves (CFR) accounting for 17%, and the Uganda Wildlife Authority's (UWA) national parks and other conservation areas accounting for the rest (Brickell et al., 2012). Decentralisation in Uganda means that it will not be possible to deliver REDD+ without functioning mechanisms to ensure adequate resourcing for implementation at all levels; information flows that facilitate decision making; and clear accountability to national policies (Brickell et al., 2012).

A scoping exercise to identify REDD pilot projects in Uganda is underway at the time of writing. A 'REDD-Plus National Focal Point' was appointed to lead the 'REDD readiness' process in 2008 and a National REDD Secretariat composed of NFA's staff and consultants was established in 2010 and tasked to prepare a proposal for funding from the World Bank's Forest Carbon Partnership Facility. This proposal was successful. Key questions remain regarding the country's ability to manage REDD incentives. There are, however, various relevant payment for ecosystem services (PES) projects in Uganda which offer potentially relevant lessons for the implementation of REDD projects. Forest-related examples include the Nile Basin Reforestation Project, Kikonda Forest Project and Trees for Global Benefit. These projects, managed by local NGOs, have been receiving carbon credits for afforestation/reforestation activities that have mostly been implemented on private land with the engagement of local land-owners and other residents (see Peskett et al., 2011).

### 1.2 Case study context: SW Uganda

There is a growing consensus that implementation of REDD must engage with local scales to alleviate the capacity constraints of dealing with the national government level (see Angelsen et al., 2008; Karsenty and Ongolo, 2012). We conducted this study in the districts of Kabale, Kisoro and Kanungu in the SW corner of Uganda, bordering DR Congo and Rwanda (Figure 2), to assess the potentials and pitfalls of any local REDD projects in this region. The remaining natural forest fragments in this area are of global biodiversity conservation significance including around half the world's remaining mountain gorillas and a number of highly restricted plant and animal species in Bwindi Impenetrable and Mgahinga Gorilla National Parks (Hamilton et al., 2000; McNeilage et al., 2006; Plumptre et al., 2007). There are also small areas of forest in reserves and even smaller unprotected forests (Banana and Tweheyo, 2001; Twongyirwe et al., 2011).

**Figure 2** A map of the study area in SW Uganda (see online version for colours)



*Source:* Data compiled from multiple sources; produced by Cartography Unit, Geography Department, University of Cambridge

Human densities are extremely high with several hundred per km<sup>2</sup> in some places (UBOS, 2002). Land is owned through a complex mix of traditional and modern tenure regimes (Twongyirwe et al., 2011). Most people are engaged in subsistence agriculture in which any surpluses are sold (Carswell, 2007). Even very steep slopes are cultivated and soil conservation has long been a concern (Carswell, 2007; Siriri et al., 2005). “In this region it is estimated that there is a 40% shortfall in wood supply, and crop yields are under 35% of potential production” (Siriri and Bekunda, 2004 as cited in Siriri et al., 2010). Aside from two larger plantation forests managed by the NFA (Mafuga and Chelima) there has also been some localised private investment in woodlots for fuel and timber. The Sawlog Production Grant Scheme (SPGS) in particular has supported the planting of over 20,000 ha in Uganda since 2004 and plantations are expanding nationwide (Jacovelli, 2009) and remote sensing data shows expansion of small forest patches in the region between 2000–2012 that appear to be plantations (see <http://earthenginepartners.appspot.com/science-2013-global-forest>; Hansen et al., 2013). Recent evidence suggests that plantation forests can help alleviate local pressure and clearance of Uganda’s natural forests (Ainembabazi and Angelsen, 2014). There has been considerable expansion of commercial tea-estates, and private cooperative tea planting in some areas. REDD has been promoted in the area through a regional stakeholder consultation in the West and under National REDD readiness (Uganda Draft R-PP, 2011) as a forest conservation solution, with expected co-benefits in the form of biodiversity conservation and poverty alleviation. Though there is some experience with carbon projects in Uganda (for example: FACE Foundation Forest Rehabilitation Project, PlanVivo Project, Nile Basin Reforestation Project, and Namwasa Forestation Project; Jindal et al., 2008; Peskett et al., 2011), and pilot REDD activities and scoping studies exist (Ebeling and Yasué, 2008), none of these experiences originate in SW Uganda and no REDD projects in Uganda have yet been brought to market.

## 2 Methods

We consulted various stakeholders in Kabale, Kanungu, and Kisoro Districts, and also in Kampala, using semi-structured interviews and open-ended questions during August and September, 2010. Respondents included the REDD Readiness Proposal Plan National Focal Point for Uganda who is a national government representative, two individuals from research institutions, four from international- or national-level civil society organisations (CSOs), 12 from sub-national or local-level CSOs, and five from sub-national or local government.

Our study is qualitative in nature – we set out to identify and examine the full range of concerns and issues present – and we did not attempt to interview a statistically representative sample of the population in the districts surrounding the forests. We used a snow-ball sampling technique (Goodman, 1961) to identify key respondents for our interviews. These key respondents, who were in many cases leading figures working for or with NGOs in SW Uganda identified further respondents. This technique has been used in many other studies (e.g. Andrews and Gatersleben, 2010; Conrad et al., 2011; Cuppen, 2012). The consistency of the results was interpreted by triangulation: i.e. by comparing and contrasting the views of the respondents (Erzberger and Prein, 1997). When results appeared inconsistent, greater efforts were made to clarify the basis of this disagreement and ensure that the questions and replies were clearly understood.

We administered open-ended semi-structured interviews. With local informants, the interviews typically lasted 40–60 minutes or approximately half this time when administered to officials in Kampala. RT conducted these interviews in South West Uganda with fluency in both English and Rukiga/Runyankore. The consultations in Kampala were conducted by LS in English.

The questions sought to clarify understanding of what REDD in SW Uganda might require and imply, and to identify the opportunities and threats of implementation. Questions specifically raised key topics concerning environmental implications, and the consequences for human-welfare. These topics included drivers of deforestation and how they could be controlled, feasibility of REDD implementation in protected areas (issues of additionality), forest resource use, forest distribution outside protected areas, opportunity costs of REDD-related conservation; for human welfare, questions included knowledge of REDD, capacity to implement REDD projects (financial, technical, credibility of institutions, expectations of benefits that would accrue). These questions were pre-selected depending on the category of respondent for better returns on time and output (in terms of quality of the information collated).

We were able to compare our results with reports from an official ‘REDD readiness’ consultation performed on behalf of the NFA (Water Governance Institute, 2011). In summarising the opportunities and challenges related to REDD in the region we use our judgment, experiences along with relevant published and unpublished information. Our conclusions were further refined through consultations with regional actors and experts and helpful comments on our draft text. We organise our results following the tiers of the SV-framework.

### **3 Results**

#### *3.1 Tier 1 – foundation (knowledge)*

##### *3.1.1 Forest distribution, baselines and drivers of deforestation and forest degradation*

Knowledge required for REDD includes forest distribution, condition, baseline rates and drivers (i.e. the underlying causes) of these deforestation and forest degradation processes. It is known that little of the remaining forest in SW Uganda lies outside the Protected Forest Estate (PFE) which comprises national parks (under the management of UWA), CFR (under the management of the NFA) and the degraded local forest reserves (LFR) under district local governments. Respondents differed in their judgments concerning the amount of forests within PFE in the region; and at present the amount and condition of forest on private land is not well understood. Most respondents considered private forest in the area to be fragmented and degraded.

Several respondents stated that severe deforestation and forest degradation was ongoing in the region. However, very little information on baseline rates was found or known by respondents. There have been various accounts of forest status within the national parks (Olupot et al., 2009) and forest reserves (Banana and Tweheyo, 2004) but less outside these protected areas (see also Twongyirwe et al., 2011) though there are new national overviews (Nakakaawa et al., 2011). Remote sensing data from 2000–2012 shows some localised loss of tree cover, especially in forest reserves, but the main



trend is an increase in areas that are predominantly small scale plantations (see <http://earthenginepartners.appspot.com/science-2013-global-forest>; Hansen et al., 2013). While encroachment has occurred in some of these areas in the past (Lejju, 2004), such threats are currently under control. Fire hazards remain a significant threat during extended dry periods and have impacted most forests in the region in the last decade to some degree (ITFC unpublished data). Due to the complex forest fragmentation and tenure, identifying appropriate 'baseline rates' (what would happen if there was no intervention) against which to judge REDD performance is problematic. Interestingly, one respondent from a research institution felt that widespread perceptions of deforestation and forest degradation rates in the area are exaggerated and small scale plantations and areas of secondary forest re-growth are both expanding in some regions 'for a fuller historical critique of an implied 'degradation narrative' see also Carswell (2007)]. There are also studies showing recovery in specific areas (Banana and Tweheyo, 2004; Karlowski, 2006). This lack of consistency of responses further underlines the need for research into this issue.

Respondents identified several potential drivers of deforestation and forest degradation (Table 1). For example, a respondent from an international conservation NGO identified charcoal production for use in households, schools and tertiary institutions as a major driver. This business is said to be booming and is a major source of income. A respondent from another international conservation NGO identified poor policy implementation, and environmentally harmful government policies as indirect drivers. As an example he explained that efforts to increase agricultural production without adequate capacity have contributed to local deforestation and forest degradation. He identified population growth as a major driver, resulting in land shortages.

**Table 1** The drivers of deforestation and forest degradation identified by respondents (concepts in *italics* added by authors)

<i>Drivers</i>
Population growth ( <i>indirect driver</i> )
Poverty ( <i>indirect driver</i> )
Demand for food/agricultural land (due to declining soil fertility, increasing population and rising prices for agricultural products)
Demand for fuelwood and charcoal ( <i>to meet domestic energy needs and to market</i> )
Demand for timber
Environmentally harmful government agricultural policies
<i>Forest fires (generally associated with droughts)</i>
Environmentally harmful government energy policies ( <i>which make electricity too expensive for the majority of rural users</i> )
Corrupt institutions and forestry officials

Respondents consistently reported that private forests face greater threats compared to areas with some level of protection. Nonetheless, respondents acknowledged that degradation in CFR such as Echuya appears to be on the rise. While some research on the drivers of deforestation and forest degradation has been carried out in the region it is considered inadequate for guiding effective REDD. As one respondent warned, people in Uganda must avoid generalising drivers. There is also a need for research into the impacts of government policies on forests, and the interaction between different policies

within Uganda. Forest degradation and loss caused by subsistence farmers tends to be a gradual process that reflects large numbers of choices that depend on livelihood options and comparative returns on labour and land (Kaimowitz and Angelsen, 1998; Sheil and Wunder, 2002). It would be useful to try to distinguish how these choices influence operations through markets, land prices and population movement.

### *3.2 Tier 2 – enablement*

#### *3.2.1 Institutions and governance*

##### *3.2.1.1 Forest governance institutions and policy*

In 1999, a decentralised District Forestry Service (DFS) and parastatal National Forestry Authority were established to replace the Forestry Department (Jagger, 2008). Throughout this process, the UWA maintained management of 15% of forests and woodlands in the country in game reserves and national parks (Table 2). Forest reserves in Uganda refer to forest on public land reserved by law for *forestry purposes* including production and protection (Obua et al., 2010).

The Strategic Investment Framework for Sustainable Land Management (SLM) 2010–2020 (Government of Uganda, 2010) aims to adopt an integrated cross-sectoral approach to sustainable land management in Uganda, which encompasses the objectives of REDD: i.e., to reduce deforestation, secure ecosystem services, and improve rural livelihoods. The Framework proposes an investment of US\$ 62.5 million to strengthen the enabling institutional and policy environment for SLM in Uganda which could improve the prospects for REDD in the future. Some current concerns are well known: according to Obua et al. (2010, p.854), “there have been weaknesses in forest governance associated with implementation of policies and laws. CFRs become the target for forest crime during periods of political campaigns and elections, often with the tacit support of the politicians seeking votes. At the same time, institutional issues of corruption and inadequate capacity to manage forests are still persistent”.

Our respondents also identified various concerns about institutions and governance. A university lecturer believed the mandates of forestry institutions in Uganda remain unclear and that a ‘transformation’ of the sector is required in order to create an enabling environment in which a REDD mechanism could function. A District Forestry Officer added that decentralisation has left gaps in responsibilities and stated that the NFA and DFS work independently and with conflicting interests. For instance, NFA and DFS operating in the same district both give permits to timber traders. The DFS also want to generate income from forests within the district even though NFA has them under its ownership. Some traders take advantage of this loophole to evade paying taxes. Respondents generally agreed that forests within National Parks are effectively protected by UWA though some noted the use of force. Large areas of the protected forests are in a state of recovery after past clearance, degradation and evictions (Babaasa et al., 2004; Lejju, 2004). Fire and illegal cutting still remain significant threats (ITFC various data and consultations with UWA, NFA and Virunga Transboundary Core Secretariat). There is some evidence that various projects and interventions have succeeded in gaining greater support from local communities in combating fires and other such threats (Blomley et al., 2010)

**Table 2** Description of the forestry institutions in Uganda following the forest sector governance reform

<i>Institution</i>	<i>Role and mandate</i>	<i>Description</i>
NFA	Control of CFR (e.g. Mafuga, Chelima and Echuya CFR)	<ul style="list-style-type: none"> <li>• For-profit parastatal organisation</li> <li>• Management of CFRs – where the majority of the country's high-value timber and forest biodiversity is located</li> <li>• Employ contractors and generate revenue through the sale of trees for harvest or lease of reserve forests and land for plantation development</li> <li>• Contract services (mapping, seed sales and technical advice).</li> </ul>
DFS	Supervision of LFR; private and customary forest land	<ul style="list-style-type: none"> <li>• Democratic decentralisation to local government (following forestry sector reform)</li> <li>• Management of forest product transportation and sale permits</li> <li>• Management of timber harvesting and charcoal burning permits</li> <li>• Employ local government (inadequate level of staffing to fulfil mandate).</li> </ul>
Forest Inspection Division (FID)	Oversight of all national and district forest reserves	<ul style="list-style-type: none"> <li>• Located within the Ministry of Water Land and Environment</li> <li>• Responsible for policy and regulation in the forestry sector</li> <li>• Overseeing the activities of both the NFA and DFS (although poorly funded and limited in capacity).</li> </ul>
UWA	Control of national parks (NP) and game reserves (e.g. Bwindi Impenetrable NP and Mgahinga NP)	<ul style="list-style-type: none"> <li>• Central government organisation</li> <li>• Protection of forests and woodlands within NPs and game reserves</li> <li>• Revenue generation from gate receipts concessions, central government, donors and non-governmental organisations.</li> </ul>
Private land	Private forests	<ul style="list-style-type: none"> <li>• Owned and managed by individuals. Small pockets of disjointed less productive land are allocated to forestry.</li> </ul>

*Source:* Adapted from Jagger (2008)

CFR and LFR were believed by most to be heavily degraded and the ability of the NFA to enforce protection of these areas was repeatedly challenged during interviews. For this reason REDD was generally considered to be 'additional' and a mechanism with great potential to prevent deforestation and forest degradation within forest reserves. It has been suggested that implementation of REDD within the vulnerable PFE could be a natural starting point for the mechanism given that biodiversity co-benefits and land designations have already been established in these areas (Coad et al., 2008).

One respondent from an NGO stated that the threat to forests "is not the man with the axe, but the forestry staff". An NGO representative stated that forest conservation is not

effective because the bodies mandated to protect forests allow or even cause deforestation due to poor pay and selfish interests. It was suggested that an in-depth study of the activities of forestry staff in the field is necessary to fully understand and address this.

Respondents from local-level government reported institutional problems with forest conservation at this level. On numerous occasions it was argued that the 'local-level' was not a priority for the government, despite the rhetoric of decentralisation in Uganda. In one district the District Forestry Officer reported that only two of the District's 19 sub-counties have any forest rangers (one each). Until these local forestry institutions are strengthened, it is difficult to imagine how a national REDD process could operate. Even in the case of sub-national REDD projects within Forest Reserves, the role of forestry staff will need to be defined, supported and supervised.

There is limited capacity of forest management institutions to assess forest status and change at both the local and national levels (authors' judgement). The NFA possesses some capacity for analysis of satellite imagery, but skilled staff and equipment appear insufficient for achieving REDD. Buying these services from the private sector is likely to be too expensive for small-scale projects to afford. Investment in technical capacity is an urgent priority and should probably build on universities and other skilled institutions. Community-based monitoring may be a cost-effective solution, but will require substantial investment in training and support capacity from civil society or local government institutions (e.g. Skutsch, 2011).

Many respondents stressed the need to improve agricultural capacity and productivity on cleared land to minimise pressure on remaining forests (see also Fisher et al., 2011 who highlight this issue for Tanzania). This highlights the need to coordinate land-use policies across sectors and ministries.

The capacity of institutions to manage funds was a cause of concern to most respondents. A District Forestry Officer stated that, "channelling this [REDD] money will be a challenge with several corrupt arms of government". An NGO representative in Kisoro agreed that, "the funding from REDD is so huge that our corrupt officials in government cannot relay it to where it's meant to go". REDD will require robust and transparent benefit distribution mechanisms. NGOs working in the region might play a key role for channelling REDD benefits to local communities (Skutsch, 2011; opinion shared by authors).

The level of forest fragmentation outside protected areas is an important consideration. To exploit economies of scale, multiple forest patches may need to be combined under a single project but this will increase the complexity of project logistics and social dynamics (Myers, 2007). An officer from an NGO based in Kabale, described how donors considered even the size of Echuya Forest Reserve (3,400 ha) too small for a REDD project. As a result the project was urged to combine the area of this reserve with Mafuga, Chelima, Muko, and Kasyoha-Kitomi Forest Reserves to create an area sufficient for their proposal. These reserves are spread throughout the SW region and may involve distinct contexts and threats with different baseline rates and drivers of deforestation and forest degradation. Governance issues across such multiple areas are also problematic. One respondent commented that REDD is only possible in fragmented forests if the communities involved are organised in strong coherent groups and are committed to REDD. When people have different needs and expectations, this is less likely to be achieved.

### 3.2.1.2 Land tenure issues

“Clear governance, including well-defined property rights, is critical for emerging international markets.” [Coad et al., (2008), p.120]

The importance of land tenure for REDD has been emphasised repeatedly (e.g. Larson, 2011). Theory and evidence suggest that more secure land tenure should reduce deforestation (Barbier and Tesfaw, 2013; Robinson et al., in press). While 86% of the world’s remaining forest is publicly owned (Agrawal et al., 2008), 64% of Uganda’s 4.9 million ha of forest lies outside the publicly managed Permanent Forestry Estate (PFE) (Obua et al., 2010). The PFE is managed by the NFA (61.4%), UWA (33.6%), jointly by these institutions (4.7%), and trivially by local governments (0.3%) (Obua et al., 2010).

Land tenure in Uganda is governed by four distinct systems as stipulated by the 1995 Constitution of Uganda and the 1998 Land Act. These are freehold, leasehold, mailo, and customary (Place and Otsuka, 2002; Okuku, 2006; NB. subsurface and mineral rights are controlled separately, and tree cutting requires a licence even on private land). Freehold is a legally documented form of private ownership where one party owns registered land in perpetuity. This implies full use rights including the use and development of the land and its use as collateral. Under this system, land can be sold or passed on at free will according to the Uganda Land Act, 1998 [Chapter 227; Part II 3(2)]. A large proportion of freehold forest in Uganda is highly fragmented though estimates are lacking. An NGO consultant highlighted that implementation of REDD in fragmented forests is possible, but difficult due to high transaction costs and high requirements for organisation and cooperation among actors. She added that although it would be easier to implement REDD on public land, it will be more important on private lands where the majority of forest degradation is occurring.

The *leasehold* tenure system officially involves a contractual agreement between a landlord granting exclusive use, and a tenant renting for a defined period [Uganda Land Act, 1998; Chapter 227; Part II 3(5)], normally for 49 or 99 years (Okuku, 2006). For the period that the land is leased, the tenant can use or develop it and obtain all profits that accrue from its use. Under this system the determination of carbon rights is dependent on the agreed contract conditions. Although resource-user rights are clearly defined under this system they are limited in duration and incentives for leaseholders to invest in forest are curtailed (Namirembe, 2010). An official from the Institute of Tropical Forest conservation noted that informal short-term arrangements without paperwork are common in SW Uganda and as such offered tenants even fewer incentives to plant or protect forest. A programme officer from a CSO highlighted that tenants are rarely interested in planting trees, and that the presence of trees is generally a sign of freehold tenure. He further explained that leasing of land creates the problem of ‘absentee landlords’, which can result in conflict when landlords return to claim their land. REDD could lead to further disputes over carbon rights. He recommended that a conflict resolution mechanism be developed to address this issue. Large-scale tree plantation on freehold land, encouraged by grant schemes such as the SPGS (Jacovelli, 2009), has decreased tenant access to land for agricultural purposes. Similarly, REDD could exacerbate poverty if the opportunity costs of agricultural production and charcoal/fuelwood harvesting are not properly (and transparently) estimated, as documented in Tanzania (Fisher et al., 2011).

*Mailo* is a form of land ownership established in Ugandan law since 1900 as a result of an agreement between the Buganda Kingdom and the British colonial authorities (Batungi and Ruther, 2008; Green, 2006; Place and Otsuka, 2002). It has since had a turbulent history; including abolition and reinstatement (see Okuku, 2006). It mainly includes large blocks of land owned by former chiefs and elders who often exercise jurisdiction as ‘absentee landlords’. This system differs from the freehold system in that under the 1995 Constitution of Uganda, simultaneous ownership by the landowner and a lawful occupant, or ‘squatter’, who has lived uncontested on the land for 12 or more years, is permitted, but an annual rent is required with the amounts being regulated by the government. Where landlords are present the *mailo* system makes the preservation of forests possible through strong land rights, incentives and capacity to manage land and tree resources intensely (Place and Otsuka, 2002). However, where landlords are absent, *mailo* tenure may not enable REDD because the claims of the occupants overlap with those of the landlord, and any payment is likely to be contested. One of our respondents explained that such occupants have a tendency to opt for short-term crops rather than investing in trees – presumably these tenants have scarce capital to invest and little confidence in gaining the long-term benefits.

In 2000, 85% of Uganda was under *customary* tenure (Batungi and Ruther, 2008). In the first half of the 20th Century, customary landholders, “were merely tenants at will of the government with no legal protection against eviction” (ibid, p.123). The 1998 Uganda Land Act aimed to strengthen the rights of customary tenants by offering official certificates of customary tenure (permitting transfer rights of sale, lease or mortgage), and certificates of customary ownership (which could be converted to freehold tenure following a survey of the land (Hunt, 2004). In practice no certificates have been obtained and the use of customary forest is virtually open-access to the community in question. There is no incentive for an individual to invest in sustainable practices. As such, expected profits from forest are low and the benefits of conversion to freehold tenure and agriculture are perceived to be high (Place and Otsuka, 2002). The displacement of people from customary forest lands and criminalisation of the land use practices of local peoples cannot be ignored (Hunt, 2004). A respondent from an NGO in Kisoro emphasised that the Batwa people have lost access to the ancestral cultural sites that are located in protected areas (see discussion of Batwa below).

In SW Uganda the land tenure situation is poorly documented with many people having unregistered customary landholdings. This can be attributed to the high cost involved in obtaining legal certificates and the prevalence of wealthy absentee landowners who let small plots for short-term agriculture. A representative of a development NGO expressed concern about who will negotiate and benefit from REDD under the tenant and owner arrangements of *mailo* and customary land tenure systems. A University lecturer noted that the challenge with communally owned land was that decisions are based on the values and customs of the community and that all members have to agree, meaning that, “REDD would have to overcome this hurdle if it is to be successful in areas outside the protected areas”.

The 1998 Land Act that defines Uganda’s legally recognised tenure systems has been criticised for its ambiguities in defining user rights and governance (for a detailed review, see Okuku, 2006). Reforms are contested and remain in draft form before the Parliament of Uganda. Given the complexity of land tenure, REDD implementation faces political, legal, institutional and governance challenges.

### *3.2.2 Society and behaviour*

#### *3.2.2.1 Awareness*

In SW Uganda, where some of the country's most important parks and reserves are located, there is a heightened awareness of international conservation (Emerton and Muramira, 1999). A university lecturer stated that people directly surrounding protected areas in Uganda are "more likely to understand the value of forests, including conservation values". Some question whether there is really such increased conservation awareness as efforts to engage and educate local communities have been limited. While local people have good knowledge and skills concerning many of the goods and services that they themselves derive from natural sources, the direct benefits from these forests have decreased due to the strict protection of the National Parks. In the longer term, we believe such exclusion may further reduce the extent and depth of such local values and knowledge. In any case, respondents believed that very few local actors are aware of REDD. A representative of a local CSO went so far as to state that REDD is only understood by 'elites'. It was also suggested that the National REDD readiness process has been repeatedly delayed due in part to the fact that those appointed did not fully understand REDD themselves.

At the local level, NGOs have played an important role in spreading information about climate change and adaptation implications for local communities. Nonetheless, respondents believe that most regional staff of lead agencies and NGOs remain largely ignorant of REDD. Importantly, respondents also acknowledged that awareness among policy and decision makers in Uganda remains low and urgently needs to be addressed. Consultation and participation of all stakeholders is a requirement of the World Bank Forest Carbon Partnership Facility REDD readiness process. In 2010, five multi-stakeholder consultations were conducted, however many of our respondents expressed concerns that consultations were not conducted in a sufficiently participatory manner. The main concern was that participants were not adequately informed about REDD prior to the events. Free, Prior and Informed Consent (FPIC) is widely seen as a key precondition for involving local actors in REDD (Griffiths, 2009; Lawlor and Huberman, 2009).

Respondents offered various suggestions for improving awareness about REDD. A representative of NFA identified the need for better-informed government officials stating that "government is deficient in this area compared to other sectors; there is a need to raise awareness at this [national] level". A university lecturer expanded on this, identifying the need to lobby policy makers within the central government to ensure that the concept of REDD is better communicated through district councils to the civil service and public. Other respondents advocated locally-based pilot projects and community programmes as tools for awareness creation and to foster social acceptance. Local radio and television stations were identified as possessing potential. Most villagers in SW Uganda possess a radio, and ownership has increased, especially for women, through NGO projects (Madamombe, 2005; Rose, 2007). A respondent from an NGO in SW Uganda found it surprising that methods commonly used in Uganda to disseminate information have not been utilised for REDD. They identified the church and popular music as appropriate channels. These methods should be utilised for the purpose of raising awareness about REDD.

There are also more general shortcomings regarding awareness about rights and regulations. For example, Jagger (2014) highlights the poor awareness among Uganda's various forest stakeholders concerning the regulations controlling forest-use. Land-owners are legally required to seek permission before major changes in land-use but that few do so when clearing forest for agriculture. Poor communication and insufficient enforcement of rules is due to the limited capacity and motivation of the agencies responsible (Jagger, 2014). Clearly such shortcomings would undermine any large scale efforts to implement REDD projects.

### 3.2.2.2 *Perceived costs and benefits*

For REDD to be accepted at the local level, the perceived benefits must outweigh the costs. Respondents identified several possible opportunity costs associated with REDD. Examples included prevention of household use or trade of wood-fuel, charcoal, timber and non-timber products, and the opportunity cost from losing areas with potential for agricultural production. For people living directly adjacent to protected areas, the damage resulting from crop raiding by forest wildlife is a major cost (Laudati, 2010), which could increase. A government representative from the National REDD focal point highlighted the distinction between the cost of REDD in protected areas versus on private or customary land. Within protected areas, he explained, 'operational costs' such as those associated with improving the effectiveness of management and protection are the primary concern. It should therefore be possible to draw on the experience of UWA and NFA in protected areas to accurately estimate these costs. Alternatively, on private land the 'opportunity costs' for that particular area based on the profitability of alternative land uses must be considered.

Synergies are possible. The official REDD consultation in the region summarised their discussions concerning the human costs of forest loss as

"reduced soil fertility and soil productivity; increased incidences of soil erosion, landslides and floods; loss of biodiversity, sources of herbal medicine, incomes and migration of animals (fauna); and increased temperatures, drying of water-bodies and scarcity of water; and changes in rainfall patterns, drought, crop failure and famine. These effects/impacts are negatively impacting on peoples' livelihoods, food production and incomes." (Water Governance Institute, 2011)

Due consideration of non-monetary costs and benefits is important; especially in the case of REDD which operates over long-time scales with profound implications on ecosystem services which regulate the environment and support human welfare. Understandably, local farmers are more aware of, and concerned with, provisioning services (the production of food and other products from natural systems) that are of immediate use and worth. Greater awareness of other regulatory, supporting and cultural forest services would be beneficial for REDD (for terminology see: MEA, 2005).

Several respondents in SW Uganda were optimistic about the benefits that REDD has the potential to bring, yet others warned that the mechanism may not benefit the 'correct' people (intended beneficiaries at the local level). An NGO respondent believed that if a benefit sharing framework is well designed around the needs and capabilities of local communities then these communities could benefit from REDD. He also warned that this will not be the case if a REDD mechanism is designed to suit the 'national agenda'. In addition to mitigating climate change, the forms of benefits that were identified during



consultations predominantly included: monetary benefits to forest owners, environmental benefits through sustainable management of forests, and employment opportunities with REDD-related projects and activities. Two respondents also identified that in directly involving marginalised communities, REDD will present an opportunity for fresh negotiations and consideration of rights regarding forest resources; a view supported by Coad et al. (2008).

The benefits for indigenous people were a particular concern. Several respondents identified the Batwa – an indigenous forest people's group – as requiring special attention (IWGIA, 2009; Lewis, 2000). The local Batwa were evicted from and lost access to their ancestral homelands in what are now protected forests – even now few own any significant land (Kingdon, 1990; Nakayi, 2009). As a result the Batwa lack the authority or resources to deliver REDD in the forest estate and will thus not qualify for payment. Given the historical links between the Batwa and the forests in question, this is likely to be seen as unjust. Indeed, a representative of a Batwa rights NGO based in Kisoro warned that if REDD imposes further controls on the use of forest resources and rewards others, the Batwa might revolt. If REDD is to be successfully implemented in SW Uganda, the rights of indigenous peoples need to be addressed.

More generally, we heard many concerns that monetary benefits from REDD would not reach the local level, or that even if they did, they would fail to meet expectations. Incomplete or inaccurate knowledge sharing has led in some areas to unrealistically high expectations from REDD which could impede its success and adoption. The uncertain price of carbon on the voluntary carbon market adds complexity to the situation (Lovell et al., 2009; Kossoy and Ambrosi, 2010). It is also likely that payments through REDD would be less frequent compared to other livelihood options, having implications for human welfare and the popularity of the instrument. The significance of the frequency of payments in other forest carbon projects in Uganda is discussed by Peskett et al. (2011).

## 4 Discussion

We have identified various opportunities and challenges for REDD in SW Uganda. These are in agreement with, but go deeper than, other recent consultations (Water Governance Institute, 2011). Here we summarise priorities following the first two tiers of the SV-framework, with key questions highlighted through our research (as part of the baseline data for REDD implementation). We offer recommendations to improve the likelihood of successful REDD in the study area and similar contexts elsewhere. Though specific details will vary with location, the challenges facing REDD implementation in SW Uganda are not likely to be unusual. Limitations in information, knowledge, and institutional context are common in tropical forest contexts (Corbera and Schroeder, 2011; Larson, 2011). We use tables to summarise the key research questions, opportunities, challenges and possible responses from this study.

### 4.1 Tier 1 – foundation (knowledge)

Challenges posed by limited knowledge include incomplete information on forest distribution, baseline rates of deforestation and forest degradation, and limited understanding of the drivers behind these patterns and processes. Our respondents offered various claims and views but in general lacked credible evidence. Credible baseline data

and monitoring are fundamental requirements for any REDD programme, and must be addressed urgently. Fortunately, in contrast to many otherwise similar regions across the tropics, relevant research capacity exists in the region, provided by Ugandan universities and research institutions, including the Institute for Tropical Forest Conservation, making it more likely that suitable data can be generated and shared with the stakeholders that need them. The particular knowledge gaps identified in this study that require research attention are listed in Table 3.

**Table 3** Proposed research questions to address identified knowledge gaps

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What is the magnitude of deforestation and forest degradation in SW Uganda? (required for baselines)
<ul style="list-style-type: none"> <li>• Explore accuracy of measuring and accounting carbon stocks and biomass</li> </ul>
What are the key drivers of deforestation and forest degradation?
<ul style="list-style-type: none"> <li>• This requires research on the commodity chains for charcoal and firewood, the impact of population growth, and the impact of agricultural land-use and quality</li> </ul>
How are different policies impacting forests and how do these different policies interact?
Who has what land tenure systems and where in SW Uganda?
How could a REDD mechanism function in the highly fragmented landscape of SW Uganda?
<ul style="list-style-type: none"> <li>• What institutional arrangements might work?</li> <li>• Which institutions are available in SW Uganda that have the capacity to implement REDD?</li> </ul>
How can it be ensured that institutions protect forests effectively?
Why are laws unimplemented/weakly implemented?
How can local people be actively involved in discussions and design of benefit sharing mechanisms?
How can benefits reach the intended beneficiaries and be credibly distributed?
What are the current uses and values of forests in SW Uganda?
<ul style="list-style-type: none"> <li>• This will contribute to the accurate assessment of opportunity costs under REDD</li> </ul>
How can the necessary data requirements (e.g. the tools needed to provide credible carbon numbers, such as Uganda-specific allometric equations) be accumulated?
<ul style="list-style-type: none"> <li>• How can actors be encouraged to coordinate/cooperate and share existing data? (which is scattered and difficult to obtain)</li> </ul>
Can REDD be shown to be financially feasible in SW Uganda (under various conditions) based on cost benefit analyses?
Does agricultural intensification reduce pressure on unconverted forest? (the land-sparing hypothesis; see Green et al., 2005)

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## 4.2 Tier 2 – enablement

### 4.2.1 Institutions and governance

The governance environment in SW Uganda poses obstacles for REDD. Institutional challenges, opportunities and suggested responses are summarised in Table 4. Land tenure, opportunities, challenges and appropriate capacity building responses are summarised in Table 5.

**Table 4** Summary of the opportunities, challenges and appropriate responses relating to institutions and governance

<i>Opportunities</i>
Plans to invest in the strategic investment framework for sustainable land management
The degree of theoretical decentralisation of forest governance which promises to give greater decision making power to the local level
The fact that considerable deforestation and forest degradation is believed to be taking place inside CFRs, which makes them eligible for REDD finance due to the potential for additionality
<i>Challenges</i>
Chronic lack of management capacity in CFRs and privately owned forests
Corruption in forest governance institutions
Lack of support to carry through decentralisation policies in practice
High transaction costs and governance challenges resulting from small forest units and forest fragmentation
Lack of cross-sectoral harmonisation of policies (e.g. conservation, agriculture, forestry, energy)
<i>Responses</i>
Investment in management capacity at the local level
Investment in technical capacity for GIS and other relevant analytical skills in NFA and research institutions
Greater support for decentralised governance institutions
Technical support for private forest owners
Create listings of service providers with technical capacity for REDD in Uganda (e.g. GIS and carbon inventory skills)

**Table 5** Summary of the opportunities, challenges and appropriate responses relating to land tenure

<i>Opportunities</i>
The Uganda Land Act of 1998 allows for recognition of customary land tenure rights
Potential opportunity and incentive for people to gain official land tenure
<i>Challenges</i>
The Land Act of 1998 is poorly implemented and user rights are ambiguously defined (see Okuku, 2006)
Land tenure is often unclear obtaining official tenure may be too expensive
There is a lack of long-term incentive to manage for REDD under leasehold and <i>mailo</i> tenure
Absentee landlords are common under leasehold and <i>mailo</i> tenure
There is a lack of clarity over who would be able to claim the rights to carbon credits under <i>mailo</i> tenure
There is a risk that REDD could lead to further marginalisation of people without land rights, such as the Batwa
<i>Responses</i>
Land tenure needs to be clarified and better registered
Need for enforcement of land act and greater clarity on land rights

#### 4.2.2 Society and behaviour

Our study identified significant challenges in terms of awareness. Fundamental is the fact that land owners should be informed to a level that they understand REDD as an alternative to other potential land uses and understand that they have a choice. If analyses convincingly demonstrate that REDD will improve a landowner's livelihood it is a good choice (Kanninen et al., 2007). Otherwise, the instrument is unlikely to be effective in preserving forests and improving human welfare. Opportunities, challenges and appropriate responses in terms of social awareness of REDD and perceived costs and benefits of REDD are summarised in Tables 6 and 7 respectively.

**Table 6** Summary of the opportunities, challenges and appropriate responses relating to society and behaviour

<i>Opportunities</i>
There is a high level of awareness of conservation issues in SW Uganda, which might lay the foundation for an understanding of REDD.
There is a strong network of NGOs carrying out a range of conservation and development projects in the study area, and they may be well placed to carry out awareness raising activities for REDD.
<i>Challenges</i>
There is currently a very low level of awareness of REDD among a range of stakeholders from local people through to national level decision makers working on relevant issues. Among other things, this undermines Free Prior and Informed Consent at the local level.
Lack of awareness and capacity has caused considerable delays with engagement in processes such as the World Bank Forest Carbon Partnership Facility in Uganda.
<i>Responses</i>
There is a need for awareness raising efforts using a range of tools and locations. These might include politicians, pilot projects, the media (radio, television and newspapers), churches, music, elderly groups.

**Table 7** Summary of the opportunities, challenges and appropriate responses relating to perceived costs and benefits of REDD

<i>Opportunities</i>
REDD could provide a platform for fresh negotiation of forest rights as a potential co-benefit
REDD has the potential to sequester carbon, conserve forest and the biodiversity it supports, and alleviate poverty
<i>Challenges</i>
Lack of awareness and institutional instability may lead to unequal benefit distribution ('elite capture')
Further limitations of forest use with livelihood implications, and compounding existing conservation issues – costs of conservation (crop raiding, etc.)
Further marginalisation of groups such as the Batwa who are unlikely to share in benefits of REDD
<i>Responses</i>
Cost benefit analyses required to better understand the relative balance of costs and benefits for different stakeholders (for example see: Börner and Wunder, 2008)
Research needed to understand the relationship between agricultural productivity and demand for forest land

### 4.3 Higher level concerns

Our study focused on local views and judgements concerning the implementation of REDD in SW Uganda. We have not systematically questioned donors concerning this topic, nonetheless two specific concerns stand out. Firstly, administrative costs are likely to be challenging when population densities are high, tree cover is limited and institutions are weak. Secondly, there are no strategies to address leakage (see Wunder, 2008 for definition) and it remains unclear if this will be an obstacle. If REDD is handled at a national scale leakage would still be a trans-national issue as borders in the region remain highly porous (Raeymaekers, 2010).

## 5 Conclusions

Based on our detailed examination of the opportunities and challenges for REDD in SW Uganda, we suggest that such challenges are likely to severely undermine REDD delivery elsewhere. We therefore conclude that at present, too much attention is being paid to the technical design of REDD interventions – tier 3 in the SV framework – at the expense of the foundational and enabling conditions required for interventions to succeed. This is not unusual in large scale conservation and development projects, many of which have been found to operate a strategy of ‘anti-politics’ (Ferguson, 1994; Murray-Li, 2007). Addressing the challenges in foundational and enabling conditions will require co-ordinated programmes across multiple sectors, including land tenure clarification and reform, education and improvement of environmental governance. These will be expensive and take time, but without them we have little confidence in the chances of success for large-scale REDD delivery.

While REDD has the potential to bring considerable benefits, we nonetheless conclude that until progress is made with the many issues we have identified here, large-scale REDD interventions are unlikely to succeed in SW Uganda. For REDD instruments to be successful, theory suggests that crucial foundation and enablement conditions must be in place. Our results suggest that in SW Uganda many of these conditions are not satisfied, making it unlikely that REDD can be implemented successfully without considerable targeted investment and effort. Needs include research to address knowledge gaps, capacity building to address institutional and governance challenges, and a range of responses to address social and behavioural conditions not conducive to REDD. Small pilot projects may generate useful knowledge and raise awareness, but the major challenges indicate that it is still much too early for implementation of a large-scale REDD program in Uganda.

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