

**Plan Vivo Project Design Document (PDD)**

# Trees for Global Benefits

Submitted by



**Version 2.1**

May 2020

Plot 49 Nakiwogo Road Entebbe, P. O. Box 8986 Kampala, Uganda  
Contact Person: Pauline Nantongo, Executive Director  
Tel: +256-312266419 Email: [support@ecotrust.or.ug](mailto:support@ecotrust.or.ug)

# Table of Contents

<b>List of Tables.....</b>	<b>3</b>
<b>List of Figures.....</b>	<b>3</b>
<b>List of Acronyms .....</b>	<b>4</b>
<b>Executive Summary .....</b>	<b>5</b>
<b>Part A: Aims and objectives .....</b>	<b>6</b>
A1    Description of Project's Aims and Objectives .....	6
<b>Part B: Site Information .....</b>	<b>7</b>
B1    Project Location and Boundaries.....	7
B2    Description of the Project Area.....	8
B3    Description of Land Use.....	13
<b>Part C: Community and Livelihoods Information.....</b>	<b>20</b>
C1    Participating communities/groups .....	20
C2    Socio-economic Context.....	21
C3    Existing Community Structures.....	21
C4    Land Tenure & Ownership of Carbon Rights.....	21
<b>Part D: Project Interventions &amp; Activities .....</b>	<b>23</b>
D1    Summary of Project Interventions .....	23
D2    Summary of Project Activities for Each Intervention.....	23
D3    Effects of activities on biodiversity and the environment .....	24
<b>Part E: Community participation.....</b>	<b>25</b>
E1    Participatory project design .....	25
E2    Community-led implementation .....	25
E3    Community-level project governance.....	27
<b>Part F: Ecosystem Services &amp; Other Project Benefits.....</b>	<b>28</b>
F1    Carbon benefits.....	28
F2    Livelihoods benefits.....	28
F3    Ecosystem & biodiversity benefits .....	29
<b>Part G: Technical Specifications .....</b>	<b>31</b>
<b>Part H: Risk Management.....</b>	<b>32</b>
<b>Part I: Project Coordination &amp; Management .....</b>	<b>37</b>
I1    Project Organisational Structure .....	37
I2    Relationships to national organisations .....	39
I3    Legal compliance.....	40
I4    Project management.....	40
I5    Project Financial management.....	41
I6    Business Development & Marketing.....	42
I7    Operational Costs .....	42
I8    Project Expansion & Diversification.....	43
I9    Technical Support .....	44
<b>Part J: Benefit Sharing.....</b>	<b>44</b>
J1    PES agreement.....	44
J2    Payments & Benefit Sharing .....	44
<b>Part K: Monitoring.....</b>	<b>46</b>
K1    Ecosystem services benefits .....	46
K2    Socio-economic impacts.....	48
K3    Environmental and biodiversity impacts .....	49
K4    Other monitoring .....	49
<b>Annexes .....</b>	<b>50</b>
Annex 1. List of key staff involved .....	50

<b>Annex 2. Information about funding sources .....</b>	<b>51</b>
<b>Annex 3. Producer/group agreement template .....</b>	<b>52</b>
<b>Annex 4. Database template.....</b>	<b>54</b>
<b>Annex 5. Examples of <i>plan vivos</i> .....</b>	<b>57</b>
<b>Annex 6. Permits and legal documentation.....</b>	<b>58</b>
<b>Annex 7. Community participation.....</b>	<b>59</b>
<b>Annex 8. Intent To Purchase.....</b>	<b>60</b>
<b>Annex 9. Socio-Economic Baseline Survey .....</b>	<b>61</b>

## List of Tables

Table 1: Location and Boundaries of the Project in Northern Uganda .....	11
Table 2: Changes by Vegetation Cover Classification Using 1995 as Base Year .....	16
Table 3: 2010 Land Use/ Land Cover Stratification for the Project Areas.....	17
Table 4: Description of Project Activities .....	23
Table 5: Summary of Baseline and Project Carbon Uptake .....	28
Table 6: Livelihoods Benefits.....	29
Table 7: Summary of Expected Impacts of Project Activities on Key Environmental Services .....	29
Table 8: Factors that Put the Delivery or Maintenance of Climate Benefits at Risk.....	33
Table 9: Project Participants .....	38
Table 10: Annual Budget.....	42
Table 11: Cash Flow Analysis .....	43
Table 12: Payment Breakdown .....	44
Table 13: Performance-based Monitoring Plan .....	47
Table 14: Community Well-Being Monitoring Indicators .....	48
Table 15: Environmental and Biodiversity Monitoring Indicators .....	49
Table 16: Governance Monitoring Indicators .....	49
Table 17: List of Key People .....	50

## List of Figures

Figure 1: Key Ecological Zones of Uganda.....	7
Figure 2: Map of Uganda Showing the Project Sites in the Albertine Rift .....	8
Figure 3: Map of the Project Area in Mt. Rwenzor.....	9
Figure 4: Map of the Bushenyi Pilot Sites.....	10
Figure 5: Project Sites in Northern Uganda.....	11
Figure 6: Location of Mbale, Manafwa and Bududa Districts.....	13
Figure 7: Sketch Map of Drainage (River systems) of Additional Project Sites in Mt. Elgon .....	18
Figure 8: Programme Coordinator Facilitating a Community Consultation Meeting in Kasese .....	26
Figure 9: Structure of Funds Associated with the Project .....	33
Figure 10: Organizational Structure .....	39
Figure 11: Non-Cash Benefits .....	45

# List of Acronyms

<b>ANR</b>	Assisted Natural Regeneration
<b>BAU</b>	Business As Usual
<b>CFM</b>	Collaborative Forest Management
<b>CFR</b>	Central Forest Reserve
<b>CBO</b>	Community-Based Organisations
<b>CCF</b>	Community Carbon Fund
<b>CFM</b>	Collaborative Forest Management
<b>CFR</b>	Central Forest Reserve
<b>CLA</b>	Community Land Association
<b>DBH</b>	Diameter Breast Height
<b>DEAP</b>	District Environmental Action Plan
<b>DFID</b>	Department For International Development
<b>EBA</b>	Ecosystem-Based Adaptation
<b>ECOTRUST</b>	The Environmental Conservation Trust of Uganda
<b>GIS</b>	Geographic Information Systems
<b>GPS</b>	Global Positioning System
<b>IBA</b>	Important Bird Area
<b>ICRAF</b>	International Council for Research in Agroforestry
<b>IFAD</b>	International Fund for Agricultural Development
<b>IUCN</b>	International Union for the Conservation of Nature
<b>M&amp;E</b>	Monitoring and Evaluation
<b>NCB</b>	Non Carbon Benefits
<b>NFA</b>	National Forest Authority
<b>NGO</b>	Non-Governmental Organisation
<b>PDD</b>	Project Design Document
<b>PES</b>	Payments for Ecosystem Services
<b>PoA</b>	Programme of Activities
<b>PVC</b>	Plan Vivo Certificate
<b>PWD</b>	People With Disabilities
<b>REDD</b>	Reducing Emissions from Deforestation and Forest Degradation
<b>TGB</b>	Trees for Global Benefits
<b>UNDP</b>	United Nations Development Programme
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organisation
<b>USAID</b>	United States Agency for International Development
<b>UWA</b>	Uganda Wildlife Authority
<b>VER</b>	Verified Emissions Reduction
<b>WWF</b>	World Wildlife Fund

# Executive Summary

*Trees for Global Benefits* (TGB) is a cooperative carbon offsetting scheme linking farmers in Uganda to the voluntary carbon market. The aim of the Trees for Global Benefits project is to produce long-term, verifiable voluntary emission reductions by combining carbon sequestration with rural livelihood improvements through small-scale, farmer-led, forestry/agroforestry projects while, at the same time, reducing pressure on natural resources in national parks and forest reserves. TGB generates Verified Emission Reductions (VERs) certificates issued *ex-ante* into the Markit environmental registry and certified under the Plan Vivo Standard.

The TGB has been running since 2003 and supports more than 4,600 farmers in the Albertine Rift in Northern Uganda and Mt. Elgon to build climate change adaptive capacities through the implementation of tree farming activities as a livelihood strategy. The project works with established community structures to mobilise farmers and to enable on-going monitoring systems of *plan vivos*. Participating farmers receive training and attend workshops to identify forestry activities that are suitable to their needs. These project activities include mixed woodlots and fruit orchards as well as improved forest management systems, which all provide significant livelihood and environmental benefits. These activities are technically designed so as to enable the quantification of a specific number of emissions reductions/removals the carbon credits expected from each farm/forest.

Participants plant (mainly threatened) indigenous and agroforestry species so as to contribute to their conservation. In addition to helping conserve local biodiversity, the planting of native tree species has multiple environmental benefits. For example, they contribute to the provision of watershed services by slowing down water runoff, by reducing soil erosion / sedimentation and, finally, by regulating the flow of surface water.

Enhancing natural forest cover also helps bind soil and enhance water quality, soil conservation and stabilisation as well as moisture retention, which all help to reduce flood and landslide risks that threaten local agricultural livelihoods.

Furthermore, the small-scale production of fuel wood and timber encouraged by the project reduces pressure on nearby forest reserves and national parks while also contributing to habitat restoration and to helping communities adapt to climate change.

The project is coordinated by The Environmental Conservation Trust of Uganda (ECOTRUST), a not-for-profit organisation whose mission is to conserve biological diversity and to enhance social welfare by promoting innovative and sustainable environmental management. Founded in 1999 in Uganda, ECOTRUST was created as a trust (incorporated under the Trustees Incorporation Act) to work with private landowners to sustainably manage their resources. The project is designed as a Programme of Activities (PoA), with new communities added through new technical specifications.

## Part A: Aims and objectives

### A1 Description of Project's Aims and Objectives

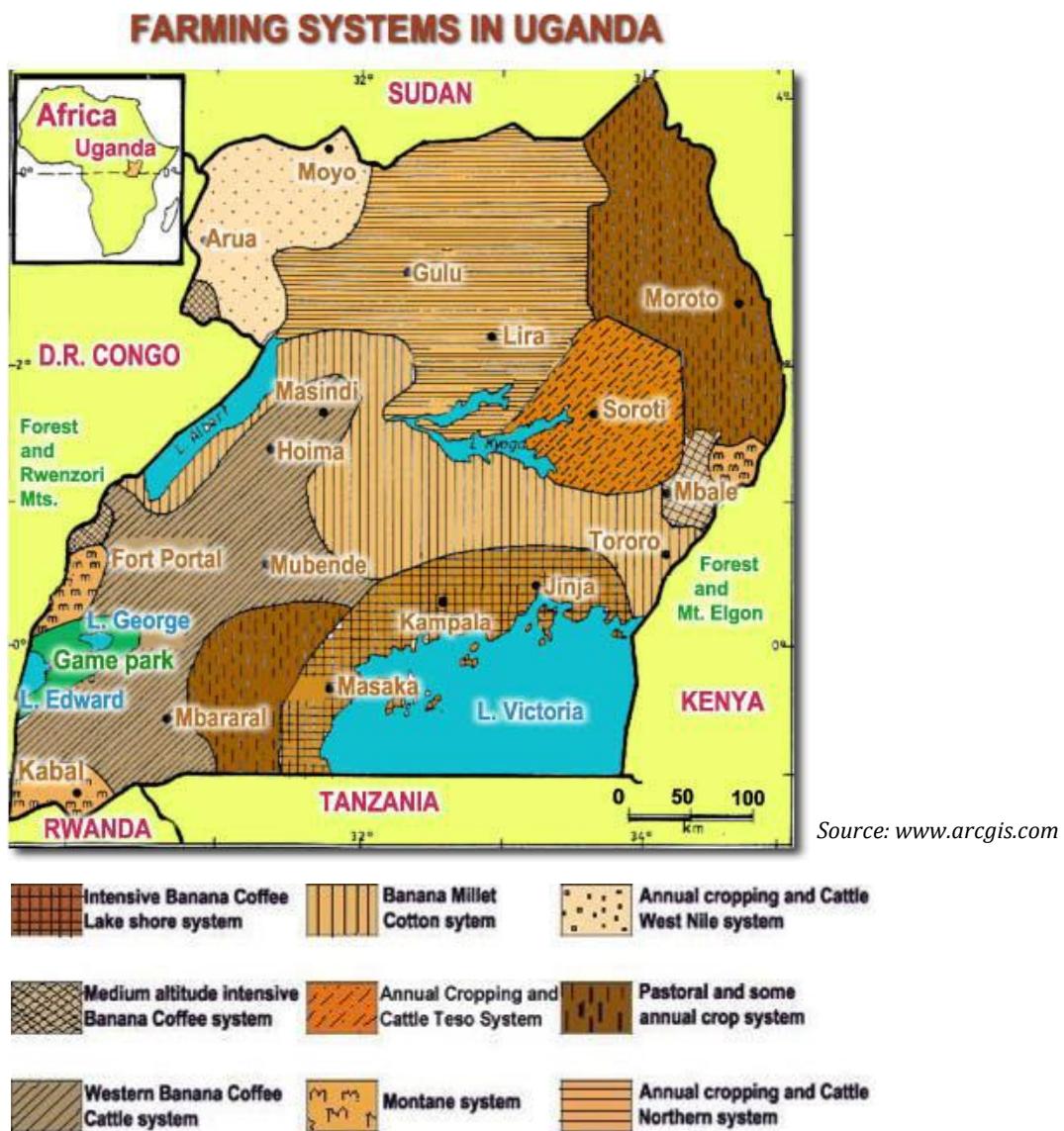
Trees for Global Benefits has been designed as a cooperative, community-based, carbon offsetting scheme aimed at reducing the unsustainable exploitation of forests, while diversifying and increasing income for rural farmers. The aim of Trees for Global Benefits is to produce long-term, verifiable voluntary emission reductions by combining carbon sequestration with rural livelihood improvements through small-scale, farmer-led, forestry and agroforestry projects in order to reduce pressure on natural resources in national parks and forest reserves. More specifically, the project has the following objectives:

- a. Reducing pressure on natural resources in protected areas while contributing to the conservation of biodiversity and watershed functions;
- b. Diversifying and increasing incomes for poor, rural small-scale farmers through increased productivity;
- c. Building effective community-based institutions that will contribute to social cohesion and gender equity in collaborative social mechanisms aimed at addressing climate change;
- d. Reducing CO<sub>2</sub> emissions by planting trees and by implementing improved forest management systems;
- e. Building the resilience and the adaptive capacities of rural smallholders to climate change.

## Part B: Site Information

### B1 Project Location and Boundaries

Trees for Global Benefits is located in Uganda with several sites in different parts of the country. As of January 2016, the project is fully operational in the Albertine Rift (Western Uganda Districts of Rubirizi, Mitooma, Kasese, Hoima & Masindi) and Mt. Elgon Region (Eastern Uganda Districts of Mbale, Manafwa, Bududa, Sironko, Bulambuli). The project is also preparing to extent to new districts within the Albertine Rift and the Mt. Elgon regions (Mainly, Kapchorwa & Kween) and Northern Uganda (Districts of Adjumani, Kitgum, Amuru & Gulu). The project sites in the Albertine Rift and Mt. Elgon fall within the agro-ecological zone 1 (High Altitude Areas) while the sites in Northern Uganda lie within the semi-moist lowland agro-ecological zone (Agro-ecological zone 3) of Uganda (National Biomass Study). Uganda has seven major agro-ecological zones, namely: the banana/coffee zone, the banana/millet one, the montane system, the Teso system, the Northern system, the West Nile system and the Pastoral system (Error! Reference source not found.).



The Agro-ecological Zone 1 (Banana/coffee zone) has been conclusively used to refer to the two farming systems, namely the Western banana coffee cattle system and the medium altitude, intensive banana coffee system of Mt. Elgon region ([www.fao.org](http://www.fao.org)). The Agro-ecological Zone 3 on the other hand refers to the annual cropping and northern cattle system.

## **B2 Description of the Project Area**

### ***B2.1. The Albertine Rift***

The Albertine Rift in Uganda is the area stretching from the Virunga Mountains on the border with Rwanda up to the northern tip of Lake Albert (See **Error! Reference source not found.** above). The project was initiated in Rubirizi and Mitooma Districts (both formerly Bushenyi District in Western Uganda) covering the sub-counties of Bitereko, Kanyabwanga, Kiyanga, Kichwamba and Ryeru, bordering the forest reserves of Kasyoha – Kitomi, Maramagambo and Kalinzu as well as the Queen Elizabeth Protected Area (See

Figure 1 below).



Figure 1: Map of Uganda Showing the Project Sites in the Albertine Rift

The project has been successful in expanding (see **Figure 2** below) into Kasese District neighbouring the Rwenzori Mountains National Park, Hoima District in Kyangwali, the Kiziranfumbi and Kabwoya sub-counties neighboring Bugoma Central Forest Reserve (CFR) as well as to Masindi District in the Budongo, Pakanyi, Karijubu and Bwijanga Sub-counties neighbouring the Budongo CFR.

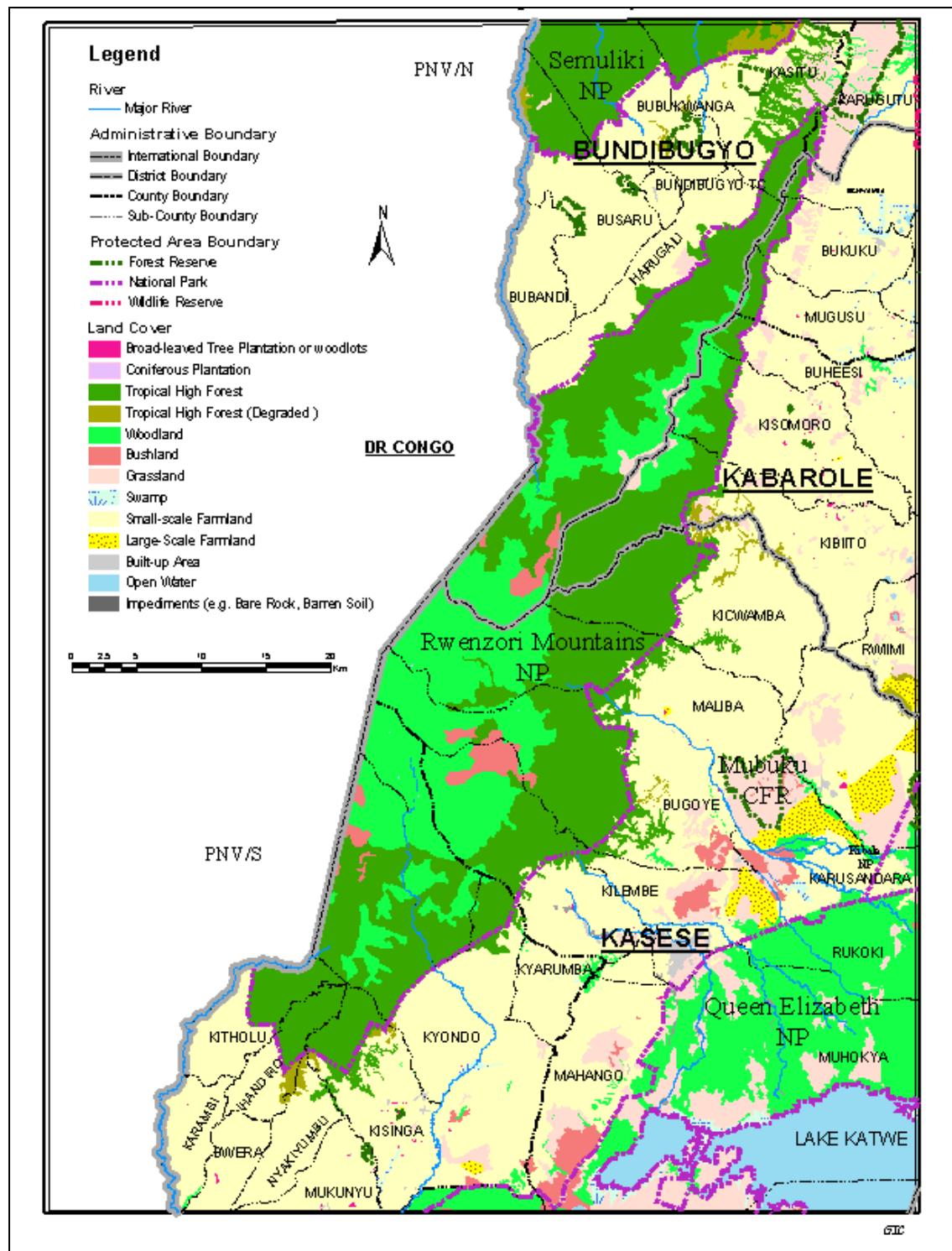


Figure 2: Map of the Project Area in Mt. Rwenzori

The coordinates for the Albertine Rift sites are: Hoima ( $1^{\circ}25'55.0"N$   $31^{\circ}21'09.0"E$ ), Masindi (01 41 01N, 31 43 20E) Kasese ( $0^{\circ}11'12.0"N$ ,  $30^{\circ}05'17.0"E$ ), Rubirizi (00 16S, 30 06E) and Mitooma (00 36S, 30 00E).

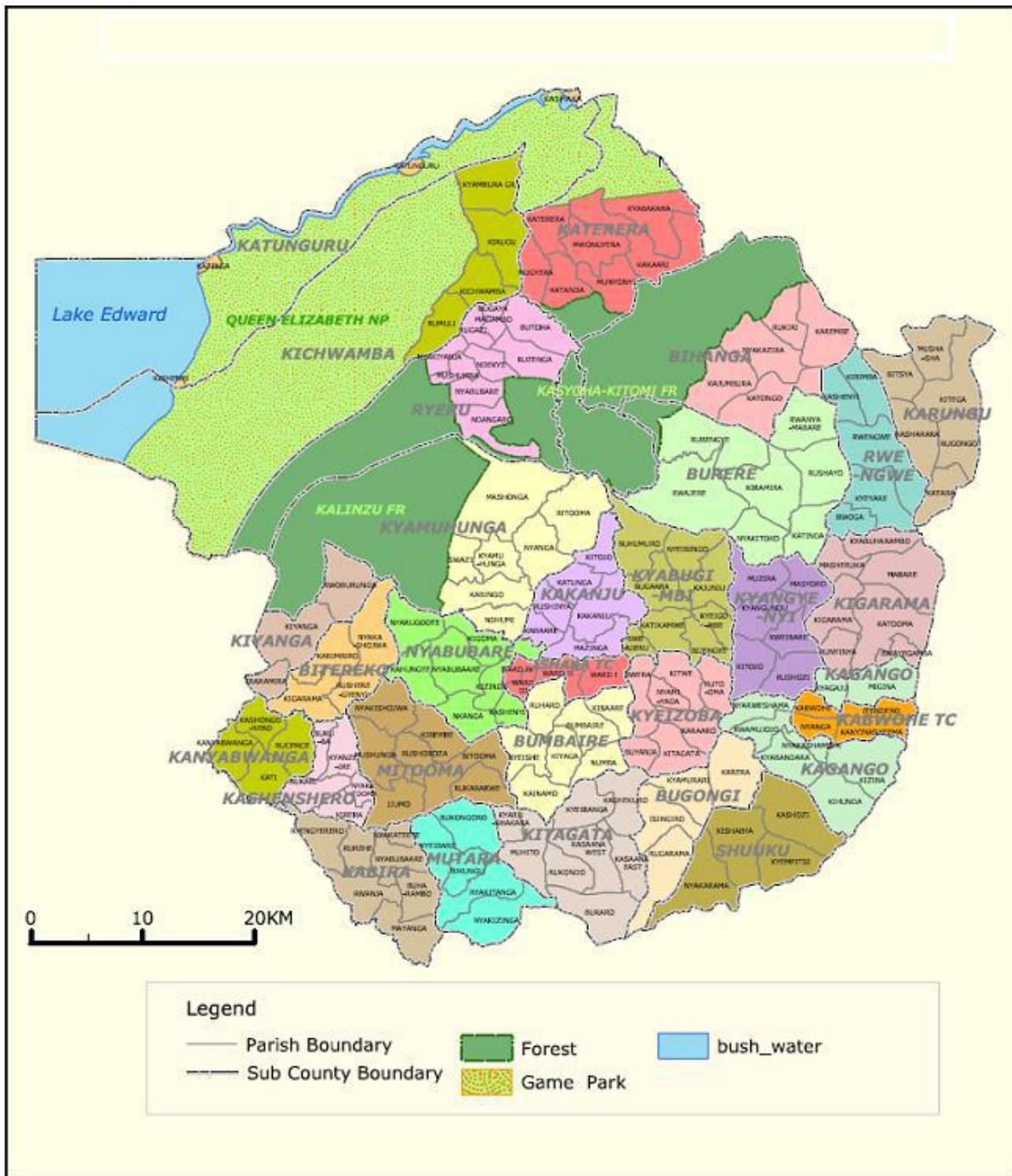


Figure 3: Map of the Bushenyi Pilot Sites

#### B2.2. Northern Uganda

The project is targeting the districts of Moyo and Adjumani in the West Nile as well as the Gulu, Kitgum and Amuru Districts in Northern Uganda. The project seeks to work with communities (through schools and community groups) around the key conservation landscapes of the Agoro-agu CFR in Kitgum, Mt Otzi CFR in Moyo, the East Madi Wildlife Reserve, the Zoka CFR in Adjumani and the Murchison Falls National Park in Amuru. Details of the project locations are provided in **Table 1** below and the map indicating the proposed sub-counties is provided in Figure 4.

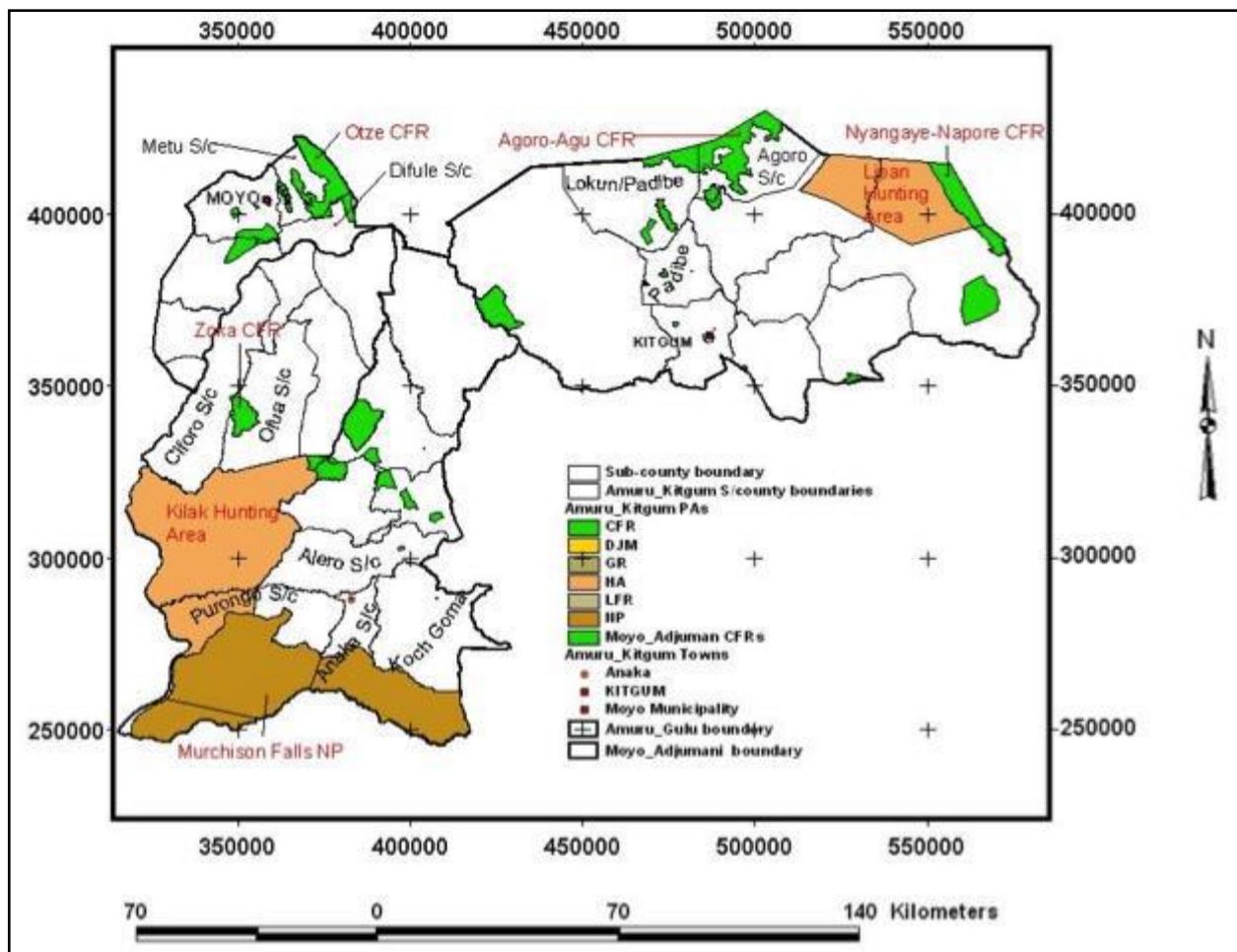


Figure 4: Project Sites in Northern Uganda

Table 1: Location and Boundaries of the Project in Northern Uganda

District	Amuru	Adjumani	Kitgum	Moyo
<b>Total Area</b>	3,625.9 Km <sup>2</sup>	3,128 Km <sup>2</sup>	9,774 Km <sup>2</sup>	2,059 Km <sup>2</sup>
<b>Population Density</b>	41.2	68.9	29.3	114.9
<b>Location</b>	Between 02 49N, 31 57E. Bordered by Adjumani District to the north, Southern Sudan and Kitgum District to the northeast, Gulu District to the east, Oyam District to the southeast, Masindi District and Bulisa District to the south, Nebbi District to the west and Arua District to the northwest.	North Western region of Uganda, bordered by the Republic of Sudan in the North, Yumbe District in the West and Adjumani District in the East and South	Between Latitudes 2 00'N and 4 00'N, Longitudes 32 00'E and 34 00' E. Bordered with the Republic of Sudan in the north; the districts of Kotido in the east; Amuru / Gulu in the west; and Pader in the south	Between 03 39N, 31 43E and 3 65' N 31 71'E. Located in the North Western Uganda. The Albert Nile runs along its entire border with Adjumani district
<b>Sub-Region</b>	Acholi	West Nile	Acholi	West Nile

### B2.3. Mt. Elgon Project Area

The pilot project in Mt. Elgon covered the three districts of Mbale, Manafwa and Bududa located in Eastern Uganda within longitudes 34°SE, 34°30'E and latitudes 0°45'N, 1°05'N and covering a combined area of 1,366 km<sup>2</sup> (The Mbale District “State of Environment Report”, 2004). The topography of this region is divided into three distinct types: the plain/terrace, the upland and the mountain landscapes. Altitude here ranges between 1,500m and 4,300m above sea level. The project extension to other districts in the region has begun with Sironko and Bulambuli districts in Eastern Uganda and will later on include Kapchorwa and Kween. The Mt Elgon landscape is bordered by Bukedea District in the North West, by the Budaka, Butaleja Districts in the West and the Tororo District in the South. Furthermore, it shares its eastern border with the Republic of Kenya. The table below summarises the description of the Mt. Elgon districts where the project is currently operational:

District	Mbale	Manafwa	Bududa	Sironko	Bulambuli
<b>Total Area</b>	518.8 Km <sup>2</sup>	602.1 km <sup>2</sup> Km <sup>2</sup>	250.8 Km <sup>2</sup>	446.1 Km <sup>2</sup>	651.8 Km <sup>2</sup>
<b>Population Density</b>	850.6	610.4	838	537.1	192.4
<b>Location</b>	<p>00°57'N 34°20'E bordered by Sironko District to the north, Bududa District to the northeast, Manafwa District to the southeast, Tororo District to the south, Butaleja District to the southwest and Budaka District to the west. Pallisa District and Kumi District lie to the northwest of Mbale District</p>	<p>01°01'N 34°21'E bordered by Manafwa District is bordered by Bududa District to the north, the Republic of Kenya to the east and south, Tororo District to the southwest and Mbale District to the west.</p>	<p>Between 01°01'N 34°20'E bordered by Bududa District is bordered by Sironko District to the north, the Kenya to the east, Manafwa District to the south, and Mbale District to the west.</p>	<p>01°14'N 34°15'E bordered by Bulambuli District to the north, Kapchorwa District and Kween District to the northeast, the Republic of Kenya to the east, Bududa District to the southeast, Mbale District to southwest and Bukedea District to the west.</p>	<p>Between 01°22'N 34°09'E bordered by Bulambuli District is bordered by Nakapiripirit District to the north, Kapchorwa District to the east, Sironko District to the south and Bukedea District to the west.</p>

Figure 5 below shows the location of the target districts in Mt. Elgon.

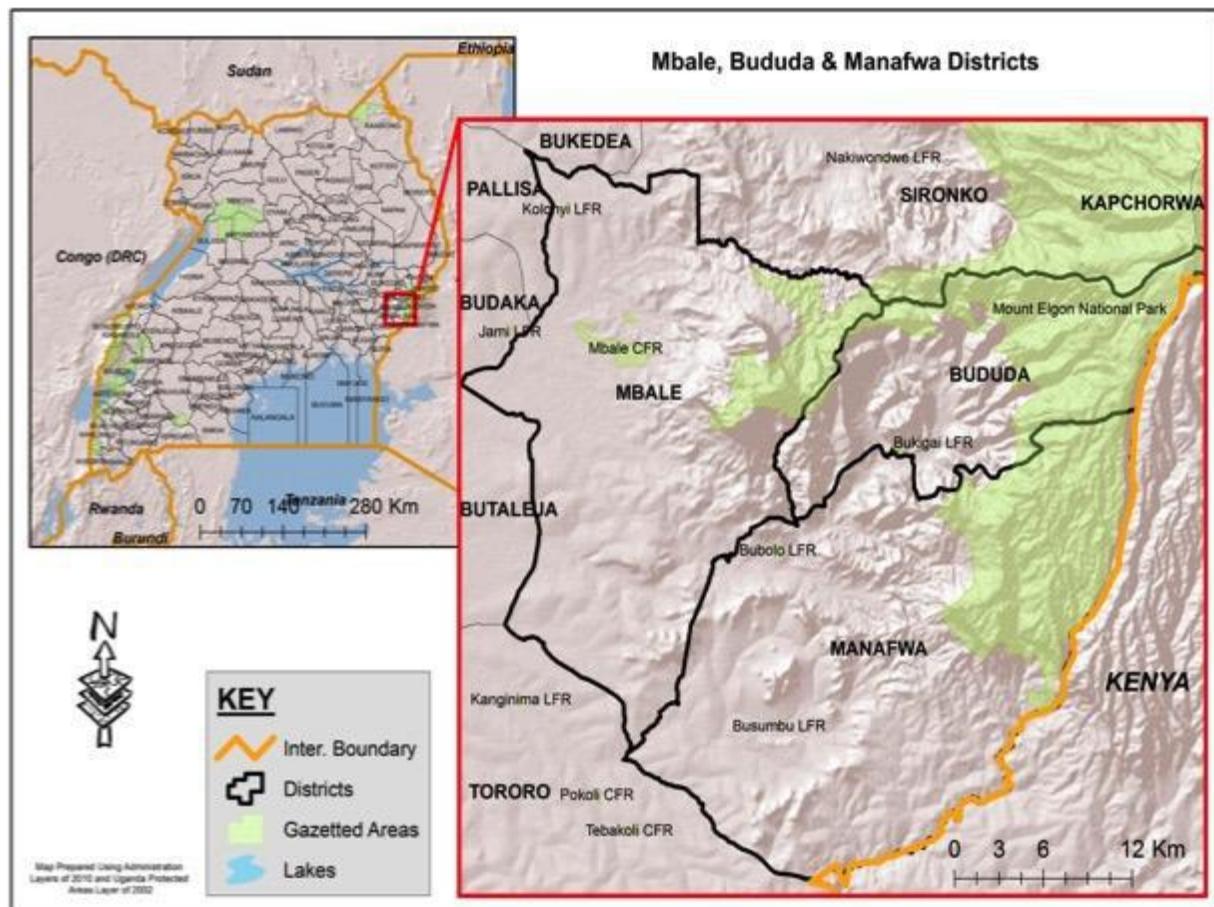


Figure 5: Location of Mbale, Manafwa and Bududa Districts

### B3 Description of Land Use

#### B3.1. Land Type

The project activities are being implemented on small-scale private landholdings, public land (including Protected Areas) and community-owned forests. Below is a description of each of these types of land:

**Private Small-Scale Landholdings:** The focus is mainly on agroforestry systems and small-scale woodlots on landholdings averaging 5 ha and owned by poor rural farming households. Communities in Rwenzori and in Mt. Elgon have the smallest landholdings averaging between 2 and 5 acres (1 to 2 ha), whereas the rest of the districts have average landholdings of between 2 to 5 ha. However, some individual households in Hoima have vast amounts of poorly utilized land (up to 100ha in some cases).

**Protected Public Land:** The project will work with communities that are able to plant trees on boundary and buffer zones of Protected Areas. This land is managed by the Uganda Wildlife Authority (UWA), the National Forestry Authority (NFA) and it also includes some private land. Under its Land Trust Programme, ECOTRUST will manage the acquisition of user/management rights by the communities.

**Community Forests:** Under its “Land Trust Programme”, ECOTRUST will facilitate the formation of communal Land Associations that will acquire the title of “Community-Owned Land” for the purpose of improving its management. In addition, under ECOTRUST’s Land Trust Programme, the project will facilitate co-management arrangements between private landowners and communities in order to allow poor (including landless) community members to participate in the project as well.

### ***B3.2. The Albertine Rift Sites***

The Albertine Rift was declared a biodiversity hotspot by Conservation International (Byaruhanga et. al 2001), Endemic Bird Area by Birdlife International (Byaruhanga et. al 2001) and a priority Eco-Region by WWF (Byaruhanga et. al 2001). Due to its importance for biodiversity conservation, the project area is home to several protected regions including national parks (e.g. Queen Elizabeth, the Murchison Falls and Rwenzori), wildlife reserves (e.g. Kyambura, Kabwoya, Kaiso-Tonya & Bugungu) forest reserves (e.g. Kalinzu, Maramagambo, Kasyoha-Kitomi, Bugoma & Budongo), Ramsar sites (e.g. Lake George, the Rwenzori Mountains), a UNESCO Man and Biosphere Reserve (e.g. Queen Elizabeth National Park) as well as a UNESCO World Heritage site (Rwenzori Mountains).

The Rwenzoris are a World Heritage Site due to their cultural and environmental values, notably because of their role in the hydrological cycle. The project targets communities that are neighbouring protected areas and plans are underway to extend the project to other areas of ecological importance within Uganda. The areas considered for expansion are selected based on their ecological conservation importance as well on their availability of land, mainly privately/communally owned.

Generally, the project area is characterized by tropical high forests with several reserves and isolated pockets of forests on private land. These pockets are more pronounced in the Masindi-Hoima Forest system and are mainly riverine, tropical high and medium altitude, moist semi-deciduous rain forests. It is estimated that 43% and 56% of the land cover in Hoima and Masindi respectively is either tropical high rain forest or woodland.

The geography of the Bushenyi area includes highly populated highlands with fertile but nutrient-depleted soils as well as mid-elevation and high-intensity mixed farming systems. There is barely an area located on flat terrain. Although some areas have slopes ranging from 20° - 50°, most areas are located on steep slopes of between 20° and 70°. The region is highly susceptible to erosion due to steep slopes that are devoid of vegetation.

Just like most parts of Uganda, the Albertine Rift project area has a tropical climate with a bimodal rainfall distribution allowing for two planting seasons per year. This region experiences moderate temperatures with a long-term mean temperature of 21°C (NSOER 2006/06). The Mt. Elgon climatic zone, as it is referred to, lies in this tropical region and experiences two rain seasons, i.e. March-May and then September–November. The average annual rainfall is 1,500mm. The peak rainy seasons (similar to Albertine Rift) occur in the months of April–June and August–November. The region also experiences a mean annual maximum temperature of 27°C-32°C and an annual minimum temperature between 15°C and 17°C. Average temperatures in the district range from 17°–22°C (Van Heist, 1994).

### **Land Degradation**

Despite the conservation importance of the Albertine Rift, the region has been subject to widespread and rapid degradation even inside protected areas, which has led to a loss of forest cover mainly due to extensive encroachment for agricultural land. For example, the tropical high forest and woodlands in Hoima and Masindi have been degraded over many years, resulting in the fragmentation of the once densely forested areas. This applies to both private/communal forests and central forest reserves. Plumtre (2002) estimates that between 1986 and 2002, over 110 km<sup>2</sup> of forest was cleared within 15 km of Bugoma, and about 90 km<sup>2</sup> was cleared within 15 km of Budongo. The loss of vegetation cover has greatly contributed to the reduction of the corridor connectivity functions of the different forested areas in this landscape.

This degradation is driven by a range of factors, including the expansion of both small-scale subsistence and large-scale commercial agriculture. In the Hoima-Masindi area for example, the degradation is mainly due to large-scale commercial agriculture, in particular caused by the cultivation of tobacco, which is practiced on a small-scale by tens of thousands of (often migrant) farmers. Tobacco thrives on newly cleared, previously forested land, and this is reported by many local residents to be one key driving force in the initial clearance of forest, followed by food crop farming. In addition, the

communities depend on the forest for poles needed to construct tobacco kilns.

### **Land use**

The project area is characterized by a wide range of physical, agricultural and ecological land cover types as well as a range of socio-economic conditions. The project is targeting small-scale landholder farmers with established community groups neighbouring protected areas. Implemented from 2003 to 2008, the project's initial pilot project covered Kiyanga, Bitereko, Ryeru and Kichwamba sub-counties of Bushenyi. The Bushenyi District has developed a Sub-County Environment Action Plans (SEAPs) and a District Environment Action Plan (DEAP) because of the urgent need for tree-planting interventions. The adequate land availability, especially the bare hills in Bushenyi, is the main reason this project has been well-received in these areas.

The baseline study for Bushenyi (see Annex 9, page 61) identified subsistence agriculture as the dominant occupation amongst households in the area. The main crops grown include bananas (locally known as matooke), maize, beans and millet. A few household members are public servants, business people and wage earners. However, as mentioned before, for Hoima and Masindi, there is large-scale commercial agriculture (particularly sugar, and tea), and the tobacco growing industry. Only 19% and 33% of the land in Masindi and Hoima respectively is under subsistence agriculture.

#### ***B3.3. The Northern Uganda Sites***

The project is targeting the districts of Gulu, Amuru, Adjumani, Moyo and Kitgum. The Moyo District physical characteristic features include low plains, rolling hills and valleys that slope towards the River Nile. The system rises approximately 900m above sea level. At 1500m above sea level, Mt Otze is the highest peak in the District. Around 79% of the District is arable or suitable for cattle grazing. The soils of the District are generally considered moderately fertile, but many of its areas cannot be cultivated because they are stony and, therefore, thinner soil, a larger number of soil categories present in the District cannot sustain intensive exploitation without special care to supplement nutrients and organic matter. There are five broad categories of soil occurring in the district, namely: Vertisols, Leptosols, Alluvial deposits, Ferruginous tropical and Ferrasols soils.

The Adjumani District is similar to Moyo as it presents Ferruginous tropical soils while the Kitgum District is underlain by granitic and metamorphic rocks of the basement complex including rocks of quartzites, schists, amphibolites, charnockites, phyllites and mylonites. Much of these rocks have been very deeply pre-weathered providing regolith to parent material of soils (Ollier, 1995).

The targeted districts have an annual average precipitation of about 1200 mm with the highest average in Amuru (about 1500 mm per annum) and the lowest in the parts Adjumani and Moyo near the Nile (900mm and 860mm respectively). The two major peaks in rainfall occur in April (short rainy season) and between August and October (major rainy season).

There is a dry season of around three months from December to March and another short dry spell in July. Apart from that, it is essentially the unpredictability and variability of rainfall that cause problems for agricultural activity in this region. The average maximum temperature in Kitgum and Amuru is 30 degrees centigrade and the minimum is 18 degrees. The relative humidity of the area is high during the wet season but low in the dry season.

The vegetation of both the Gulu and Amuru Districts as classified by Langlands (1974) consists of intermediate savannah grasslands. This type of vegetation is generally found between moist savannah lands and is characterized by an open canopy of trees of 10-12 m in height and underlying grasses of 80 cm. These trees are fire resistant and, therefore, able to regenerate themselves after being burnt. The common tree genus/species include: *Acacia* spp, *Ficus natalensis*, *Combretum boanasus*, *Aethicupum* (fan palm) while common grasses include: *Imperatus cylindrica*, *Hyperrenia rufa* and *Digitaria scalarum*. There are also some herbs present, such as: *Bidens pilosa*, *Ageratum conizoids*, *Amaranthus* spp. Common exotics include *Eucalyptus*, *Jacaranda*, *Cupressus*, *Theruvian*, *Pines*, *Hibiscus*,

*Ougainvillae, Plamthoyant and Lantana camara*. However, human activities have tended to interfere with the natural vegetation of the region, which has led to development of secondary vegetation.

The vegetation of the Moyo District is generally savannah with a wide range woodland and trees, mainly found in parts of Obongi and more sustainable parts of west Moyo respectively. This predominantly includes dry *Combretum–Acacia–Hyparrhenia* savannah. Moreover, deciduous savannah woodland and grasses exist in the mountainous areas of Moyo and other areas characterised by leptosols. There are also some forests, riparian vegetation and post cultivation communities.

The Kitgum District vegetation is also dominated by the grassland savannah. The main types here include *Dry Combretum savannah*, *Butyrospermum*, *Dry Acacia* whilst moist thickets and shrubs are found in areas with sufficient rainfall, mostly around Lututuru in the Lamwo County and along streams or swampy areas. In general, vegetation in this District is vibrant particularly during the rainy season. Much of it is, however, destroyed during the two dry seasons as a result of bush fires. The growing demand for fuel wood and construction materials is gradually causing an increase in deforestation in the district.

According to the NFA’s “Biomass Technical Report” of 2003, Adjumani is composed of 48.5% of woodland, while small-scale farmland covers about 31.3% of the district. This wooded savannah category itself includes many vegetation formations with a more or less developed tree layer and is subdivided according to the dominance of one or more species. Within the category, plant associations are separated: *Butyrospermum* savannah, *Combretum* savannah, mixed savannah dry Acacia savannah. All these sub-types have been associated with *Hyparrhenia spp*. Two other plant formations complement this mosaic of different savannahs as it existed in the 1960s: a marshy zone along the River Nile covered with *Vossia papyrus* (*Cyperus papyrus*) and an isolated semi-deciduous forest situated in the South-East of the Adjumani District, dominated by *Celtis-Cynometra*.

### Land Degradation

As part of the baseline assessments in preparation of the proposed project, a change analysis was carried out for the period between 1995 and 2005 and its results are summarized in **Table 2**. These results cover only the two districts of Moyo and Adjumani. The figures 3-6 show the land use changes computed with 1995 as the base year. Within this period of time, there was 13% (414km<sup>2</sup>) net loss of woodland cover, while the new areas that opened up for agriculture increased by 1% (36 km<sup>2</sup>) and, at the same time, bush land increased by about 15% (466 km<sup>2</sup>). Meanwhile, the protected areas have not been subject to the same drivers, as indicated by the acreage of degraded forestland cover classification. It is therefore apparent that tree cover is declining mainly outside the protected areas in this case.

Table 2: Changes by Vegetation Cover Classification Using 1995 as Base Year

COVER CATEGORY	1995		2005		CHANGE (Km <sup>2</sup> )	CHANGE %
	AREA (KM <sup>2</sup> )	% COVER	AREA (KM <sup>2</sup> )	% COVER		
Broadleaved Tree Plantation	0.18	0.01	3.91	0.12	3.72	0.12
Coniferous Plantation	0.02	0.00	0.00	0.00	-0.02	0.00
Degraded Forest	0.05	0.00	0.00	0.00	-0.05	0.00
Woodland	1084.13	33.90	670.34	20.96	-413.78	-12.94
Bushland	62.13	1.94	528.42	16.52	466.28	14.58
Grassland	703.11	21.98	578.08	18.07	-125.04	-3.91
Wetland	144.46	4.52	155.22	4.85	10.76	0.34
Small - scale farming	1084.44	33.91	1120.89	35.05	36.46	1.14
Large - scale farming	6.05	0.19	0.51	0.02	-5.54	-0.17
Built-up Area	5.59	0.17	12.14	0.38	6.57	0.21
Open Water	108.14	3.38	127.24	3.98	19.10	0.60
Impediments	0.09	0.00	1.62	0.05	1.54	0.05

## Land Use

In all the Northern Uganda project districts, small-scale farmland stands out as the main land use system practiced by communities. On average, this is equivalent to approximately 30% of the land stratification in these districts (**Table 3**).

Table 3: 2010 Land Use/ Land Cover Stratification for the Project Areas

District	Land cover/use stratification	Area	Proportion (%)
Moyo	Woodland	706.9	<b>37.4</b>
	Small scale farmland	375.6	<b>19.9</b>
	Grassland	556.5	<b>30.0</b>
	Wetland	102.3	<b>5.4</b>
	Bush	47.1	<b>2.5</b>
Adjumani	Woodland	1498.5	<b>48.5</b>
	Small scale farmland	967.1	<b>31.3</b>
	Grassland	432.6	<b>14.0</b>
	Wetland	94.3	<b>3.1</b>
Kitgum	Woodland	4753.1	<b>49.3</b>
	Small scale farmland	2810.3	<b>29.2</b>
	Grassland	1776.0	<b>18.0</b>
Gulu/Amuru	Woodland	4686.3	<b>40.0</b>
	Small scale farmland	4858.4	<b>41.5</b>
	Grassland	1623.8	<b>13.9</b>
	Bushland	358.9	<b>3.1</b>

### B3.4. The Mt. Elgon Sites

Mt. Elgon is an extinct volcanic mountain standing 4,321m above sea level and is the seventh highest mountain on the African continent (Lake Victoria Basin Commission, 2009). The mountain is dome-shaped and presents an altitude ranging from 1,000m above sea level on the lower eastern part and northern slopes of Wagagai to its highest peak. The Mountain has an 8km-wide caldera, which is a flat-topped depression on top of the mountain. Other unique features that give Mt. Elgon great scenic value include spurs, caves and valleys.

The Mt. Elgon caldera has small lakes and moraine ridges, which are indicative of glaciations that occurred about 1,500,000 years ago. These subsequently cut low through the caldera as the melting waters carved up the streambeds of the weak volcanic ash, giving rise to various physical features such as the caldera itself, the Endebess bluffs and the Elephant platform. Mt. Elgon ecosystem also constitutes a major catchment area with its many tributaries draining into major rivers that lead to large water bodies such as lakes Victoria and Kyoga, before finally joining the Nile River System.

The Mt. Elgon ecosystem covers an area of about 772,300 ha of which 221,401 ha are protected. The Mt. Elgon National Park and its peaks provide the dominant catchments for surface water to guarantee a continuous hydrological cycle that supports agriculture, water for domestic use and urban supply within the Mt. Elgon Region of Uganda and Kenya. Precipitation occurs mainly in the form of rainfall, with the peak rainy seasons occurring in the periods April–June and August–November.

The drainage system in this region is characterized by a series of riverine wetlands associated with the Namatala, Manafwa, Lwere and the Lwakhakha systems that form part of the Lake Kyoga drainage system:

- *Namatala system*: This originates from the Wanale ridge and covers the sub counties of Bungokho and Nakaloke.
- *Lwere system*: This covers areas around the Mt Elgon national park and some lowlands in Nakaloke and boarders with Kumi district.

- *Lwakhakha system*: This begins from the Mt Elgon National Park and covers the Bumbo sub-county;
- *Manafwa system*: This originates from the caldera of the extinct volcano and covers areas of Bulucheke, Bubiita, Bumayoka, Bukighai, and Bushika in the Manjiya County; Bugobero, Buwabwala, Butiru, Buwagogo and Kaato Sub-Counties in Bubulo County – it then descends to cover the lowlands of Bukhiende, Busoba and Bungokho SubCounties in Bungokho County.

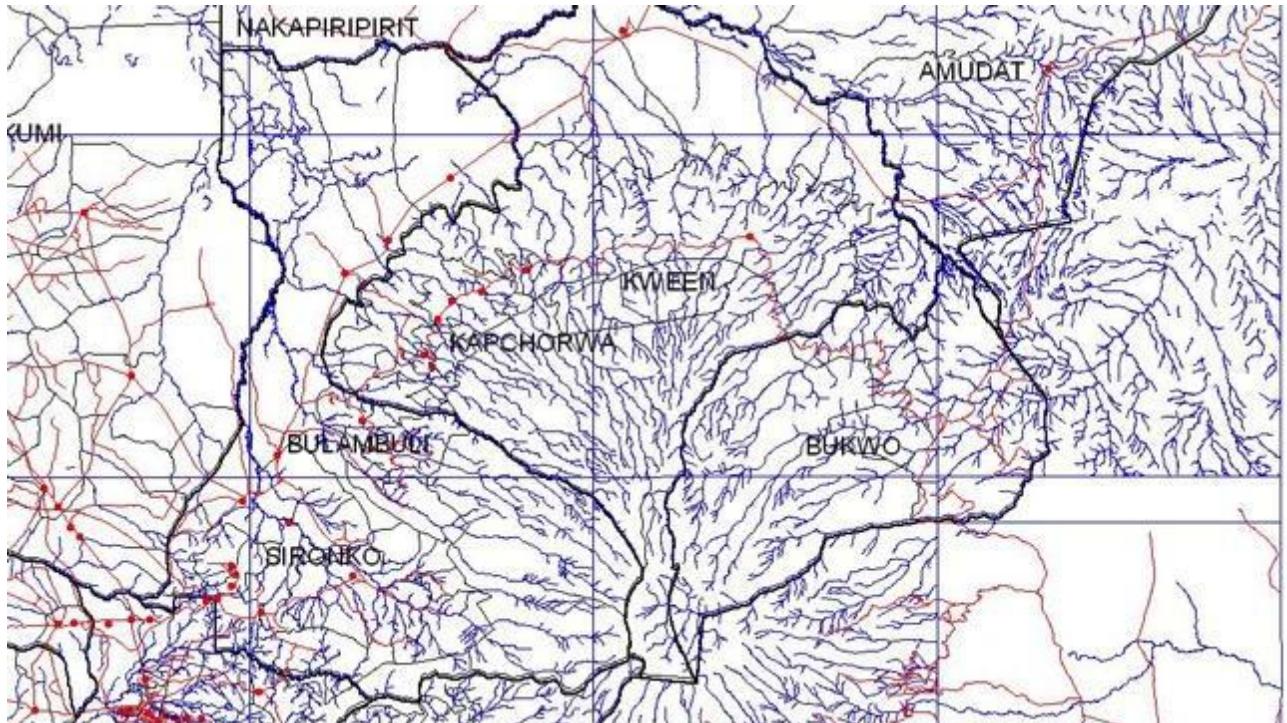


Figure 6: Sketch Map of Drainage (River systems) of Additional Project Sites in Mt. Elgon

These drainage systems are being negatively impacted by the expanding farming landscape that has progressively resulted in an increase of the silting/sedimentation of wetlands, a process essentially traceable to the poor farming practices of communities living upslope.

The region contains habitats that support unique and diverse fauna and flora while also being home to many rare species of extreme conservation importance. The International Union for Conservation of Nature (IUCN) has listed 37 fauna species in the area as globally threatened (i.e. 22 mammals, 2 insects and 13 bird species) of which 9 species are endemic (IUCN, 1995). Owing to the rarity of some of its bird species, the region has been given the status of “Important Bird Area (IBA)”. It is also one of very few locations worldwide where the Elgon Teak (*Olea capensis*) is found.

The Mount Elgon area is thus an ecologically valuable region in light of its ecological goods and services that include food, water, timber, wood fuel, nutrient recycling and climate amelioration. The key values of the region are natural heritage, biodiversity, water catchment, agricultural base and tourism. Consequently, Mount Elgon is being considered for nomination under the World Convention on Heritage Sites (Lake Victoria Basin Commission, 2009).

The Mt. Elgon climatic zone, as it is referred to, lies in the tropical region and experiences two rainy seasons, the first one in March-May and then the second one in September–November. The average annual rainfall is 1,500mm. The region also experiences a mean annual maximum temperature of between 27°C and 32°C whereas the annual minimum temperatures fall between 15°C and 17°C. Average temperatures in the district range from 17–22°C (Van Heist, 1994).

### **Land Degradation**

Between 1995 and 2006, there has been considerable loss of woodlands and forest cover on the slopes of Mt. Elgon. The encroachment on its slopes mainly as a result of cultivation has also induced a series of shallow and deep landslides in the area in the past few years. Deforestation and cultivation alter the soil hydrological conditions of steep concave slopes, rendering them susceptible to saturation. Among other things, this triggers debris flows during rainfall events. Encroachment for cultivation extends into the Mt. Elgon National Park and has resulted in the destruction of approximately 25,000 ha within the last 40 years, equivalent to about one fifth of Elgon's forest. As a result of this encroachment, virtually all of the forest cover below an elevation of 2000 m has been removed.

### **Land Use**

Traditionally, farming systems in the proposed project area have been characterized by a combination of crop production and livestock rearing. Agricultural production, which accounts for the largest portion of the land use, is the major source of household subsistence. Livestock resources on the other hand are an important form of wealth accumulation and social security. For on-farm carbon farming to be able to add value to existing livelihood systems, it is important that a clear understanding is gained of the existing crop and livestock production arrangements.

Many of the farmers have vast experience in coffee growing, having practiced it for more than a decade. On most farms, coffee trees are planted in a linear arrangement with efforts being made to maintain regular spacing even though it is also common to find coffee trees randomly scattered. Indeed, the shortage of land will lead farmers to intercrop the coffee with both perennial (especially bananas) and annual crops (typically beans, maize and cassava).

## Part C: Community and Livelihoods Information

### C1 Participating communities/groups

TGB is designed as a Programme of Activities with provisions to allow expansion through the development of Technical Specifications that introduce new activities into the Programme to enable the participation of new communities. The project was started with 33 farmers in the Districts of Rubirizi, Mitooma and has now expanded to include Kasese, Hoima and Masindi in the Albertine Rift as well as Mbale, Manafwa and Bududa in the Mt. Elgon area. Other communities in the Mt. Elgon Region that joined the project in 2015 include the Bulambuli and Sironko Districts. This section provides a description of the participating communities at the different project sites.

#### *C1.1. Albertine Rift Communities*

The pilot project that started in 2003 in Bushenyi (now Rubirizi and Mitooma) targeted Collaborative Natural Resource Management community groups within the Albertine Rift. The same approach has been applied as the project expanded to include communities in the Districts of Kasese, Hoima and Masindi in the Albertine Rift as well as Mt Elgon. Communities are engaged in the design of the project activities through a combination of rapid rural appraisals, community consultative meetings, Key Informant Interviews with farmer co-ordinators as well as meetings with formally organised Collaborative Forest Management (CFM) groups.

All the CFM groups have signed agreements with the National Forest Authority to participate in the management of Mobuku, Kalinzu, Budongo and Bugoma Central Forest Reserves. In addition, two groups in Masindi are in the final stages of acquiring 'Titles of Communal Ownership' for Ongo and Alimugonza community forests. Several other CLAs in this landscape have expressed interest in joining the project. These communities need the availability of a long-term source of income to facilitate their forest management activities. It is envisaged that carbon finance will provide that source of income.

#### *C1.2. Northern Uganda Communities*

Four districts (Amuru, Adjumani, Moyo and Kitgum) were selected as pilots for this carbon sequestration project. The purpose of extending TGB to Northern Uganda is to develop a system that will enable schools and community groups (e.g. Collaborative Forest Management or Community-Based Organisations) to access carbon finance. This is part of a planned arrangement to use lessons learnt from the initial pilot project in Bushenyi to expand to other parts of Uganda.

Priority will be given to communities around the key conservation landscapes of Agoro-agu CFR in Kitgum, Mt Otzi CFR in Moyo, East Madi Wildlife Reserve, Zoka CFR in Adjumani and Murchison Falls NP in Amuru. Interested individual farmers will be organized in groups (of carbon farmers) for the ease in administration and communication activities. However, each farmer will have a separate *plan vivo* for his/her own farm while, at the same time, the project also encourages the participation of landless people to apply for tree planting rights in some degraded parts of the Forest Reserves for the specific purpose of reforesting them. Special attention will be paid to gender (interested women) and People with Disabilities (PWDs).

#### *C1.3. Mt. Elgon Communities*

In the Mt. Elgon region, TGB is seeking to work with farmers in a predominantly coffee growing landscape. The growing of coffee has for a long time been a salient feature of the farming systems with most smallholder households growing less than 2 acres of predominantly Arabica coffee. The pilot activities will be carried out on private small-scale land holdings as well as community-owned land on the currently degraded and bare hills that have been allocated to different households by the local government for purposes of planting trees. The farmers (mainly coffee growers) will grow trees alongside other agricultural activities.

## C2 Socio-economic Context

### C2.1. Livelihood Activities of Targeted Communities

The baseline study for Bushenyi identified subsistence agriculture as the dominant occupation amongst the households visited. The main crops grown include bananas, maize, beans and millet. A few household members are public servants, business people and wage earners. In Hoima and Masindi, however, large-scale commercial agriculture (sugar, and tea) and the tobacco-growing industry appear to be the main employers.

In Northern Uganda, small-scale farmland stands out as the main land use system practiced by communities. On average, this accounts for approximately 30% of the land stratification in these districts. With the prevailing peace and subsequent resettlements, it is anticipated that *given the status quo*, in a short period of time, small-scale farms are going to increase in number and size. It is therefore timely to initiate a project promoting the integration of tree planting with land use. Moreover, the *ex-ante* payments will incentivize sustainable land use practices.

Traditionally, farming systems in the Mt. Elgon region have been characterized by a combination of crop production and livestock rearing. Agricultural production, which accounts for the largest portion of the land use, is the major source of household subsistence. Livestock resources on the other hand are an important form of wealth accumulation and social security. For on-farm carbon farming to add value to existing livelihood systems, it is important that a clear understanding is gained of the existing crop and livestock production arrangements. This being mainly a coffee growing area, the shortage of land is likely to push farmers to intercrop coffee with both perennial (especially bananas) and annual crops (e.g. beans, maize, cassava etc).

## C3 Existing Community Structures

The project works with established community structures to mobilise farmers and enable ongoing monitoring of *plan vivos*. It is through these community structures that participating farmers are able to receive training and to attend workshops to identify forestry activities that are suitable to their needs. Each community group has a leadership structure, a constitution and farmer coordinators at sub-county and parish level (depending on the number of farmers in a group). The leadership structure also provides for members that represents marginalized groups mainly women, youth, elderly and disabled.

The project works with Community Based Organisations (CBOs) where they exist and it facilitates the formation of new ones where they do not. The project has for example facilitated the negotiation and continues to support the implementation of ten CFM agreements between the National Forest Authority and the communities around Budongo and Bugoma CFRs. In addition, the project supports the implementation of CFM agreements facilitated by other partners (e.g. WWF in Kalinzu CFR) and it also assisted the formation of two CLAs for the management of communal forests while several others are in process of being formalised. Through the establishment of effective social institutions, the project promotes social cohesion among rural smallholders.

## C4 Land Tenure & Ownership of Carbon Rights

The size of a household's land estate and the mode of ownership exercised over the land are key functions of the land use strategies implemented by the household members. Security of land tenure is one of the key considerations for the development of a sustainable land use project of this type, principally because there needs to be a long-term commitment by the landowner to have land under a stable forestry system for a number of tree rotations. The project sites are therefore partly selected based on the availability of land (both State Forest Reserves and privately owned). Besides land availability,

the targeted districts have relatively secure land tenure systems.

For every site that the project has extended to, a socio-economic survey has been conducted where the land ownership characteristics of sampled households is examined. Generally, farmers enjoy sufficient security of tenure enshrined in the prevailing customary land tenure system. Registration of land, however, is not regarded as vital for consolidating tenure and proof of ownership over land is limited to less formal documentation rather than official land titles. The ability to demonstrate these long-term rights will be one of the major determining factors for all the districts the project is expected to cover. The project works with local leaders as well as clan heads in dealing with land issues as they are involved in the process of proving land ownership and, in fact, these leaders can determine the farmers' ability to commit to long-term land use.

Inheritance is the main form of land acquisition in the majority of project sites. For example, during the socio-economic assessments in Northern Uganda and in the Mt. Elgon Region, 94% and 80% of the respondents respectively indicated that they had acquired their land through inheritance. For Rubirizi and Mitooma, however, there seems to be a split between purchasing (23%) and inheritance (21%). The project will ensure that each participant is able to demonstrate long-term ownership/rights of their land under management. This will be evidenced by documents such as a purchase agreement, a land title or a certificate of customary ownership. In addition, a local leader (political head of the village in the Albertine Rift or clan heads in Mt. Elgon and Northern Uganda) will give their consent or confirm that the land belongs to the applicant.

## Part D: Project Interventions & Activities

### D1 Summary of Project Interventions

#### D1.1. Ecosystem restoration

The project works with local communities to invest in activities that will assist the recovery of degraded ecosystems, focusing mainly on forests outside Protected Areas as well as sections of Forest Reserves. In regards to Forest Reserves, the project will target areas where communities have entered into co-management arrangements with the NFA. In contrast, for forests outside Protected Areas, the project will focus on increasing buffer zones as well as improving the management of pockets of forests that provide connectivity between the various Protected Areas (biodiversity corridors). Initiatives under this intervention will seek to restore degraded forest by planting and/or by Assisted Natural Regeneration (ANR) processes.

#### D1.2. Ecosystem rehabilitation

“Improved Land management” through agroforestry is the main intervention of this programme. Nevertheless, activities that prevent ecosystem conversion or degradation, also known under the banner “REDD+” are likely to be included at a later stage.

### D2 Summary of Project Activities for Each Intervention

Table 4: Description of Project Activities

Description of activities				
Intervention type	Project Activity	Description	Target group	Eligible for PV accreditation
<b>Improved land management</b>	Agroforestry	Intercropping trees with crops	Smallholder Farmers	Yes
<b>REDD+</b>	Improved Forest Management	Community-led Forest Boundary maintenance & forest fire control coupled with regulated access for sustainable firewood, building poles and so on together with agricultural containment, & enterprise development	Community Group	Yes, although subject to tech spec being formalised and approved
	Assisted Natural Regeneration	Enrichment planting and protection of natural regeneration of native species		
<b>Supporting Activity</b>	Sustainable Livelihoods	Establishment of sustainable enterprises focusing on improved coffee production, apiculture, and women’s cooperatives	Community Groups	No
<b>Supporting Activity</b>	Capacity Building	Socio-economic and biodiversity assessment survey	ECOTRUST, Community Groups	No
<b>Supporting Activity</b>	Strengthening Governance	Trainings to support internal governance structure	ECOTRUST	No
For each intervention eligible for PV certification, a technical specification is included in Part G. Several project activities may contribute to a single project intervention.				

### **D3 Effects of activities on biodiversity and the environment**

This carbon sequestration project is targeting those areas that were formerly forested and that have been transformed into farmland over the several decades. The project seeks to promote the growing of Uganda's indigenous tree species in order to contribute to their conservation. Special attention will be given to the species whose populations and genetic variety has been greatly reduced by the overexploitation of forest resources. The project will be promoted in locations neighbouring protected areas to provide an alternative source of wood and thus to reduce pressure on them.

The targeted Districts have several protected areas in the form of CFRs (e.g. Agoru Agu in Kitgum, Mobuku in Kasese, Kasyoha – Kitomi, Kalinzu, and Maramagambo in Bushenyi, Bugoma in Hoima and Budongo in Masindi), National Parks (Queen Elizabeth, Rwenzori, Mt. Elgon, Murchison Falls National Parks) as well as communal forests, which are the main source of hard wood timber in Uganda. These forests are experiencing tremendous degradation due to over-exploitation. It is hoped that incentives (typically payment for carbon sequestration) for increasing tree cover in this area will contribute meaningfully to the conservation of the forests and maintenance of their several ecological functions, such as biodiversity, watershed service and so on.

As a result of their position in the landscape, riverine forests play a disproportionately large role compared to their size in the ecosystem and, specifically, this role consists of protecting the water quality of rivers from the disturbance in upland ecosystems and of serving as wildlife corridors that sustain important species. The targeted forests offer protection to many local streams, rivers, and lakes (including Lake George, a Ramsar site) and they reduce siltation of major waterways, which in turn protects important lake fisheries.

In sum, the project's tree planting activities contribute to soil conservation, while the use of native species will also underpin habitat restoration and protection of rural Uganda. Furthermore, by increasing tree cover, the project contributes to the improvement of watershed functions. Specifically, the project is generating, the following biodiversity and environmental benefits

- Promotion of indigenous tree species, the expansion of native biodiversity islands and corridors
- Restoration, protection and management of degraded and threatened ecosystems
- Improved protection of protected areas through provision of alternative sources of hardwood timber and wood fuel, typically firewood.
- Regulation of micro-climates
- Water purification
- Soil stabilisation and improved moisture retention on slopes

## Part E: Community participation

### E1 Participatory project design

The project works with established community structures to mobilise farmers and to enable the on-going monitoring of *plan vivos*. Participating farmers receive training and attend workshops to identify forestry activities that are suitable to their needs. The project uses these workshops to ensure that each participating household submits an application freely and based on the information delivered at these events. Applications are received throughout the year to allow each individual farming household to join the project as and when they are ready to participate.

Thanks to all the farmers' organisations the project supports and their regular meetings, the communities have also been able to make use of a forum to discuss and come up with collective ideas to tackle business challenges. For instance, the Bunyaruguru carbon group that has created a Beekeepers Association, is now processing, branding and marketing their honey as 'Escarpment Honey'. The group's approach has proved to be a very successful model that other groups, such as fruit growers, processors of medicinal extracts, or milk producers could learn from, especially in terms of marketing strategies and building knowledge of how to access national markets.

### E2 Community-led implementation

#### E2.1. Registering Project Participants

Households that wish to join the project fill out a simple application form accompanied by their *plan vivo* (hand drawn map of how farmers would like to use their land- see Appendix 5, page 57 for examples of *plan vivos*). Communities who wish to participate in the project activities are required to show proof of land ownership that is consistent with the national legislations of the Government of Uganda. Proof of land ownership can be in the form of land title, purchase agreement, proof of inheritance, customary ownership or any form of acceptable evidence of land ownership from the local leadership, all in line with the national legislations of the Republic of Uganda.

Through community group meetings, the project provides an opportunity for producers to meaningfully participate in the decision-making process of the project so as to select activities that suit their livelihood needs. The project also holds regular meetings with the participating communities jointly organised in local CBOs in order to receive suggestions on how to improve the project's management.



Figure 7: Programme Coordinator Facilitating a Community Consultation Meeting in Kasese

### **E2.2. Assessment of *plan vivos* (land management plans)**

The programme assesses *plan vivos* to ensure that they meet the requirements of the respective Technical Specifications. The activities described in the Technical Specifications are only eligible for smallholder farmers or communities with land where tree planting (woodlot, boundary or dispersed inter-planting) is possible or where community have some form of long-term user rights to a forest.

In the case of agroforestry interventions, each applicant must have land within the project boundary and must demonstrate that the project activities will not adversely impact food security (subsistence activities), mainly agricultural production. Moreover, the clearance of forested land to gain eligibility leads to an automatic disqualification from participating in the project. Each application is therefore accompanied by an improved land management plan (*plan vivo*), indicating the areas where tree planting and the rest of the agricultural activities will take place.

The *plan vivos* are reviewed by ECOTRUST's field staff to guarantee that what is stated in each application has been faithfully described by the farmer or community organisation. This exercise involves physical visits to the fields/plots to establish whether the information stated in the application is correct. During the field visit, the land to be planted is measured using GPS devices and the details of its location are registered. The project has developed a Facilitators Manual to guide field technicians with the verification of the information provided by the applicants.

### **E2.3. Allocation of Finances to *plan vivos***

Once farmers are registered with the project, they can then enter into sale agreements that specify the

amount of carbon that they will sell together with the terms and conditions of the monitoring activities. Payments are based on the amount of carbon each household has generated from the implementation of the project's activities. Even when farmers are recruited through community groups, each participating household submits their own application and, therefore, enters into an individual agreement.

Where the project activities are targeting a community-owned resource (for instance Improved Forest Management), the community group agrees on the most equitable benefit-sharing model that can appropriately remunerate all the stakeholders involved in the project. This is achieved through the creation of a Communal Land Association (CLA) that specifically determines how a farmer can participate in the project. The CLAs are encouraged to develop their own forest management plan and to acquire a title of communal ownership as well as developing constitutions that provide guidance on benefit sharing. For instance, the pilot CLA of Ongo used choice experiments to define the appropriate benefit sharing agreements.

### **E3 Community-level project governance**

This is a cooperative community-based carbon offsetting scheme in which, through workshops, community members define activities that are technically specified by the project. Communities participate on different levels of project management including benefit sharing, project improvements and expansion, monitoring and so on. In addition to defining how benefits are shared, communities also identify ways through which the wider community where the carbon farmer lives would share the carbon income. This is achieved through the identification of projects to be supported under the Community Carbon Fund (CCF) (*please refer to Section H: Risk Management of this document for more information about the Community Carbon Fund*). Examples of this include the establishment of a revolving fund to support investments in additional income generating activities, such as apiculture and animal husbandry, or direct financial support for community-owned infrastructure, typically schools, bridges, hospitals and protection of water springs.

Moreover, each community group is responsible for identifying their leaders, who are then trained to be able to explain the project's ambitions as well as its benefits and to recruit farmers for the project. The group leaders act as intermediaries or point of contact between the project and the community so that participating farmers are able to voice any concerns they may have about the project.

Moreover, the project's grievance mechanism includes focus group discussions with the project beneficiaries that specifically stimulate constructive conflict resolution. The issues raised during these meetings are recorded in the Annual Report (See: [www.planvivo.org/project-network/trees-for-global-benefits-uganda](http://www.planvivo.org/project-network/trees-for-global-benefits-uganda)) and incorporated into the following year's work plan if deemed necessary by the communities.

In addition, each individual farmer has the phone number of their project field coordinator, the project's finance and programme managers as well as the Executive Director. Farmers are encouraged to reiterate their complaints if they feel that their issues have not been appropriately addressed.

## Part F: Ecosystem Services & Other Project Benefits

### F1 Carbon benefits

**Table 5** below describes the carbon benefits associated with the project for each Technical Specification, in addition to describing some Technical Specifications that the programme is intending to develop in the future. As of May 2020, only the “Woodlots – *Maesopsis eminii*- AFM-TB01” and the “*Mixed Native Species*” Technical Specifications have been approved by the Plan Vivo Foundation. However, the *Woodlots – Maesopsis eminii*- AFM-TB01 technical specification is no longer being applied to new farmers and the *Mixed Native Species* Technical Specification has undergone one major update event:

- ***Maesopsis Eminii*** – Original Technical Specification (applied until 2014 vintage)
- ***Mixed Native Spp.*** – Ver1 Approved 1<sup>st</sup> April 2016 (applied until 2018 vintage)
- ***Mixed Native Spp.*** – Ver2 Approved 1<sup>st</sup> April 2020 (applied from 2019 vintage onwards)

Therefore, only the Mixed Native Spp. Ver2 technical specification is being applied to generate new Plan Vivo Certificates (PVCs).

Table 5: Summary of Baseline and Project Carbon Uptake

Summary of baseline and project carbon uptake or emissions reductions per hectare over crediting period					
Title of Technical Specification	1 Baseline carbon uptake/ emissions (tCO <sub>2</sub> e / ha)	2 Carbon uptake/ emissions reductions with project (tCO <sub>2</sub> e / ha)	3 Carbon Potential (tCO <sub>2</sub> e / ha) = (2-1)	4 Deduction of risk buffer (tCO <sub>2</sub> e / ha)	Net carbon benefit (tCO <sub>2</sub> e / ha) = (3-4)
Woodlots – <i>Maesopsis eminii</i> - AFM-TB02-01	0	225.1	225.1	22.51	<b>202.59</b>
Mixed Native spp Woodlot Ver1- Approved July 2016, applied until 2018	16.68	255.51	238.80	23.88	<b>214.92</b>
Boundary Planting with Mixed Native spp Ver1 – Approved July 2016, applied until 2018	16.68	81.95	65.24	6.52	<b>58.72</b>
Dispersed Inter-planting with Mixed Native spp Ver1 – Approved July 2016, applied until 2018	16.68	187.10	170.40	17.04	<b>153.36</b>
Mixed Native spp Woodlot Ver1- Approved April 2020	16.68	276.59	259.91	25.99	<b>233.92</b>
Boundary Planting with Mixed Native spp Ver1 – Approved April 2020	16.68	109.76	93.08	9.31	<b>83.77</b>
Dispersed Inter-planting with Mixed Native spp Ver1 – Approved April 2020	16.68	213.60	196.91	19.69	<b>177.22</b>
Fruit orchards (mango, avocado, jackfruit) <i>not yet developed</i>	To be determined	To be determined	To be determined	To be determined	To be determined
Agro-forestry with <i>Grevillea robusta</i> <i>not yet developed</i>	To be determined	To be determined	To be determined	To be determined	To be determined
Improved Forest Management: <i>not yet developed</i>	To be determined	To be determined	To be determined	To be determined	To be determined

### F2 Livelihoods benefits

The project has significant ancillary benefits beyond carbon sequestration. **Table 6** below provides an

analysis of the social, economic and environmental benefits of the project.

Table 6: Livelihoods Benefits

Livelihoods benefits							
Food and agricultural production	Financial assets and incomes	Environmental services (water, soil, etc.)	Energy	Timber & non-timber forest products (incl. forest food)	Land & tenure security	Use-rights to natural resources	Social and cultural assets
Increasing yields	PES	Improved soil management,	Fuel wood production	Timber production	Ownership Documentation	Access rights to Protected Areas	Effective social institutions
Diversification of food types		Improved water retention	Renewable energy	Fruit production	Communal Land Associations		Social Cohesion
Land use planning	Access to markets	Slowed runoff	Improved cook stoves	Honey production	Titles of Communal Ownership		Increased visibility
	Employment	Soil stabilisation		Medicinal extracts	Live Boundary markers		

The project has also allowed local communities to gain better access to affordable capital for climate smart investments in small-scale enterprises. For the ease of distributing funds to the project beneficiaries, each carbon farmer joins a local village bank through the purchase of shares. The carbon revenue derived by the sales of PVCs is then used to capitalise the village bank and the regular payments help provide funds for loans already disbursed to its members who are also project participants. At the end of every year, each member receives dividends and, most importantly to the farmers, the carbon sale agreement can be used as collateral to acquire new loans. Subsequent carbon payments are then used to pay down these loans.

### F3 Ecosystem & biodiversity benefits

Table 7 below explains the ecosystem and the biodiversity benefits associated with each Technical Specification. The project's main environmental benefits can be divided into four main categories: biodiversity impacts derived from the planting of indigenous species that support a variety of insects and small mammals, watershed benefits, increased soil productivity and other, typically climate change adaptation strategies.

Table 7: Summary of Expected Impacts of Project Activities on Key Environmental Services

Title of technical specification	Expected Impacts			
	Biodiversity impacts	Water availability/watershed impacts	Soil productivity/conservation impacts	Other
All Agroforestry Technical Specifications	<ul style="list-style-type: none"> <li>Improved conservation of Uganda's native trees</li> <li>Increased on-farm tree diversity and coverage</li> <li>Reducing pressure on natural resources in protected areas</li> </ul>	<ul style="list-style-type: none"> <li>Reduced siltation in key water bodies</li> <li>Improving management of wetlands of international importance (Ramsar Sites E.g. Lake George &amp; Rwenzori Mountains)</li> </ul>	<ul style="list-style-type: none"> <li>Improved water retention</li> <li>Reduced runoff, leading to reduced soil erosion</li> <li>Soil stabilisation especially in the hilly project sites prone to mud slides</li> <li>Improved soil nutrient</li> </ul>	<ul style="list-style-type: none"> <li>Climate change adaptation, through improved land-use plans</li> <li>Support to community ecosystem – based adaptation plans</li> </ul>

<b>Improved Forest management</b>	<ul style="list-style-type: none"> <li>• Improved management of Key Biodiversity Areas (Endemic Bird Areas, Important Bird Areas, World Heritage Sites, Biodiversity Hotspots, Man &amp; Biosphere Reserves)</li> <li>• Improved connectivity between protected area</li> <li>• Improved conservation of key bird and animal species</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced siltation in key water bodies, which in turn protects important lake fisheries</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced runoff, leading to reduced soil erosion</li> </ul>	
-----------------------------------	---	--	---	--

## Part G: Technical Specifications

The project is currently focusing on the implementation and development of agroforestry systems of mixed native and naturalized tree species on smallholder lands, as well as improved forest management for community forestry. A number of technical specifications for agroforestry interventions, mainly involving the **planting of native and/or naturalized hard wood and fruit tree species** on private land have been described.

The communities are currently planting native trees such as *Maesopsis eminii*, Mahogany (e.g. *Khaya anthotheca*), *Melicia excelsa* and *Terminalia spp.* Fruit trees include Jackfruit, Avocado and Mango. The farmers choose the desired farming system that they would like to use in their individual *plan vivos* (management plans). Currently, there are two approved options: *Maesopsis eminii* woodlots or *mixed native* systems, however, since 2015, the *Maesopsis eminii* woodlots have no longer been an option for new participants. Improved forest management, on the other hand, is targeting community forests that are outside the Protected Area management system. Below is a summary of the agroforestry systems that have been, or are, in the process of being described:

- **“Woodlots of *Maesopsis eminii* (AFM-TB02-01f)”** - This system involves at least 60% of plots planted with the tree species *Maesopsis eminii*. The remaining 20% comprises several native species such as Mahogany (e.g *Khaya anthotheca*), *Melicia excelsa* and *Terminalia spp.*, as well as fruit trees, typically Jackfruit, Avocado and Mango.
- **“Agroforestry Dispersed Interplanting with at least 70% *Grevillea robusta*” (not yet developed)** - *Grevillea* spp. is the main species recommended for this planting system. Other than being used for the sustainable extraction of timber, the communities have the option of using the small branches/stakes of this species as a support for climbing plants such as beans. In some farms currently under management, *Grevillea* spp. has been pollarded for this purpose.
- **“Agroforestry with Mixed Native Woodlots/Dispersed Interplanting/Boundary Planting of, *Grevillea robusta*, *Prunus Africana*, *Khaya anthotheca*, *Croton macrostachyus*, *Funtumia elastica* *Ficus* spp, *Cordia millenii*, *Terminalia superba*, *Maesopsis emini*, *cedrella ordorata*, *Zanthoxylum gilletii* (*Fagara macrophylla*) and fruit trees (*Autocarpus heterophyllus*, *Persea americana* and *Mangifera indica*) under three planting systems: *boundary*, *dispersed interplanting* and *woodlot*”.** *Grevillea robusta* and all fruit species are naturalized exotic species, while the rest are native to Uganda. This system is principally applied on the bare hills in Rubirizi, Mitooma, Rwenzori and Mt. Elgon project areas.
- **“Alley Planting with *Albizia* spp, *Grevillea* and *Cordia* spp.” (not yet developed)** - This is possible across hilly slopes/terrain. This system will have several advantages for the communities and the environment at large. It will reduce run-off, acting as wind-breaks and also enhancing agricultural yields brought about as a result of the maintenance and increase in soil fertility. This can also be applied for boundary planting.
- **“Shade Coffee Agroforestry” (not yet developed)** – Local communities especially in the Mt. Elgon region have expressed a particular interest in this agroforestry system. However, preliminary findings from the assessment indicate that the coffee farms seem to be already saturated with trees (average of 124 trees coffee shade trees per farm). Nevertheless, the project will conduct further investigations to understand the effect of increasing trees in the coffee farms.

Details of each separate technical specification can be found at [www.planvivo.org/project-network/trees-for-global-benefits-uganda/](http://www.planvivo.org/project-network/trees-for-global-benefits-uganda/).

## Part H: Risk Management

Risk falls into three different categories for this project, namely: **internal risks** (e.g. project management capacity or financial viability), **natural risks** (e.g. occurrence of fires, pests and disease), and **external risks** (e.g. land tenure conflict). The external and internal risks stem from several factors and can include an inadequate understanding by farmers of the concepts of transacting carbon and carbon sequestration, to the lack of land tenure rights or rights to forest resources and even an inadequate grasp of the positive implications for local livelihoods derived from long-term resource management plans. The project has therefore invested in the process of identifying potential issues or “friction” points and designed strategies to deal with these. Through consistent work planning, a clear reporting structure and risk assessments conducted by the ECOTRUST Board of Trustees, the organisation is able to identify changes in the risk profile and as such devise means to first avoid such risks, or if this is not possible, to mitigate these risks (see **Table 8**).

There are four main risk management strategies to reduce the risk of failure to delivery on the part of the farmers:

- The project contributes 10% of its generated carbon credits to the Plan Vivo pooled “non-permanence” buffer. If a “force majeure” event occurs, beyond the control of the project, it is possible to make a claim on the Plan Vivo buffer and, permanently cancel a number of buffer credits equivalent to the reduction in overall carbon benefits.
- The second strategy demands that the approval of each individual *plan vivo* be prior to the “Intent to Purchase” (i.e. before securing the farmer) agreement together with the requirement to achieve at least 40% of the planting threshold before entering into a binding contract. In practice, this means that each farmer must have already planted 40% of its *plan vivo* before being effectively accepted to the project, and is supported to do so by ECOTRUST.
- The project’s third strategy to deal with the risk aims at matching supply with demand. Where possible, the project enters into long-term purchase agreements that specify the estimated demand for each year and so is able to mobilise in advance to meet demand. Moreover, the project engages buyers and brokers early in the year to give an indication of what their potential demand for the given year is going to be. At the same time, the results of the first planting season in the month of March before any buyer contracts are signed gives an indication on how farmers’ performance that year is likely to be. Thus, thanks to this regular active communication with buyers and sellers, the project is able to manage buyers’ expectations with farmer’s performance so as to effectively match supply with demand. In addition, the project has established a “Revolving Fund”, which is used to purchase carbon credits from some farmers in advance of identifying buyers.
- ECOTRUST has established two different Funds that act as risk management tools and that overall decrease the threat of non-delivery associated with the project.
  1. The **Community Carbon Fund** (CCF) –This fund represents a kind of self-managed insurance scheme to support farmers that may be disproportionately affected by natural disasters. The Fund uses 10% of each farmer’s revenue generated by the sales of Plan Vivo Certificates (PVCs) to recruit substitute farmers where farmer dropouts or other Business As Usual (BAU) losses create a deficit in the project’s carbon stocks. Please, refer to PART H (Risk Management) of the Technical Specifications for more details regarding the Community Carbon Fund.
  2. The **Endowment Fund** – which is then subdivided in to the **PES Fund** and **Carbon Fund**. The PES Fund is a donor-financed fund that allows farmers to receive payments for Non-Carbon Benefits (NCBs), typically biodiversity and watershed services, and for Ecosystem-

Based Adaptation (EBA) strategies. The PES Fund complements the sales of carbon credits and, for farmers, it represents an extra sources of income linked to the project activities. The other component of the Endowment Fund is the Carbon Fund. The Fund is used to recruit new farmers and to pay them while a new Technical Specification is in the process of being approved by the Plan Vivo Foundation. This way, the project is allowed to expand and, when finally approved, the money generated by the sales of Plan Vivo Certificates under the new Technical Specification is then used to recapitalise the Fund. Consequently, the risk of failure is shifted to the Carbon Fund and not to the overall project risk.

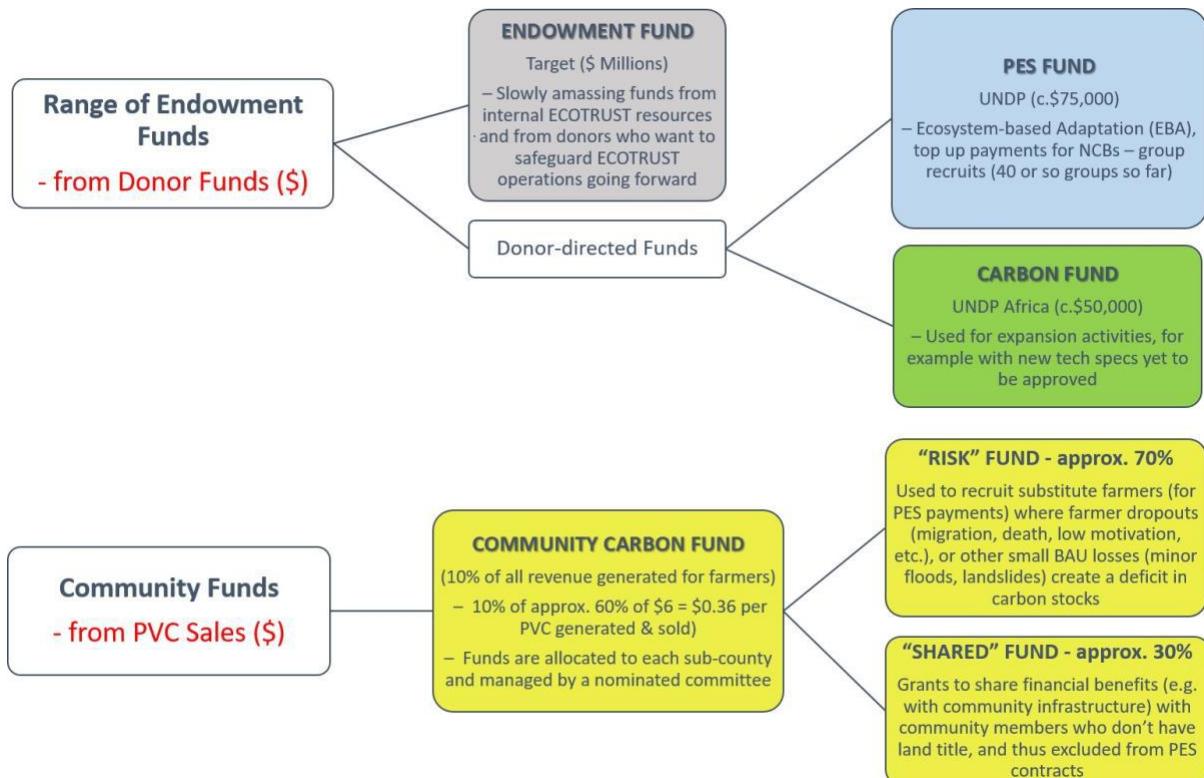


Figure 8: Structure of Funds Associated with the Project

A summary of risks to the delivery of ecosystem services and to the sustainability of project interventions is in provided in **Table 8**. These risks will be reviewed at least every 5 years when the PDD is revised.

Table 8: Factors that Put the Delivery or Maintenance of Climate Benefits at Risk

Risk factor and risk level	Potential impact	Mitigation	Likelihood
Social			
Low <b>Land tenure and/or rights to climate benefits are disputed</b>	<b>Low</b> The activities of these technical specifications are taking place on small private landholdings (0.5 to 1ha). Failure to verify the rightful owner may lead to disputes resulting in the relinquishment a particular piece of land but not the entire project.	The contract refers to the land where participating farmers are resident and have recognized land tenure rights in accordance with the Land Act. Farmers are allowed to transfer land (either through sale or bequeathing) and the new owner takes on the carbon rights and responsibilities.  Land that has any disputes at the time of contract is not admissible into the project. In the past, when disputes have occurred (e.g. the son who inherits lacks interest in	<b>Low</b> The traditional ways of verifying ownership (purchase agreements, titles, letters from clan heads, etc), which involves the endorsement of the local council leadership, is an effective way of verifying ownership.

	<p>Where the tech specs are applied on public land, farmers must have licences from the NFA that grant them the rights to the trees and all the products and services (including carbon) to cover the entire duration of the tech spec.</p> <p>There is, however, a possibility of the farmers not adhering to the conditions of the licences, which may cause the NFA to suspend their activities.</p>	<p>the project), local authorities were able to get the concerned party to refund any payments disbursed and a new farmer is identified to replace the lost carbon.</p> <p>In the event that the new owner is not able to pay, the project uses the CCF – a self-managed risk fund to find alternative land to replace the lost carbon.</p>	<p>The NFA land is a very small fraction of the project. Moreover, it is unlikely that a farmer that has received sufficient information &amp; is regularly monitored will divert from the appropriate land use.</p>
Low <b>Political or social instability</b>	<p><b>Low</b></p> <p>Project activities may widen the gap between the 'have' and 'have not' causing friction among community members. In addition, neighbours may have boundary conflicts.</p> <p>This may lead to malicious acts, which may result into reversals being very localised (e.g. 1 out of 4,000ha).</p>	<p>Technical specifications have been designed to benefit the entire community e.g. by accommodating even those with the smallest of land (boundary planting). The project also involves landless people in other income generating activities e.g. nursery activities &amp; provision of casual labour (slashing, weeding). In addition, through the CCF, the benefits are shared through support to community projects.</p> <p>Participating farmers are advised not to plant their trees too close to their neighbours' land.</p> <p>The local authorities, responsible for handling (land) disputes are part of the farmer recruitment / land ownership verification process.</p>	<p><b>Low</b></p> <p>Due to benefits the project brings to the participating and non-participating communities, incidences of malicious damage are minimal. Disputes are usually between not more than two people and can be resolved before it escalates into more serious acts e.g. arson.</p>
Economic			
Low <b>Insufficient finance secured to reward farmers.</b>	<p><b>Low</b></p> <p>The project makes no direct investment in tree planting activities. It focuses on rewarding performance. Although the ex-ante sale of certificates guarantees that there are sufficient funds to reward farmers, sometimes the project is not able to match supply with demand. Without sufficient finance from the sale of environmental services, it will not be possible to execute performance-based payments.</p>	<p>In most cases, the farmers are only recruited into the project when buyers have been confirmed. The buyers are required to transfer the funds in advance to a Plan Vivo Escrow Facility. These funds are released to the project as soon as certificates are issued.</p> <p>The project has a revolving fund that is used to purchase the extra Plan Vivo certificates from farmers. These are later sold on the market to recoup the investment and expand participation.</p>	<p><b>Low</b></p> <p>By managing the expansion of project areas in line with available finance, and using the Carbon Fund as a hedge for any unsold carbon ensures that there is sufficient funds to reward all participating farmers.</p>
Low <b>Alternative land uses become more attractive to the local community</b>	<p><b>Low</b></p> <p>Income from another land use commodity may become more attractive than tree planting and some farmers drop out from the project.</p>	<p>The project seeks to integrate tree planting as a livelihood strategy complimentary to other land use options.</p> <p>The carbon payments together with the multiple short, medium and long-term environmental benefits enable tree planting to compete favourably because farmers</p>	<p><b>Low</b></p> <p>Project activities are designed to add value to other land-use options.</p>

<p>have very few reliable sources of income. It is mainly the income from the sale of environmental services that allows them to engage in other revenue-generating activities.</p> <p>Farmers are allowed to use their carbon agreements as collateral for loans to fund other revenue-generating activities when they don't qualify for carbon payments (if they don't achieve their performance-based targets).</p> <p>In the event that some farmers drop out of the project, the CCF is then used to support planting by another farmer.</p>			
<b>Environmental</b>			
<b>Low</b> <b>Fire</b>	<p><b>Low</b></p> <p>Slash and burn, which is the main source of controlled fire, is practiced on sugarcane farms as well as in protected areas by encroachers. In addition, controlled fires are applied as a management tool in savannah national parks. Therefore, it is possible that some communities that live in close proximity to slash-and-burn areas may have their farms affected. However, the potential impact is minimal since this kind of fire is infrequent and localised to a very small fraction of the project area.</p>	<p>One of the objectives of the project is to reduce threats to deforestation and forest degradation. Joining the project is a form of reward for reduction in forest encroachment and thus reduction in forest fires.</p> <p>The project trains farmers in fire management techniques such as the use of fire lines and the planting of fire resistant trees on the outside boundary of plots in order to reduce the extent of fire destruction. Food crops intercropped within tree farms also form fire lines for scattered smallholdings.</p> <p>In addition, the project has a CCF, which is a self-managed risk fund used to support farmers affected by fires with seedlings to replace the lost trees.</p>	<p><b>Low</b></p> <p>If forest management techniques are correctly implemented, then the probability of this threat is very low.</p> <p>Moreover, the CCF supports any replacement of lost carbon due to fire. TGB is now in its 12<sup>th</sup> year and, on average, the project receives less than ten (10) farmers a year who claim support to replace lost trees due to fire.</p>
<b>Low</b> <b>Pest and disease attacks</b>	<p><b>Low</b></p> <p>In the 12 years of the project's existence, this threat has been very localised (about 10 of the 2,000 or so farms monitored in a year) and mainly involving termites and viral infections. Well-managed farms usually easily recover from these attacks.</p>	<p>Farmers are assisted in the assessment and selection of the quality of seed and seedlings that can resist insect as well as pest attacks. The planting of indigenous trees that are well adapted to local conditions coupled with the application of proper silvi-cultural practices in pruning, the applications of local organic manure, and the planting of mixed native species have all assisted in containment of this threat.</p>	<p><b>Low</b></p> <p>The risk of pests and diseases is ever present, but with proper silvicultural practices, these can be well confined.</p>
<b>Low</b> <b>Extreme weather or geological events</b>	<p><b>Low</b></p> <p>The project sites experience moderate drought but, with changing weather patterns, the threat of drought is becoming more likely especially in the long-term. In fact, the planting of trees on farms is partly a strategy to make these farms more resilient to more extreme</p>	<p>Farmers are required to plant trees at the beginning of the rainy season to maximise on the rains. The project ensures that all the training, recruitment, nursery and field preparations take place well before the start of the rainy season.</p> <p>In addition, the performance-based payments require farmers to replant all trees affected by drought. Farmers use Year 2 of their management plan as a gap-filling year and, if they do not achieve the 85% survival rate by the third year as indicated in the</p>	<p><b>Low</b></p> <p>The likelihood of occurrence of landslides still exists and its impact will undoubtedly be severe for those few affected farmers. Compared to the size of the project, the area likely to be affected is very minimal and all the lost carbon will be</p>

	<p>weather conditions (such as drought) by improving the soil water retention.</p> <p>There is also threat of floods and mudslides at a very localised scale, particularly in the mountains. Landslides are now occurring more frequently than in the past (every 2 to 3 years even though they have not yet affected the farmers involved in the project).</p>	<p>technical specifications, they are not paid. Where farmers are disproportionately affected by these extreme weather conditions such as drought, the Community Carbon Fund (CCF) is used to support the replanting of the lost trees.</p> <p>The government has been trying to relocate people from the most landslide-prone areas and tree-planting will only take place in less fragile sites (who are not earmarked for relocation). In sites where trees are indeed planted, a soil stabilisation management action is applied in order to make the communities less prone to the landslides.</p> <p>If the risk potential increases, these sites will be eliminated from the project, but general support for tree planting as adaptation strategies will continue through the project's CCF. Typically, the lost farms will be replaced with farms from less prone areas, thus replacing the lost carbon.</p>	<p>replaced. This is therefore a low risk.</p>
<b>Technical</b>			
<b>Low/Moderate</b> <b>Project activities fail to deliver expected climate benefits</b>	<b>Low/Moderate</b> If modelling results are inaccurate, climate benefits may be overestimated even though significant bias is unlikely. The risk of bias is higher for project areas where local parameters are not used for modelling expected climate benefits.	The modelling approach used to estimate climate benefits includes adjustments to account for uncertainty.	<b>Low/Moderate</b> The likelihood that estimated climate benefits are significantly overestimated is low because locally derived parameters were used for the project's carbon model. However, if parameters are not locally-derived, then their related uncertainty cannot be properly assessed and, thus, the likelihood of bias will increase to a moderate level.
<b>Low</b> <b>Project activities fail to deliver expected livelihood benefits</b>	<b>Moderate</b> If project activities are not successfully implemented, the expected livelihood benefits may not be fully realised.	<p>The entire technical specification is designed as a livelihood strategy, where farmers are consulted and land use options are created to fit into the farmer's livelihood plans. In addition, each farmer is trained to develop a land use/business plan, with a specific management objective. The carbon income is delivered to the farmers in cash to facilitate the execution of the business plan. Moreover, farmers can use their carbon agreement as collateral for loans.</p> <p>Farmers are mobilised into groups that support market access for their products (fuel wood, honey, medicinal extracts, fruits etc.).</p> <p>The project also raises the visibility of participating farmers with other development partners to support the achievement of their management objectives. The project also plans to support</p>	<b>Low</b> It is unlikely that the combination of direct payments, non-cash benefits in the form of capacity building, extension service provision, financial inclusion and market access will not result into the expected livelihood benefits.

<p>farmers to get access to sustainable timber markets.</p>			
Low <b>Technical capacity to implement project activities is not maintained</b>	<b>Moderate</b> The project activities are not highly technical, can be done with household labour since they are very small scale but do require some training to support their implementation.	The project holds workshops twice a year in each community to train new and continuing farmers in tree growing. In addition, the project offers extension services as part of the project monitoring activities.  In the initial years, farmers are not allowed to register more than one hectare because this is initially considered a learning plot. They can apply for additional hectares as their capacity improves.  The performance payments enable the farmers to stick to the management guidelines.	<b>Low</b> The continuous capacity building, step-wise approach and the performance-based payments make this risk low.
<p><b>Administration</b></p>			
Low <b>Capacity of the project coordinator to support the project is not maintained</b>	<b>Moderate</b> Achieving climate benefits will require the ongoing support of the project coordinator. If this is not maintained throughout the project period, the ability of farmers to implement project activities could be undermined, especially if monitoring, capacity building activities are not sustained.	The project coordinator is a well-established financially stable local Environmental Trust with a specialisation in conservation financing. The Trust has a long history of effective project and programme management, with proven on-the-ground infrastructure to enable farmer recruitment, capacity building, monitoring and is capable of delivering payments. The corporate governance structures are well established with a highly technical secretariat supervised by a Board of Trustees selected from among Uganda's most respected conservationists from different walks of lives. The organisation has established an Endowment Fund to support conservation activities in perpetuity and is able to hire and maintain a team of highly motivated staff with a diversity of technical expertise.	<b>Low</b> Given the proven track record of the project coordinator, the likelihood that its capacity to deliver the project will be compromised is very low.

Moreover, each technical specification contains a more detailed risk analysis purposely tailored to each type of intervention. Please, refer to PART H (Risk Management) of each Technical Specification.

## Part I: Project Coordination & Management

### I1 Project Organisational Structure

ECOTRUST, the overall coordinator of the Trees for Global Benefits, acts mainly as an intermediary responsible for project development and representing the project to all third parties (Plan Vivo Foundation, Third Party Validators and buyers). ECOTRUST is also responsible for building capacity for the project implementers. ECOTRUST has an already established infrastructure and trained staff to implement the disbursement of Payments for Ecosystem Services (PES) and grants management activities. This includes a dedicated programme Manager responsible for the administration of *plan vivos* including the recruitment and the training of farmers, supervising project technicians as well as monitoring of their performance. All selected farmers apply through the field coordinator who then reports to the ECOTRUST Programme Manager. The Programme Manager is responsible for the supervision of database management and preparation of annual reports. The qualifications of the key staff currently involved in project management is attached in Annex 1, page 50.

ECOTRUST has over the years established a very valued niche in financing for conservation activities with successful programmes in PES, Corporate Social Responsibility and grants management. ECOTRUST works with small landholders to improve natural resource management while investing in programmes that increase income opportunities for the rural poor. ECOTRUST's vast experience coupled with its technical expertise in the areas of climate change and ecosystem-based adaptation, environmental services quantification, conservation financing and grants management enables a holistic approach to the implementation of the project.

ECOTRUST has a proven record in establishing market-based mechanisms for promoting ecosystem functions. This includes organizing and training farmers in land management, agroforestry, establishing community-led tree nurseries, providing upfront payments to farmers, managing performance-based payments, engaging buyers and the market in general. As testimony to its capabilities, ECOTRUST's TGB won the 2013 SEED Award particularly for its innovation and entrepreneurship, its efforts to promote economic growth, social development and environmental protection in Uganda and, not least, the potential of its partnership to inspire others. Indeed, this inspiration has driven a number of partners to sub-contract ECOTRUST to develop similar schemes for rural communities outside Uganda (Rwanda, Malawi and Tanzania).

The ECOTRUST charter permits it to lend money, own land, and oversee management of funds. ECOTRUST is committed to creating and maintaining effective mechanisms to support grant management and programming in natural resources and biodiversity conservation. Moreover, ECOTRUST's long-term sustainable financing objective presents an opportunity for a cost-effective and efficient community-based, carbon-offsetting scheme that relies on already existing initiatives of an indigenous grant-making institution.

### **11.1. Producer Participation**

All farmers are recruited by various partners through established of CBOs. The project has structures that ensure producers meaningfully participate in the decision-making of the project especially in selecting activities that suit their livelihood needs. The project holds regular meetings with the community through the CBOs. In addition, the CBOs hold regular farmer-to-farmer meetings in which various project-related issues are discussed and recommendations forwarded to the project coordinator. It is important to work with farmers who belong to an organised group for ease in administration and communication. However, each individual farmer joins the programme voluntarily and will have an individual agreement with ECOTRUST.

### **11.2. Stakeholder Participation**

The project has a general organizational structure that is modified to suit the roles of various stakeholders in the respective project sites. This partnership structure is based on the stakeholder characteristics of each specific site. For example, in Mt. Elgon, the project is a partnership between ECOTRUST and the District Local governments. The local government, mainly through its Forest and Environment Officers as well as the Community Development Officers at Sub-county level, is therefore a key stakeholder for the project implementation. In Northern Uganda, a local NGO called Tree Talk is the local implementing partner, whereas in the Albertine Rift, ECOTRUST is working directly with the farmers through their Community-based organizations. **Table 9** below summarizes the responsibilities of the various participants involved in the project.

*Table 9: Project Participants*

Participant	Type of organization	Role
<b>ECOTRUST</b>	Non-Profit, NGO incorporated as a Trust under the Trustees Incorporation Act.	Overall Project Coordinator responsible for: Capacity building for community mobilisers (CBOs e.g. Bitereko) Women's group, NGOs e.g. Tree Talk Local Government staff e.g. in the Mt. Elgon area. Processing and recording all <i>plan vivos</i> Marketing the project Identifying buyers

		<p>Negotiating carbon sales with buyers Managing a database of all credits generated and the respective buyers Recording sale agreements Administering and recording payments to producers Overseeing project improvement and development Coordinating external project monitoring i.e. Validation with the Plan Vivo Foundation, annual reporting, third-party verification Evaluating <i>plan vivos</i> Monitoring producers and reporting on monitoring results</p>
<b>Tree Talk</b>	NGO promoting tree planting in the Northern Uganda project area with emphasis on tree nurseries	<p>Registration of farmer groups Assisting development of <i>plan vivos</i> by producers Facilitating communication between ECOTRUST and farmer groups Monitoring of farmer performance Provision of seedlings and extension services to the farmers</p>
<b>Mbale, Manafwa &amp; Bududa Districts</b>	District Local Governments in the Mt. Elgon area	<p>Registration of farmer groups Assisting development of <i>plan vivos</i> by producers, Facilitating communication between ECOTRUST and farmer groups Monitoring of farmer performance Provision of seedlings and extension services to the farmers</p>
<b>Farmer Groups</b>	Community-Based Organisations	<p>Farmer recruitment Assisting farmers to set up bank accounts Monitoring</p>
<b>Short Term Technical Assistance</b>	Research Organisations e.g. NaFORRI	<p>Service provision e.g. Research Carbon modelling GIS and mapping of project area</p>

The diagram below presents the project organizational structure:

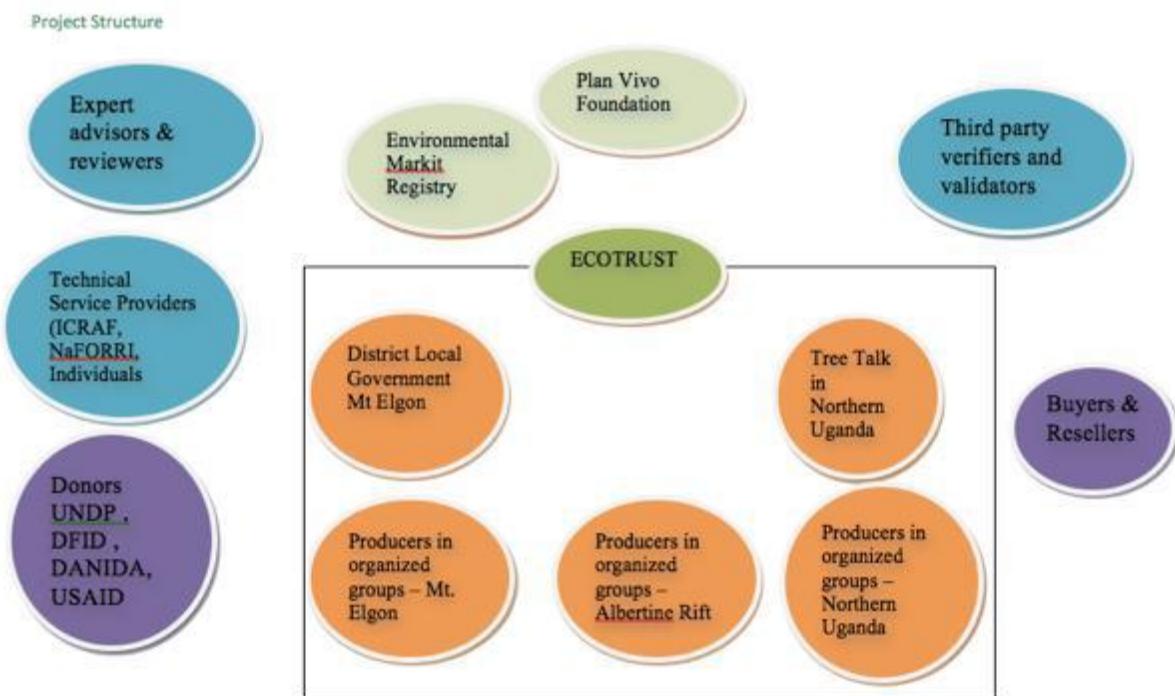


Figure 9: Organizational Structure

## I2 Relationships to national organisations

The project is working with communities that are collaborating with protected areas authorities to jointly manage natural resources. The project facilitates the development of a relationship between the

community and government agencies to enable the community to access extension services from the government agencies.

When the communities express interest in carbon on state-owned land, the approval of the state agency such as the NFA will be required. ECOTRUST has a longstanding relationship with government agencies and has facilitated negotiation of user rights for communities living around protected areas. This same process is also used by the project when activities are established on government-owned land.

## I3 Legal compliance

The bulk of the project activities take place on private smallholdings that do not require written approval from governments. However, all activities implementing improved forest management systems whether on community forests or protected areas require government approval. The project mobilises communities using guidelines for CFM and for CLAs. All communities working in Protected Areas have tree-planting licences, which also give them the rights to all goods and services accrued from the tree-planting activities, including carbon credits. For community forests, the projects support the formation of CLA, which are given titles of communal ownership as described in the Forestry and Tree Planting Act as well as in the Land Act. The CLA certificate and title form the written approval from government.

The project is based on human rights, pro-poor principles seeking to support social and financial inclusion of marginalised communities. Key strategies include the building of social capital and cohesion through the building of effective institutions as well as raising the visibility of marginalised communities to other development partners. At household level, the project supports gender equity, through land use planning processes that requires the inclusion of both the spouses and children of the household.

At institutional level, ECOTRUST is an equal opportunity, legally-constituted organisation (both registered as an NGO and Incorporated as a Trust under the Trustees' Incorporation Act). The Board of Trustees is responsible for the recruitment of staff members and their supervision in accordance with all legal requirements under Uganda's Employment Act. These include contracts with clear terms of reference, social security and the required work insurance. Members of staff are recruited on merit through an open transparent system managed by a nine-member Board of Trustees. The organisation's human resource management is guided by a Human Resource policy and strategy that are reviewed on a regular basis to match the organisation's changing needs. Under no circumstances, the project will employ persons under the age of 15.

## I4 Project management

### 14.1. Pilot Activities

Pilot project activities were initiated in 2003 with 33 farmers belonging to 3 established groups of farmers in the Kiyanga, Bitereko Kichwamba and Ryeru sub-counties of the Bushenyi District. These were small-scale landholder farmers with an average of 2-5 ha of land. The focus was mainly on agroforestry systems and small-scale woodlots to improve income, to provide increased access to fuel wood and building materials, and to reduce deforestation pressures. The activities in the pilot sites are mainly based on one technical specification "**Woodlots of *Maesopsis eminii* – (AFM-TB02-01)**". This system demands that at least 60% of land under management by any single farmer be planted with one tree species namely *Maesopsis eminii*. The carbon benefits of the invention are calculated ex ante, over a 20-year crediting period.

### 14.2. Activities for Scaling Up

The aim of the project was to establish 5,000 ha over the first 10 years of the project. The sequestration potential of project activities is approximately 900,000 tCO<sub>2</sub>e generated within 20 years of the establishment of the woodlots. The expansion of the project to new areas such as the Mt. Elgon region

has resulted into the design of new project activities listed in

Technical Specifications. In addition, the project is planning the following activities:

- **Afforestation on forest reserve land by farmers:** The project plans to expand through supporting the planting of native trees in central forest reserves within the project area. The project will facilitate the negotiation of collaborative management arrangements that will then result into more specific agreements with the NFA.
- **Establishment of boundary and buffer zone:** Another area where the project plans to expand is the planting of trees between lands managed by the UWA, the NFA and private lands.
- **Forest Conservation and Rehabilitation:** The communities have also expressed interest in restoring communal forests and forest reserves. Through the USAID/PRIME-west funded project, ECOTRUST helped these communities to register CLAs to manage their forests legally under a communal arrangement. ECOTRUST has supported these communities to produce community-based management plans for their community forests.

With funding from MyClimate (a Swiss Foundation), the project is in the process of developing Technical Specifications for the improved management of the communal forests starting with Ongo and Alimugonza. These technical specifications will be scaled out to additional 8 forests of Kayitampisi, Sonso, Bineneza, Siiba, Rwentumba, Kyamasuka, Motocayi and Tengere which are in the process of being registered as communal land associations.

#### **14.3. Project Record Keeping**

The project keeps both a physical and electronic record of the applications submitted by the farmers, *plan vivos*, review of documents (such as Land Ownership titles), monitoring forms and Payments for Ecosystem Services. Each participating farmer has a file in which information regarding his/her application, project reviews, site visits and payments is stored. This information is collected by the project technicians, who include community technicians as well as Programme Staff. From the field, the information is submitted to an ECOTRUST Monitoring and Evaluation (M&E) Officer, who analyses it and enters it into a Microsoft Access database. Screen prints of an example of the database are attached in Annex 4, page 54.

The M&E Officer is also the database manager in charge of tracking all the farmers that are due for monitoring, what stage of the project activities they are implementing and their corresponding milestones. The Officer also advises on which farmers have qualified for payment and which have not. When funds have actually been disbursed to farmers, the Finance and Administration Manager forwards the payments details to the Database Manager, who then enters them in the system.

### **I5 Project Financial management**

The management of project funds is guided by ECOTRUST's financial policies and procedures. The organisation employs an accounting policy based on accrual to enable the organisation to track the assets and liabilities on both the suppliers' and buyers' sides. The project funds are disbursed to the project beneficiaries through Village Savings and Loans Associations. In general, it is the monitoring results that trigger payment. Once monitoring has been completed, the database manager will send a list of farmers that have qualified for payment to the Finance and Admin Department to prepare payments. The Finance and Admin department then prepares the paperwork for payment and sends it to the Executive Director's office for approval. The payments are made through online telegraphic transfers to the farmers either through the individual accounts or group accounts with commercial banks. While farmers are encouraged to hold group accounts, it is not always possible due to challenges with group dynamics. The entire process of funds management is subjected to an annual external audit to ensure that it meets international standards.

The project operations are based on a combination of income from sale of environmental services

(PVCs) and co-financing from partner organisations. Co-financing efforts specifically target project development and expansion, including the development of technical work.

## I6 Business Development & Marketing

ECOTRUST's Executive Director takes the overall responsibility of business development. This includes the development and continued improvement of the incentive mechanism, engaging the market as well as managing transactions on the Markit Environmental Registry. Business development is guided by a business plan based on a triple bottom line (social, environmental and financial).

The project uses a combination of tools: electronic, print media and national/international events:

- **Print media** - the project will produce articles to be published in different scientific and popular publications as well as promotional brochures.
- **Electronic media** - the project operates a website (<http://ecotrust.or.ug/trees-for-global-benefit/>) with a project map, videos, images and news about the project. In addition the project publishes an online monthly newsletter (available at <http://conta.cc/29WsYPw>).

Furthermore, the project holds regular meetings with project stakeholders in the form of workshops, conferences and exhibitions at local, national and international fora where information about the project is regularly disseminated.

## I7 Operational Costs

### 17.1. Project Start-up Capital

The initial investment for project start-up, as well as some aspects of its initial expansion, were made possible through donations/grants from bilateral agencies. The project start-up funds were provided by DFID and, thereafter, the project has been able to mobilize resources from other donors such as USAID, IFAD, UNDP for the expansion of the programme. In addition, technical support was kindly provided from the Edinburgh Centre for Carbon Management, the University of Edinburgh, and BioClimate Research and Development.

### 17.2. Recurrent Costs

The continued operation of the project is expected to be met from the sale of carbon credits. From a cash flow analysis perspective, the project needs to be generating and selling a minimum of 150,000 tCO<sub>2</sub>e annually to break even. The continued operation of the project is expected to be met from the sales of carbon credits. However, additional resources will still need to be generated to support project expansion (to include new sites) and diversification. The indicative annual budget based on the recruitment and sale of at least 150,000 tCO<sub>2</sub>e is as follows:

Table 10: Annual Budget

2014 costs (USD)	Total Cost	From PVC sales	Other sources	
<b>3rd party Verification</b>	4,777	4,777	0	Financial audit & contribution to third party audit
<b>Staff time</b>	198,070	120,000	78,070	
<b>Farmer capacity building</b>	5,525	5,525	0	
<b>Monitoring</b>	24,727	17,727	7,000	
<b>Office running costs</b>	38,555	17,000	21,555	
<b>Vehicle</b>	29,574	20,000	9,574	
<b>Project Devt</b>	32,000	0	32,000	
<b>Community Technicians</b>	16,977	16,977	0	
<b>Other travel</b>	8,174	8,174	0	
<b>Total</b>	<b>358,379</b>	<b>210,180</b>	<b>148,199</b>	

### 17.3. Financial Analysis

The project has conducted a financial analysis based on actual expenditures of the first three years of operation after the pilot phase. **Table 11** show the project's cash flow analysis:

Table 11: Cash Flow Analysis

Cash Flow Analysis				
CAPITAL REQUIRED (USD)				
Sources	Year 1	Year 2	Year 3	Totals
<b>Donor funds</b>	100,000	0	0	100,000
<b>ECOTRUST</b>	15,000	10,000	0	25,000
<b>SALES</b>	1,050,000	1,200,000	1,350,000	3,600,000
<b>Totals</b>	<b>1,165,000</b>	<b>1,210,000</b>	<b>1,350,000</b>	<b>3,725,000</b>
KEY ASSUMPTIONS				
	Year 1	Year 2	Year 3	Totals
<b>Volume of Credits generated without the carbon fund</b>	150,000	150,000	150,000	<b>450,000</b>
<b>Additional Volume of Credits purchased with carbon fund</b>	25,000	50,000	75,000	<b>150,000</b>
<b>Total Volume generated &amp; sold</b>	175,000	200,000	225,000	<b>600,000</b>
<b>Total Due to farmers</b>	<b>577,500</b>	<b>660,000</b>	<b>742,500</b>	<b>1,980,000</b>
EXPENDITURE (USD)				
<b>Admin fees (farmer recruitment, monitoring &amp; capacity building and project marketing)</b>	400,000	380,000	380,000	1,026,000
<b>Certificate Issuance</b>	61,250	70,000	78,750	210,000
<b>3rd Party Verification</b>	52,500	60,000	67,500	180,000
<b>Actual paid to farmers</b>	173,250	313,500	338,250	825,000
<b>Totals</b>	<b>687,000</b>	<b>823,500</b>	<b>864,500</b>	<b>2,241,000</b>
NET CASH FLOWS (USD)				
	Year 1	Year 2	Year 3	Totals
<b>Income</b>	1,165,000	1,210,000	1,350,000	3,725,000
<b>Expenditure</b>	(687,000)	(823,500)	(864,500)	(2,375,000)
<b>Net cash flow</b>	478,000	386,500	485,500	1,350,000
<b>Amount still owed to farmers</b>				1,155,000
<b>Accumulated capital</b>				195,000

## I8 Project Expansion & Diversification

In order to allow for expansion and diversification, the project has created the Carbon Fund – a type of revolving fund to purchase credits from farmers in advance of identifying buyers. The Carbon Fund works as a self-financing mechanism that provides upfront funding for farmers to initiate forestry activities. The Fund uses the voluntary carbon market to generate carbon transactions (typically the sales of carbon credits) to increase its cash flow and thus to expand the number of participating farmers.

Specifically, the Fund enables the project to match supply with demand by allowing a partial up-front

payment to farmers and thus the signing of contracts to allow for the generation of carbon credits. The project then sells the credits in the voluntary market as and when buyers are available to generate sustainable income, thus recapitalizing itself and expanding participation of even more farmers in the programme (See Risk Management).

## I9 Technical Support

The project is working towards building local capacity to manage carbon sequestration projects. Edinburgh Centre for Carbon Management provided the initial technical assistance for the establishment of the pilot project, mainly in the project design phase, while Bioclimate Research and Development provided assistance in capacity building activities targeting project implementers. Furthermore, ICRAF provided assistance with the carbon modelling and baseline quantification for the *Maesopsis eminii* Technical Specification, whilst experts from University of Edinburgh and Plan Vivo helped with the carbon and baseline modelling for the *Mixed Native Species* technical specification. Thanks to the experience gathered from the implementation of the pilot, ECOTRUST has now developed the capacity both to expand the project elsewhere in the country and to support other groups/organisations to replicate it.

Furthermore, the project is building farmers' capacity to manage agroforestry enterprises on their private land. These capacity building activities include the establishment of nurseries for good quality seedlings, general agroforestry practices, land use planning, group dynamics and so on.

## Part J: Benefit Sharing

### J1 PES agreement

All applicants that meet the requirements (proof of ownership, sufficient land to support the farming requirements, the desired tree farming system and so on) are allowed to start planting activities and their applications are submitted to the regional coordinator. The go ahead to plant serves as commitment as ECOTRUST's '*Intent to Purchase*' all credits generated from those *plan vivos*. The farmer coordinators will keep a record of every farmer that has planted (from seedling records and personal communication, copy attached in Annex 8, page 58). When the planting season has been completed, all farmers that were given a go ahead to plant and have either picked seedlings and/or communicated their planting progress to the farmer coordinator will be monitored. Any farmer that manages to have successfully planted at least 40% of the total number trees expected to be planted, and which survive, can enter into contract with the project.

### J2 Payments & Benefit Sharing

The monitoring indicators form the basis of the results-based system and disbursement mechanism. Payments are made to producers according to predetermined milestones. The producers who do not meet their targets have their payments deferred until a set of required corrective actions are implemented. **Table 12** describes the monitoring milestones in the first 10 years of the project.

Table 12: Payment Breakdown

Year	Basis of payment	Target	% of total payment per ha
0	Number of trees planted	At least 50% plot established	20%
1	Number of trees planted	Whole plot (100%) established	20%
3	Percentage survival	70% survival	20%
5	Girth of stem/ diameter of the trees planted	Average DBH of at least 10cm	10 %
7	Girth of stem/ diameter of the trees planted	Average DBH of at least 14cm	10%

10	Girth of stem/ diameter of the trees planted	Average DBH of at least 20cm	20%
----	--	------------------------------	-----

### **J2.1. Equity in Benefit Sharing**

The project operates as a cooperative carbon offsetting scheme in which farmers aggregate emissions reductions and removals to achieve marketable scale. In addition to retaining their land rights, the PES agreements recognise that farmers have rights to the trees and climate services (carbon rights). The carbon benefits distributed to the communities are in a combination of cash and non-cash benefits (in-kind). The cash benefits come from the sale of carbon credits, whose price is designed to give the community at least 60% of the purchase price, while the remaining 40% is split to cover the project administration costs, certificate issuance fee and payments for third party verification (annual financial audits and five yearly project audits). The non-cash benefits come in different forms of capacity building activities and social inclusion processes made possible through co-investments obtained by the project for the participating communities. The diagram below summarises the non-cash benefits and how they link to tree-planting activities within the project's benefit-sharing model.



Figure 10: Non-Cash Benefits

## Part K: Monitoring

### K1 Ecosystem services benefits

TGB uses an activity-based (*ex-ante*) system in which simple models are used to predict the expected carbon benefits. Through the development of technical specifications, the project describes the agreed activities that are conservatively expected to generate the modeled Environmental Services, such as the number of trees planted, the stocking density, the area of land managed and type of tree species planted. The project submits an Annual Report to the Plan Vivo Foundation describing the progress in the recruitment of farmers and their annual performance, as well as documenting the progress against achieving the milestones described in the PES Agreement. It is the approval of the Annual Report that triggers certificate issuance for the new farmers recruited each single year. In addition, the project is subjected to a third party verification by an independent Validation and Verification Body – historically this has been performed by the Rainforest Alliance – every five years.

#### ***Monitoring Team***

The monitoring team consists of full-time and part-time ECOTRUST staff as well as farmers that have been trained by the project to conduct specific monitoring activities. The strategy of involving farmers in the monitoring of fellow farmers is referred to as peer group monitoring of farmers. ECOTRUST technical staff train the groups on site with as much field exposure as possible. In most cases, the group consists of farmer coordinators and other project participants that are being prepared to take on leadership responsibilities in the project. To minimize biases in the monitoring results, each peer farmer group monitors farmers from a different site while the entire team is always led by an ECOTRUST member of staff. The peer monitoring strategy is used for three main reasons:

- To provide some form of income generation for local farmers;
- To provide an opportunity for farmers to pass on their experiences in dealing with specific challenges to other farmers in addition to sharing information on how to improve performance;
- To reduce the cost of hiring additional part time staff for the fieldwork.

#### ***Resources Required for Monitoring***

Apart from human resource and other logistical requirements, TGB project monitoring also requires equipment such as GPS, clinometers, data sheets, digital camera, clip board, pen/pencil, measuring tape, spray paint, calipers, DBH tape and trained personnel who are competent to use the aforementioned equipment.

#### ***Estimating the Carbon Sequestration Potential***

The estimation of the carbon sequestered and the associated benefits are obtained through the design of the technical specification. During the baseline assessment, the project also measures the tree parameters to be used in the development of the management guidelines for the agroforestry farming systems and in the quantification of the average net accumulated carbon uptake. The technical specifications also provide information on monitoring the performance of each individual farmer throughout the project lifecycle. Each participating farmer has an individual contract with a monitoring plan specifying the expected milestones based on the growth rates of the carbon model used in the technical specifications that he/she implements. Each of these milestones has a bearing on the achievement of the estimated sequestration potential.

#### ***Performance Monitoring Plan***

The information generated during the estimation of carbon sequestration potential is used to develop a performance-based monitoring plan with corresponding monitoring milestones. The programme manager takes the overall responsibility of supervising monitoring while each field programme coordinator is responsible for implementing the monitoring plan at the respective sites. The performance-based monitoring plan for single and mixed native agroforestry systems is given in **Table**

13 below. All the milestones in the monitoring plan are measured by project technicians (village technicians working with project staff).

Table 13: Performance-based Monitoring Plan

	Milestone	Monitoring Method	REMARKS	Indicator (Unit)	Responsibility
<b>Year 0</b>	At least 50% of the planned number of trees planted	Physically counting all trees planted by a farmer and measuring the space between each tree	Some farmers may plant on smaller pieces of land than indicated in the <i>plan vivo</i> and thus make up by reducing on the spacing. It is thus important to cross check and confirm whether the farmer is using the correct spacing.	Acreage planted (each farmer) Number of approved trees planted (each farmer)	Data provided by farmers and analysed by project technicians
<b>Year 1</b>	100% of the planned number of trees planted	Physical counting all trees planted by the farmer	Same as above	Acreage planted (each farmer) Number of approved trees planted (each farmer)	Data provided by farmers and analysed by project technicians
<b>Year 3</b>	At least 85% of the planted trees surviving	Physical counting all the surviving trees	It is important to note the cause of tree mortality, any challenges encountered so as to guide the farmer on the appropriate tree management actions to minimize future losses.	% surviving trees (each farmer)	Data provided by farmers and analysed by project technicians
<b>Year 5</b>	An average DBH of at least 10cm	DBH & tree height measurements.  A sample plots of 15-25m in radius is selected by stratified random sampling and then, on each plot, 10% of the planted trees are checked	Some trees have large crowns and require large spacing while others have small crowns and may be planted quite closely depending on the farmers' objective. Other species may be planted on boundaries. The appropriate option is therefore recommended on a case-by-case scenario depending on the plot specific characteristics in order to achieve the expected tree sizes. An appropriate method of sampling trees will be chosen depending on the farming system. Diameter tapes are used for measuring DBH, and clinometers for tree heights.  Alternatively, height can be estimated using stick of known length/having method.	Average tree DBH (each farmer)	Data provided by farmers and analysed by project technicians
<b>Year 7</b>	Average DBH of 14 cm	A sample plots of 15-25m in radius is selected by stratified random sampling and then, on each plot, 10% of the planted trees are checked	Same as above	Average tree DBH (each farmer) Number of approved trees (each farmer)	Data provided by farmers and analysed by project technicians
<b>Year 10</b>	An average DBH of at least 20cm	DBH & tree height measurements.  A sample plots of 15-25m in radius is selected by stratified random sampling and	Same as above	Average tree DBH (each farmer) Number of approved trees (each farmer)	Data provided by farmers and analysed by project technicians

then, on each plot, 10% of the planted trees are checked

Monitoring plans for additional systems (e.g. Improved Forest Management) will be developed together with the technical specifications in due course.

## K2 Socio-economic impacts

A socio-economic baseline survey has been carried out in 2013 and it will be repeated for every additional area that is included in the project until its independent verification schedule in 2018. Moreover, every year project technicians, in collaboration with farmer groups, conduct an assessment to establish the socio-economic impacts of the project activities on participating local communities. The results of the assessment are defined by the social dimensions and key performance indicators below (**Table 14**).

The project is expected to improve community well-being by contributing to reducing the number of poor households, number of unemployed members of the communities, gender inequality and by helping the project-supported small-scale enterprises gain better access to the market. This analysis considers evidence of household income, access to health services, employment records and social cohesion and it seeks to define how positive change spurred by the project is affecting local communities. Its results will inform overall project design improvement.

*Table 14: Community Well-Being Monitoring Indicators*

Social Dimension	Indicator	Monitoring method	Frequency	Responsibility
<b>Livelihoods</b>	Number of children enrolled in school as a result of the programme (boys/girls)	Survey of a sample of participating households	Annually	Farmers Groups and facilitated by the project
<b>Livelihoods</b>	Per capita income disaggregated into men and women as a result of PVC sales	Survey of a sample of participating households	Annually	Farmers Groups and facilitated by the project
<b>Jobs</b>	Number of employees, hired by the project-supported enterprises (men/women)	Summary of annual reports from project-supported enterprises	Every 5 Years	Farmers Groups and facilitated by the project
<b>Gender Equity</b>	Number of women participating actively in the programme Number of women-owned enterprises	Activity (meetings, workshops, etc.) reports data summarised in the annual report	Annually	Farmers Groups and facilitated by the project
<b>Tenure security</b>	Number of project households with documented ownership Number of communal ownership titles and area covered by theses	Project/household records	Annually	Farmers Groups and facilitated by the project
<b>Social capital</b>	No. of farmers participating in local, national and international climate change meetings/workshops (men/women)	Activity (meetings, workshops, etc.) reports data summarised in the annual report	Annually	Farmers Groups and facilitated by the project
<b>Well-being</b>	% of participating households in each of 4 well-being classes % of households that have moved from the lowest class to the next highest class	Participatory well-being ranking (PRA tool)	Every 5 years. Facilitated by the project	Farmers Groups and facilitated by the project

### K3 Environmental and biodiversity impacts

The project also looks at measuring its impacts in terms of climate change adaptation, biodiversity enhancement, watershed services and renewable energy. A 2013 survey indicated that the project had managed to plant approximately 600,000 trees on a total of 3,564 ha, covering 8 districts. However, no critical watershed catchment areas were included in the project and some participating households were still using biomass collected from adjacent protected areas as wood fuel for preparation of their daily meals.

Annual surveys will measure the positive environmental and biodiversity impacts associated with the project while also adding watershed services, renewable energy (decrease in the amount of fuel wood collected in protected areas as a result of more available renewable biomass from tree thinning and cleaning activities) and soil enhancement benefits to its monitoring areas.

*Table 15: Environmental and Biodiversity Monitoring Indicators*

Dimension	Indicator	Monitoring method	Frequency	Responsibility
<b>Drivers of Deforestation</b>	% change in the amount of fuel wood collected in protected areas	Survey of participating households	Annually	Project Technicians
<b>Biodiversity conservation</b>	% of indigenous tree species planted (as opposed to naturalized species)	Species list recorded on annual basis from monitoring information and presented in the annual report	Annually	Project Technicians
<b>Protected areas conservation</b>	No of protected areas covered by project	Information recorded in the annual report	Annually	Project Technicians
<b>Catchment condition</b>	List of catchments improved by the programme	Fixed point photographs (from vantage points) taken in different seasons	Annually	Project Technicians
<b>Climate resilience</b>	No of HH with improved adaptation strategies	Plan Vivo review and activity monitoring annual report	Annually	Project Technicians

### K4 Other monitoring

In addition to the performance-based, community well-being, environmental and biodiversity indicators, ECOTRUST will also monitor three governance dimensions to be included in the annual monitoring plan of the project. The indicators refer to the performance of ECOTRUST as a Project Coordinator in order to provide a higher degree of transparency and accountability to the project.

*Table 16: Governance Monitoring Indicators*

Social Dimension	Indicator	Monitoring method	Frequency	Responsibility
<b>Social capital</b>	Number of groups Number of groups as registered CBOs Total number of HH in the groups (male/female applicant)	Activity (meetings, workshops, etc.) reports data summarised in the annual report	Annually	Farmers Groups
<b>Group governance</b>	Number of group meetings held (total of all groups) Number of participants at group meetings (total of all groups by men/women) Total amount of cash held by all groups (or in bank accounts)	Activity (meetings, workshops, etc.) reports data summarised in the annual report	Annually	Project Members of Staff
<b>Project governance</b>	Financial Audits carried out No of (Board of Trustees, staff, Farmer Group, Coordinators) Meetings Key decisions made by the Board Implemented	Project reporting Audit record Records of key decisions made and implemented by board	Annually	Project Members of Staff

# Annexes

## Annex 1. List of key staff involved

Table 17: List of Key People

Name and Title	Contact
<b>Pauline Nantongo Kalunda Executive Director</b>	<a href="mailto:pnantongo@ecotrust.or.ug">pnantongo@ecotrust.or.ug</a>
<b>Robert Senkungu Programme Manager</b>	<a href="mailto:rsenkungu@ecotrust.or.ug">rsenkungu@ecotrust.or.ug</a>
<b>Lydia Kuganyirwa Over all Programme Coordinator - all sites</b>	<a href="mailto:lkuganyirwa@ecotrust.or.ug">lkuganyirwa@ecotrust.or.ug</a>
<b>Adrine Kirabo Kamuhanda Kirabo Programme Coordinator- Advocacy, Gender and Policy</b>	<a href="mailto:akirabo@ecotrust.or.ug">akirabo@ecotrust.or.ug</a>
<b>Lilian Kiguli Database Manager</b>	<a href="mailto:lkiguli@ecotrust.or.ug">lkiguli@ecotrust.or.ug</a>
<b>Freddie Kalibwani Business Development Specialist</b>	<a href="mailto:fkalibwani@ecotrust.or.ug">fkalibwani@ecotrust.or.ug</a>
<b>Jonnah Butsatsa Communication and Public Relations Officer.</b>	<a href="mailto:jbuttsatsa@ecotrust.or.ug">jbuttsatsa@ecotrust.or.ug</a>
<b>Proscovia Kisembo Program Officer, Masindi Region</b>	<a href="mailto:pkisembo@ecotrust.or.ug">pkisembo@ecotrust.or.ug</a>
<b>Sheila Katushabe M&amp;E Specialist</b>	<a href="mailto:skatushabe@ecotrust.or.ug">skatushabe@ecotrust.or.ug</a>
<b>Daniel Juuko Accountant</b>	<a href="mailto:djuuko@ecotrust.or.ug">djuuko@ecotrust.or.ug</a>

## Annex 2. Information about funding sources

- DFID support administered through Edinburgh Centre for Carbon Management & BR&D
- Grant Award reference number **G-3827-201-10** worth US\$450,000 from USAID under the PRIME-West programme managed by DAI. This was in support to **participatory forest management for Forest Reserves as well as Private and Communal Forests in Hoima and Masindi Districts**. The project facilitated the negotiation and implementation of nine Collaborative Management Agreements between the NFA and the communities around Budongo and Bugoma Central Forest Reserves. Furthermore, the project supported the formation of two Communal Land Associations for the management of communal forests. This support led to the extension of the project to the Budongo Bugoma landscape
- USD \$75,000 from the UNDP Africa Regional Bureau to initiate a Carbon Bank, a revolving fund to support project expansion.
- USD \$20,000 from MyClimate (a Swiss Foundation) towards the development of technical specifications for Improved Forest Management
- Grant Award worth USD \$200,000 from the UNDP Uganda Country office for extension of the programme to the Mt. Elgon starting with the pilot districts of Mbale, Manafwa, and Bududa.
- USD \$278,000 from UNDP Uganda Country Office, to adapt TGB to Ecosystem – Based Adaptation & expand to additional districts in Mt. Elgon
- Grant Award worth USD \$80,000 from CARE International in Uganda for Strengthening Stakeholder Involvement in Natural Resource Management in Kasese and Hoima: **2009 – 2010**. The project contributes to the strengthening of a participatory natural resource management framework that will facilitate the provision of mutually beneficial arrangements in which local communities, NGOs, private sector and responsible bodies such as the National Forestry Authority, Uganda Wildlife Authority and local governments share roles, responsibilities and benefits for the improved and sustainable management of natural resources; and are accountable. This enabled the expansion of TGB to the Mt. Rwenzori Landscape
- Income from various buyers such as, ZeroMission (a sustainability consultancy and reselling partner from Sweden), Max Hamburger Restauranger (a Fast Foods Chain in Sweden), Arla (the World's largest dairy cooperative), Tetra Pak and The Carbon Neutral Company based in the UK, IUCN Uganda county office and IUCN Netherlands committee (provided access to funding opportunity strengthening inclusiveness and using the lessons from the project to advocate for natural resource management practices through shared resources joint solution's , COTAP as well as Uganda Biodiversity Fund which built capacity of communities around Bugoma CFR thus improving their resilience to climate change).

### Annex 3. Producer/group agreement template

THIS AGREEMENT is made this .....day of ..... 20..... BETWEEN ENVIRONMENTAL CONSERVATION TRUST OF UGANDA of P.O.BOX 8986 Kampala (hereinafter referred to as ECOTRUST) of the one part AND ..... of ..... Village, .....Parish, .....Sub-county, .....District, (hereinafter referred to as "the Producer") where the context so admit include their respective successors in Title and or Assignees.

WHEREAS the Producer is the owner of a piece of land described in TABLE 'A' in the Schedule ATTACHMENT 1 herein appearing, AND WHEREAS the said Purchaser has agreed to Produce estimated Carbon tones described in TABLE 'B' to ATTACHMENT 1 by planting, using and maintaining the land herein described under Agro-forestry or any other approved system under the *plan vivo* system for the period herein stipulated;

TABLE "A"

Name of Producer	
Organization/ Group /individual	
Parish/ Village-LC1	
Sub county	
District	
Producer Code	
Estimated size to be planted (Ha)	
Trees expected to be planted	
Location of Land	
Purchaser	
Estimated Carbon tones	Saleable
Price US \$ per Tone	
Total Amount for all Carbon	
Contribution to Carbon Community Fund	
Farmer's payment	

Payments will be made upon the verification of monitoring targets according to the following schedule.  
TABLE "B"

Date of Monitoring	Monitoring Target	Payment (US \$ )
Year 0	as described in plan Vivo	
Year 1	as described in plan Vivo	
Year 3	Survival as described in plan vivo	
Year 5	Average DBH as described in plan vivo	
Year 7	Average DBH as described in the plan vivo	
Year 10	Average DBH as described in plan vivo.	
<b>TOTAL</b>		

Forestry systems: (Tick what your selected system (s))

TABLE "C"

Forestry System	Area in Hectares (Ha)	Types of Trees	Rotation Period
Woodlot	X	Class A	50yrs

Agro forestry			
Boundary Planting			
Other Specify			
<b>TOTAL</b>			

Proposed date of planting:

FOR ECOTRUST

FOR PRODUCER

Signature ..... Signature: .....

Name: ..... Name: .....

EXECUTIVE DIRECTOR

Date: ..... Date: .....

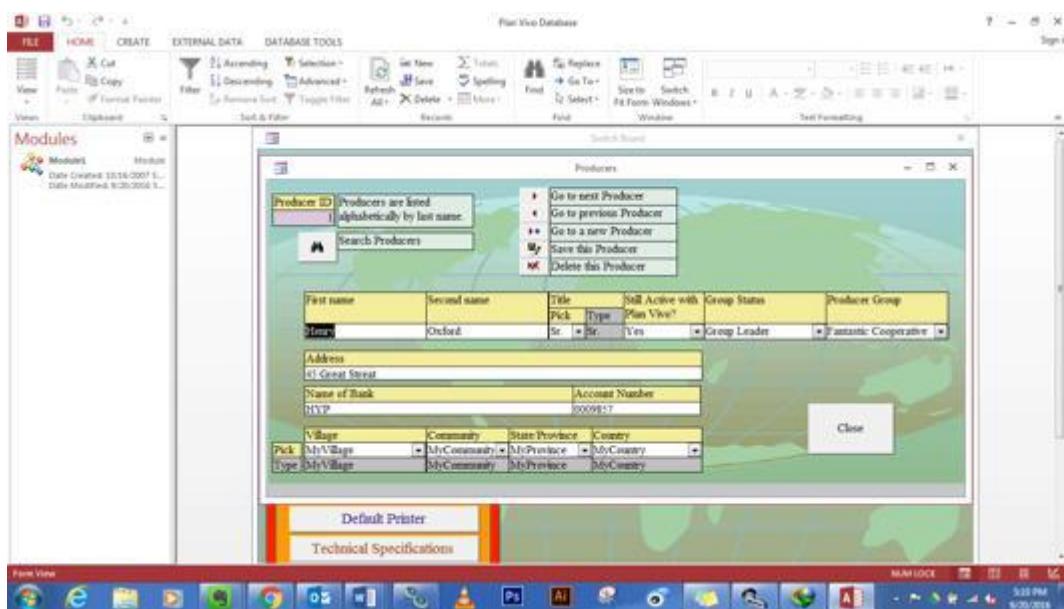
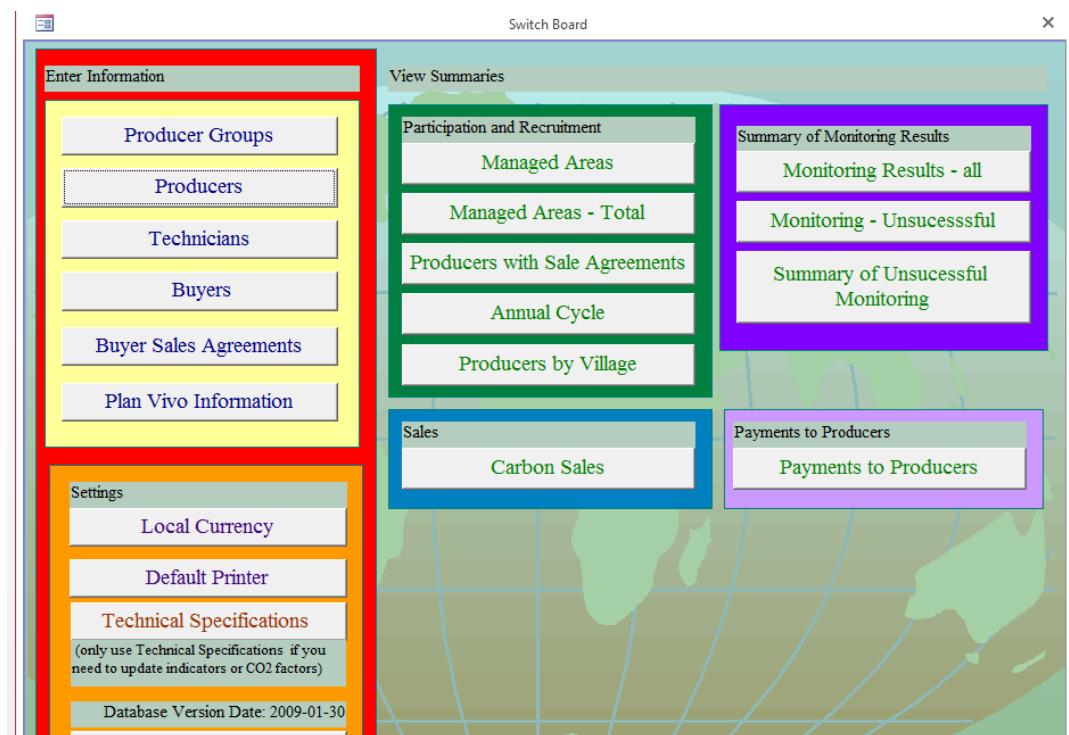
WITNESSED BY

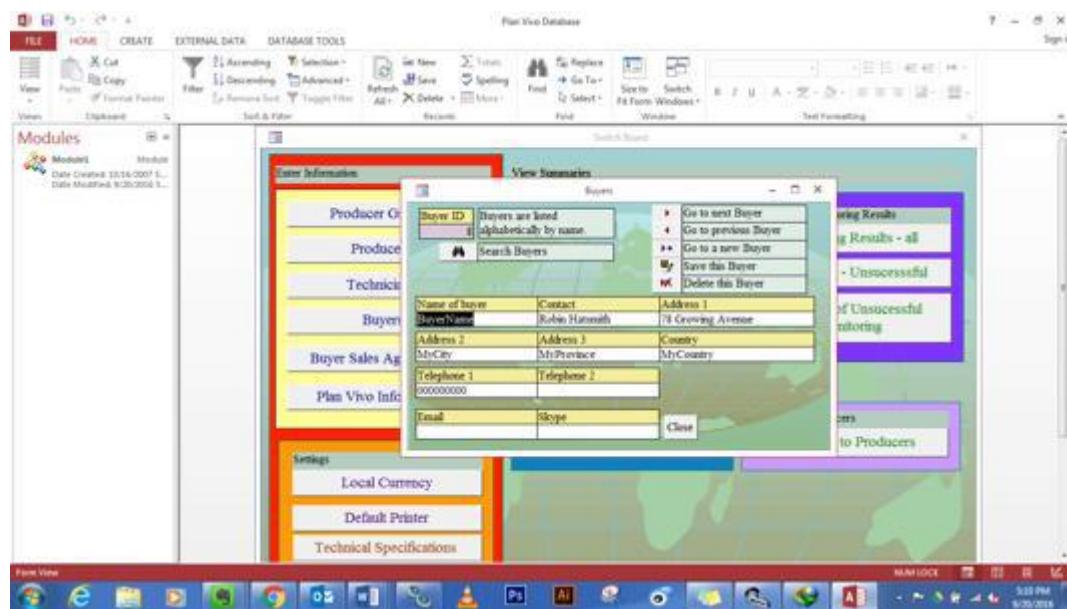
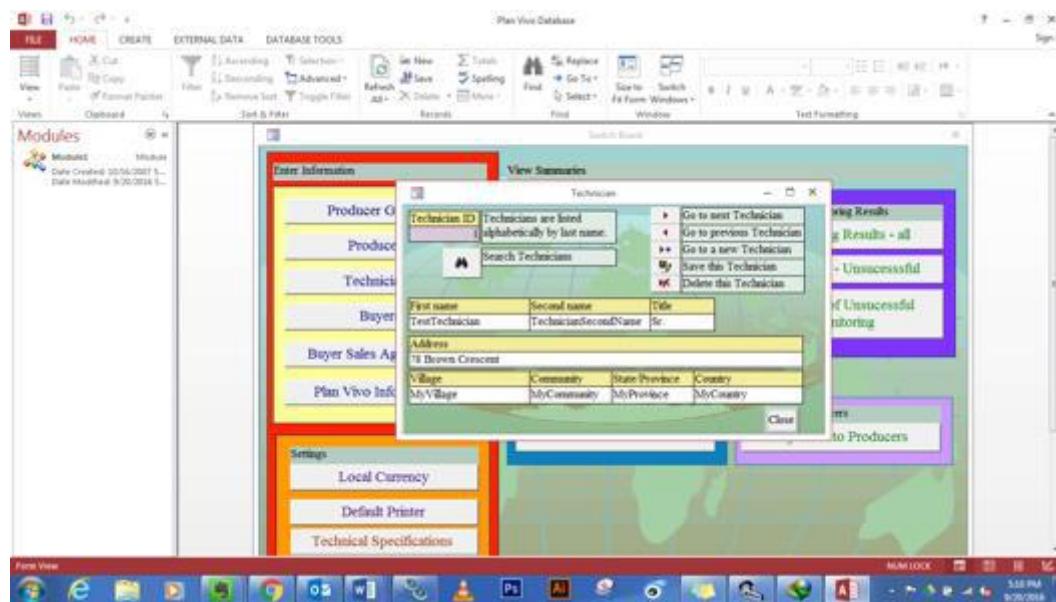
WITNESSED BY:

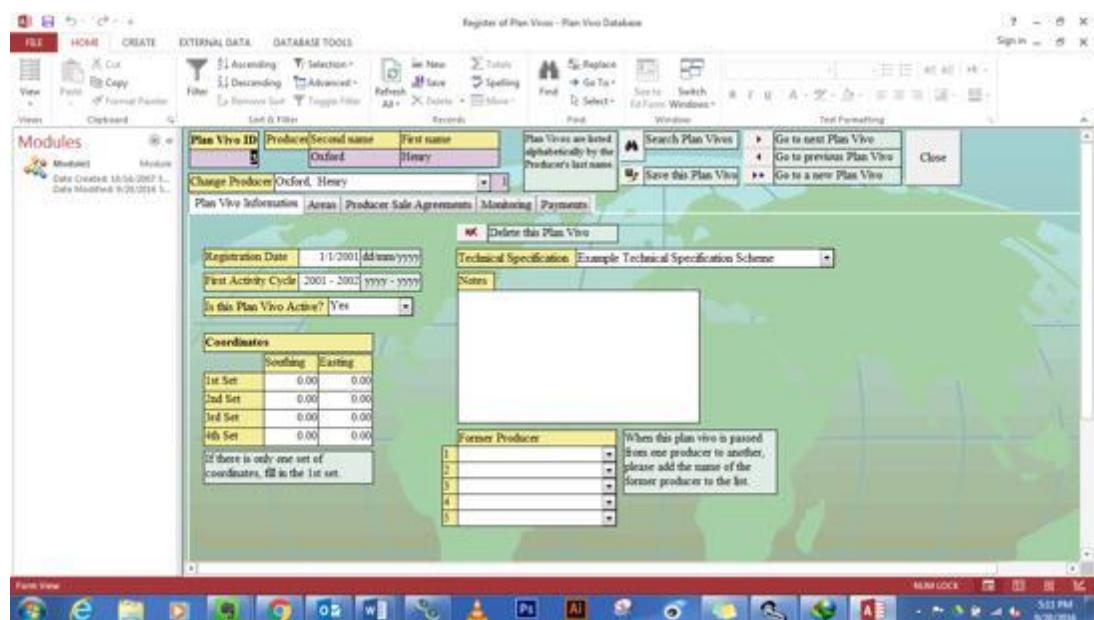
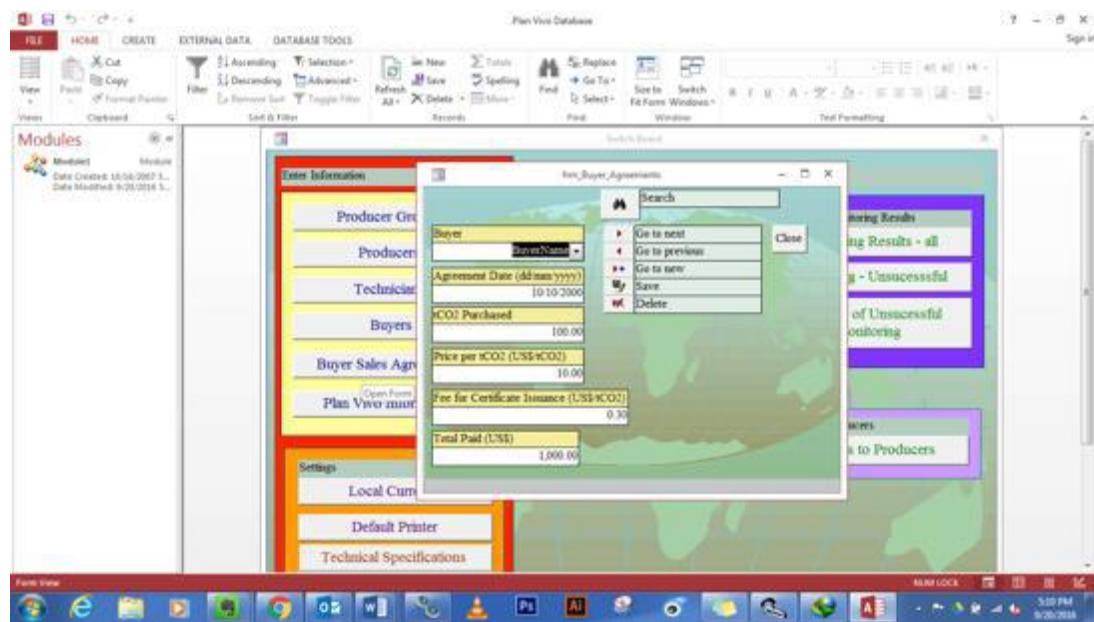
Signature:..... Signature: .....

Name: ..... Name: .....

## Annex 4. Database template

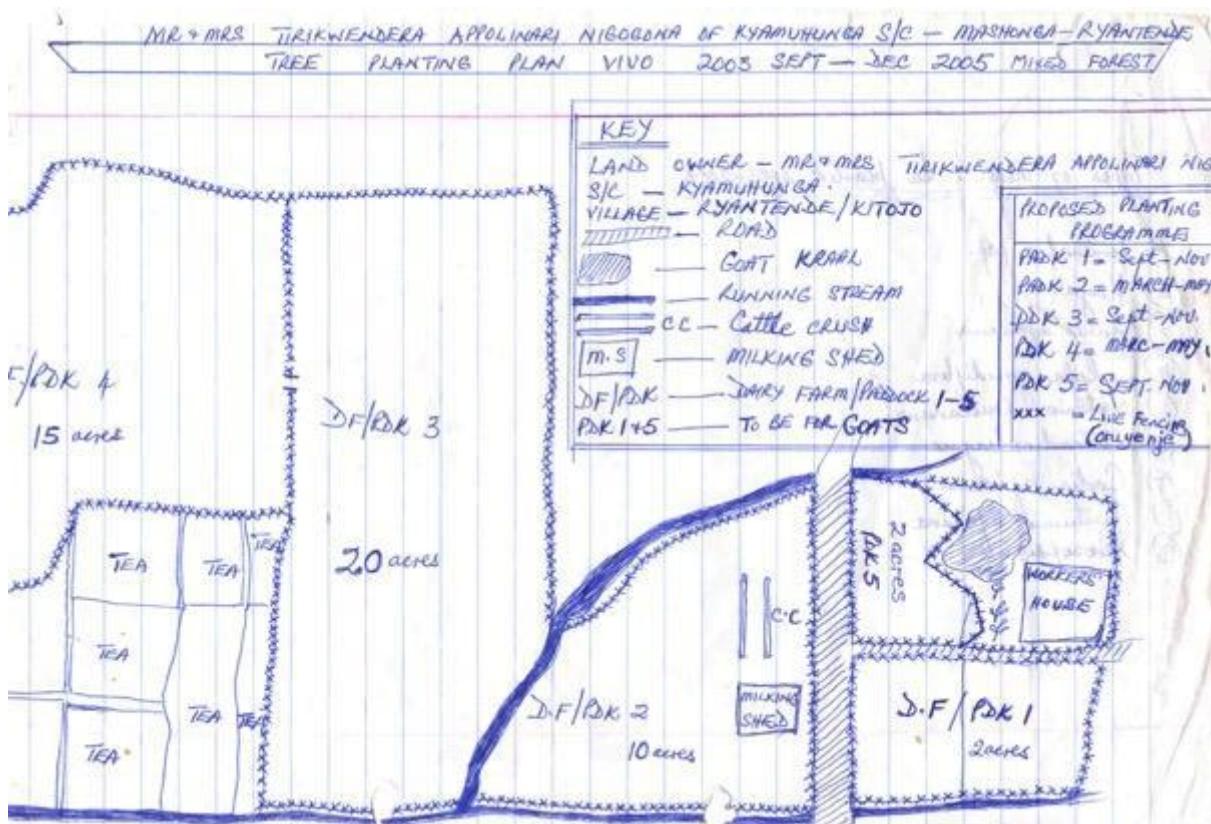
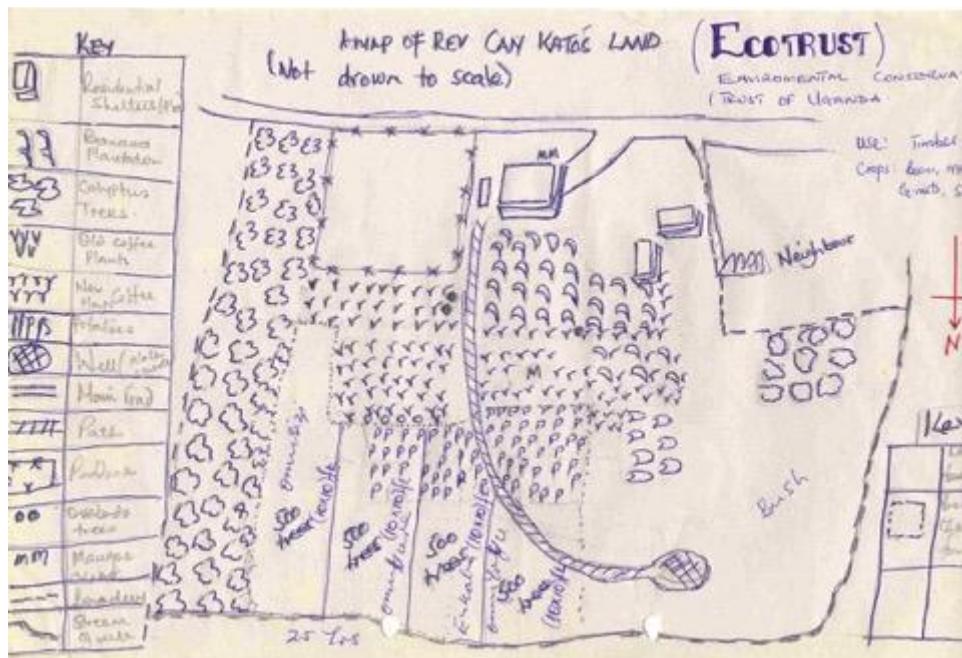






## Annex 5. Examples of *plan vivos*

Included here are some example *plan vivos*. This is a participatory process, used to illustrate the distribution of planned activities.



## Annex 6. Permits and legal documentation

Serial No: 1084924	FORM C	Regulation 7
		
THE REPUBLIC OF UGANDA		
THE NON-GOVERNMENTAL ORGANIZATIONS REGISTRATION ACT, CAP.113		
2009		
Registration Number: _____		
<b>PERMIT TO OPERATE AS A NON-GOVERNMENTAL ORGANISATION</b>		
I HEREBY CERTIFY that ENVIRONMENTAL CONSERVATION TRUST OF UGANDA (ECOTRUST)		
S. 6914/2834		
P O BOX 8998		
KAMPALA		
A Local NGO		
February	14	has this
of	20	day
been issued with a permit to operate under the Non-Governmental Organisation Registration Act.		
This permit is subject to the following conditions/directions:-		
a) The organisation shall carry out its activities in the fields of biodiversity		
conservation and environmental management, pollution control and provide		
land management.		
b) The organisation will operate countrywide.		
c) The staffing of the organisation must conform to Regulation 14 of the NGO		
Registration Regulations of 2009.		
d) This Permit is renewed for a period of 60 months from 25/06/2014.		
		
Mr. Osinde Ower Jimmy Okongo	Mr. Ssezibwa Kings Mugyemba	
Board Member	Amb. Gabriel William Kangwagye	Board Member
Chairperson, National Board for Non-Governmental Organisations		

## Annex 7. Community participation

Included below are some additional photos of community consultation meetings



## Annex 8. Intent To Purchase

*(23.05.23 - This information has been removed from this document due to GDPR requirements. If you wish to know more please contact Plan Vivo or the project).*

## Annex 9. Socio-Economic Baseline Survey

Available at <http://www.planvivo.org/docs/Socio-Economic-Feasibility-Analysis-Uganda-.pdf> on the project's page of the Plan Vivo Website under Additional Documents.