

**MIOMBO COMMUNITY LAND USE**

**&**

**CARBON MANAGEMENT**

**NHAMBITA PILOT PROJECT**

**FIRST ANNUAL REPORT**

(REPORTING PERIOD 1 AUGUST 2003 – 31 MAY 2004)

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**Partners**

The University of Edinburgh (U of E)

Edinburgh Centre for Carbon Management Ltd. (ECCM)

Envirotrade Ltd.

International Centre for Research in Agroforestry (ICRAF)

## 1. Title and location

The "Miombo community land use and carbon management – Nhambita pilot project" is located in the buffer zone of Gorongosa National Park, Sofala, Mozambique.

## 2. Introduction

The aim of the project is to;

- (1) Develop forestry and land use practices in participation with rural communities that promote sustainable rural livelihoods and raises living standards.
- (2) Assess the potential of these activities to generate verifiable carbon emission reductions.

The project is working in communities located inside of the Gorongosa National Park buffer zone, with the initial target group being the Nhambita Community.

The **three main components** of the project are:

- (1) The promotion of sustainable land use in the Nhambita Community area (forest management, agro-forestry and non-timber forest products),
- (2) Research into local and regional carbon baselines and to model the potential for carbon offsets generation through the sustainable land use activities, and
- (3) Capacity building of regional organisations, such as the Gorongosa National Park authority and the Provincial Forestry and Wildlife Departments.

The **first year** of the project has focused on recruiting project staff and laying the foundations for future project working. This has required the following activities:

- (1) Detailed partner negotiations and agreements
- (2) Intensive community meetings, education and training
- (3) Addressing legal and administrative requirements with local and regional authorities
- (4) Establishing project infrastructure and communication systems

Much of the progress made in year one of the project has been in relation to local community dialogue, community interactions; notably the establishment of a community-run tree nursery which has produced over 30,000-tree seedlings.

## 3. Key Issues

The main issues arising during the first year of the project working have been:

- The development of common working criteria and an understanding of partner operating systems
- The subdivision of partner working in relation to practical delivery of forestry and non timber forestry products (NTFPs)
- The establishment of project infrastructure in Sofala Province and
- Establishing the needs and capacity of the local community

**Common working criteria:** This heading covers a number of project management and administration related topics. Communication, financial management, reporting, work

programming and an understanding of project objectives were all raised as challenges for project partnership working and were all tackled through negotiation and dialogue.

*Communications* between project partners in Maputo, Edinburgh, Beira, Chitengo and Harare has been improved by regular electronic communication and by scheduling periodic Miombo Management Committee Meetings (MMCMs). See Appendix D. This committee has had regular conference calls to review project progress, to set project protocols and to resolve project issues. Further work is required to establish regular communication within Mozambique and between Mozambique and the United Kingdom. Telecommunications, in the form of a landline and cellular dish, will be installed at the Gorongosa National Park Headquarters in Chitengo thus allowing in- country and overseas communication.

*Financial management* by project partners was primarily focused on the requirement for some partners to absorb up front expenditure and a need for rigorous financial control and reporting. Following a period of negotiation the MMCM agreed a form of financial disbursement and grant payment, in conjunction with a set of financial reporting standards.

*Reporting* on project progress, including financial, practical and administrative reporting was resolved in much the same manner as the financial management. A reporting template was devised and agreed upon by project partners and now forms the basis of quarterly reports.

*Work programming* has been an issue for project partners not used to working within the structures of EC funded projects. Work programming has been tied to grant release and this has resulted in more diligent planning.

*Understanding of project objectives* is an issue whenever project partners from different organisations and with different areas of expertise are involved. This project is no different. The job of project management has involved trying to impart an understanding of the all encompassing goals of the EC project; as opposed to a focus solely on a specialist area i.e. carbon, research, agro-forestry or NTFPs. Facilitating a more broad understanding of the integrated objectives and associated requirements for strong collaboration and communication is ongoing.

**Subdivision of partner working:** Following initial site meetings in Nhambita in August 2003 it was noted that a change in project partner delivery would result in a more streamlined and efficient delivery process. However this assumption was predicated on the assumption that either of the in country partners could absorb large levels of capital expenditure up front. Some project delays were experienced whilst a resolution was sought and after input from the MMCM it was agreed by all partners that the original division of project delivery should be followed.

**Establishment of project infrastructure:** The early stages of the project development were co-ordinated by Envirotrade from Beira, the capital of Sofala province, and communications, materials sourcing and administrative and legal tasks were conducted with relative ease.

The decision was taken to move project management into the Gorongosa National Park Buffer Zone and to establish project infrastructure in the National Park Headquarter in order to establish closer working relationships with the National Park and to facilitate better project control adjacent to the Nhambita community. A Memorandum of Understanding (MOU) has been signed by the project, through Envirotrade, with Gorongosa National Park. See Appendix C.

The absence of telephone landlines and cell net telephone masts within Chitengo has caused a few communication glitches. However, with the imminent establishment of a landline to Chitengo and the project securing cell net capability it is anticipated that communication will become much easier over the next year of project working.

Envirotrade is developing office accommodation within Chitengo for Envirotrade and ICRAF staff, through the renovation of two disused and war damaged buildings within the headquarters compound. The renovation work is being carried out by GNP staff, using local building materials, and allows the project to work more closely with GNP staff and other government agencies. See Appendix G.

Office buildings will also provide accommodation for visiting students and staff from the University of Edinburgh.

**Establishing the needs and capacity of the local community:** The project has been working in the Nhambita community, in partnership with NGOs such as Food for the Hungry and GTZ, to establish the basic requirements relating to agriculture and agro-forestry. Requirements include; food security, better nutrition, more sustainable cropping, soil improvements, wider diversity of agro-forestry products (such as fruit and honey) and sustainable fuel wood has been established and more detailed academic research (socio-economic) is being carried out by the University of Edinburgh.

The capacity of the Nhambita community to learn new skill sets and to alter their means of livelihood production is critical to the success of the project. A survey of farmers within the community produced a list of some 63 Mashambas (corresponding to 49 farmers) where agro-forestry focused and Plan Vivo designed activities can take place during 2004-2005. A list of registered Plan Vivo farmers is given in Appendix E.

#### 4. Project Progress

Progress has been made in the following categories of project activities:

1. ***Forest Management***
2. ***Timber Utilisation***
3. ***Plan Vivo carbon management system through agro forestry***
4. ***Non-timber Forest Products***
5. ***Regional Carbon & Forest Dynamics Research***

##### ***Activity 1 - Forest Management***

The forest management component of the project has been designed to achieve a number of objectives:

- To establish the extent of existing forest cover and composition (forest inventory)
- To educate and train community members in native tree propagation and establishment techniques
- To reforest areas of the GNP Buffer Zone with native tree species
- To establish sustainable management practices and ensure conservation of existing forest remnants

In year 1 the project has focused on the delivery of the first two objectives: establishing forest cover and composition [this objective links with the regional carbon and forest dynamics research]; and the education and training of community members in tree nursery techniques.

In December 2003 a forest inventory of the Nhambita community area was carried out by the project through Patrick Mushove, a forest researcher, recommended by ICRAF. Patrick is a Senior Consultant at ERMAL Natural Resources Consultancy in Harare, Zimbabwe, (see Appendix B). The inventory used a protocol determined by the University of Edinburgh. His report summarises data on the key vegetation types within the park, and details tree biomass estimates.

This scoping survey has; provided guidance to the project on the layout of permanent sample plots (PSPs), will form the basis of a forest management plan and, given an indication of the suitability of the area for timber management and utilisation.

Permanent sample plots will provide data on the potential of miombo woodland in the GNP buffer zone to be sustainably managed, as a forest resource for the community and as a carbon sink. The sample plots will be established at 15 locations within the N'hambita community during June 2004.

A community tree nursery has been established adjacent to the main Nhambita 'village' area and Envirotrade has trained a number of community members and engaged them on a temporary basis as nursery staff. Seeds from; a.) locally grown fruit and nitrogen fixing trees, plus b.) locally collected indigenous trees with medicinal, fuel wood and bee flower properties, have been collected and germinated.

Approximately 40,000 seedlings the tree species names above have been grown and transplanted into larger plastic containers prior to planting out. A list of tree species and numbers is detailed in Appendix F

Discussions with the community regarding a permanent site for a central training nursery have resulted in a site being earmarked for development in late 2004. This site will require access to a reliable water supply, preferably by drilling a borehole.

### ***Activity 2 – Timber Utilisation***

Timber utilisation is included as a project activity in the belief that sustainable and low key timber harvesting, processing and marketing will facilitate greater community ownership and stewardship of the forest areas. One of the major challenges of working in this community is the very low level of literacy, education and technical ability. Prior to any timber utilisation activity the project partners must be certain that introducing training, tools and techniques will not result in greater rates of deforestation and will result in community benefit and sustainable forest management.

This necessitates an assessment of community capacity and a period of education and training.

An assessment of the capacity of the community to carry out basic timber utilisation tasks and conduct timber marketing and sales will be carried out over the next six months and costing for rudimentary timber processing and handling equipment have been prepared.

Meetings with senior civil servants in the Sofala District Forest Service have determined that a timber felling licence for areas of the GNP buffer zone within the Nhambita community area may be obtained on the production of a forest management plan and inventory data.

### ***Activity 3 – Plan Vivo systems through Agro forestry***

Plan Vivo maps are the basis through which all farmers are linked to carbon sequestration activity in the community. These maps are composed of simple land use plans that rely on the production of a menu of agro forestry activities that provide maximum benefit to the community. The delay in agricultural assessment, agro forestry evaluation and therefore the menu of Plan Vivo agro forestry systems has resulted in a reduction of activity within this sphere of project activity.

Envirotrade produced rudimentary Plan Vivo plans during the first quarter of the project activity (2003) for the first set of participating farmers. These plans comprise basic maps, mashamba boundaries and existing crops. These plans need further information and refinement that will take place during the dry season of 2004 [June-October].

Plan Vivo training for farmers (men and women) took place in the Nhambita community in early 2004. In addition, fire breaks around mashambas have been cleared for both boundary delineation and fire control. ECCM and Envirotrade carried out this training jointly, and Envirotrade has overseen the practical community work in relation to fire break clearance.

The training was designed to impart complex concepts to a predominantly preliterate community. Such that, global warming, carbon sequestration and trading and agro forestry activities were described in a 'classroom' style presentation that related tree growing by farmers to green house gas emissions from the developed world.

This training appeared to get across some key Plan Vivo operating principles although the proof of community understanding will be realised over the next four years of project implementation.

Envirotrade has worked closely with ORAM (a Mozambique NGO) and GTZ to build social capacity in the community in order that the community are better equipped to make decisions about lands use and sharing of project resources. The community hold meetings of at which many sections of the community are able to discuss resource use and make decisions about resource allocation.

### ***Activity 4 – Non-Timber Forest Products (NTFPs)***

NTFP activities are designed to broaden the income base of farmers and to use activities that place a reliance on the existing forest resource. Or to ease the pressure from agriculture, fuel wood/charcoal and hunting on the forest. One of the key NTFP activities is bee keeping and honey production. This activity relies on stewardship of forest areas, uses local knowledge to identify and nurture indigenous honey blossom trees and results in a high value low volume product which has an established demand in local towns, the national park and Beira.

Plans for NTFP activities were formulated in the first six months of project operation and one of the primary tasks prior to field work was training of project staff. Envirotrade staff attended beekeeping training in the Republic of South Africa in the early part of 2004.

Planning also identified the potential to establish four bee-keeping groups in areas where 'Food for the Hungry' (an NGO active in the Gorongosa District) have suggested a joint working arrangement for the production of beehives and training of community members. Envirotrade is working with Food for the Hungry to provide beehives, equipment and protective clothing to these groups. The project is contributing towards these resources.

Cane rat production is an activity designed to provide a protein source already favoured by the community and to decrease burning pressure on local forest areas. This is the favoured method of trapping cane rats.

Research into cane rat production has been carried out and a number of individuals within the community have been identified as suitable candidates for piloting cane rat domestication.

### ***Activity 5 – Regional Carbon & Forest Dynamics Research***

This component of the project is essential to gain an understanding of the landscape scale processes that are occurring within Gorongosa District and Sofala province. Research into the regional and local carbon baselines gives the project international credibility and the ability to more easily market carbon. The research into forest dynamics informs other elements of the project such as reforestation with Forest Management and sustainable tree extraction within the Timber Utilisation component.

The University of Edinburgh produced a literature review relating to the forest and carbon dynamics of Miombo forest, with particular reference to Sofala Province. See Appendix B

A scoping survey of woody plants in the N'hambita community area was carried out in December 2003 (Appendix B). A total of 103 woody species were identified locally, and 92 of these were identified botanically. A combination of floristic associations and species dominance measured by relative basal area contribution suggested the presence of three distinct classes of miombo woodland, *Combretum* woodland, riverine woodland and *Combretum*/Palm woodland throughout the area surveyed. A list of 25 woody species, considered suitable for carbon fixing and with attributes useful in agroforestry development, was produced. See Appendix B.

The N'hambita community forest area in the GNP buffer zone would appear to be predominantly miombo vegetation dominated by *genera* such as *Brachystegia*, *Julbernardia*, *Erythrophleum*, *Burkea*, *Diplorhynchus*, and *Pterocarpus*.

The University of Edinburgh has generated geographic information system (GIS) mapping of roads, tracks, mashambas (agricultural units) and topography.

Analysis of data has led to a the production of some preliminary findings:

1. Apparent agricultural encroachment into the park has been occurring near Gorongosa town, but not on a large scale elsewhere.
2. Mashamba units are visible on Landsat imagery

3. Land clearance within Nhambita would appear to be recent, estimated as within the last 13 years. The apparent encroachment near Gorongosa town also seems relatively recent.

A computerised map of elevation was also created using contours taken from a 1:200,000 Soviet map of Nhambita.

## **5. Lessons Learned**

The project has learned a number of lessons in the first year of operation related to communication and project management. These lessons may be summarised as follows:

- Regular communication between project partners and a clear understanding of each partners project roles and outputs are a prerequisite to good project working
- Infrastructure in Mozambique may not allow for regular inter project communication
- Financial and work programme management is essential in Mozambique, where material and capital costs are higher than in developed countries
- Community engagement needs to reach all user groups, especially women
- Project working needs to involve very basic technologies and simple, easily understandable techniques for community forest management and agro-forestry practices

These lessons have been compiled from project partner experience and actions are being taken to address each of them.