



UNDERTAKING CAPACITY BUILDING OF PELUM UGANDA MEMBER ORGANISATIONS AND AFFILIATE SMALLHOLDER FARMERS IN AGROFORESTRY AND FARMER MANAGED NATURAL REGENERATION



Members of Long Life Farmers group in Katakwi pose for a photo while tending to their Calliandra seedlings at their community tree nursery site.

FINAL ENGAGEMENT REPORT

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Disclaimer

Whereas TTP has extensively researched on the medicinal uses of tree species described in this report and provides references to the reader for consideration for use. We take no responsibility of any effect of use of the herbal medicine from tree species described in this report, whether or not arising from the negligence or misconception of the user.

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EXECUTIVE SUMMARY

PELUM Uganda recognizes the need for development of resilient agricultural systems that can increase agricultural productivity and food security while ensuring environmental conservation. Such systems include agroforestry which is basically about growing crops together with trees or shrubs and a new and cheap approach to managing trees on farm known as Farmer Managed Natural Regeneration (FMNR). The FMNR approach allows for management of coppicing and regenerating/germinating trees on the farm and has been proved to be a very cheap approach of tree growing and income generation for practicing farmers.

In order to increase systematic adoption of such approaches like FMNR and agroforestry, especially among smallholder farmers PELUM engage Tree Talk Plus to increase the capacity of the PELUM MOS to provide information and know-how of agroforestry and FMNR and these MOs would in turn promote these models to smallholder farmers. The package of this partnership also included improving access to good quality agroforestry planting material for the rural smallholder farmers, opening up FMNR and agroforestry demonstration sites and continuous technical capacity to selected MOs by TTP. This was geared towards further strengthening their skills in agroforestry and farmer managed natural regeneration and ensure successful uptake at community level. Tree Talk Plus further supported PELUM MOs in construction of tree nurseries, establishment of FMNR sites and enhancing value of the sites to ensure their proper management. This assignment also involved improving MOs capacity on profiling of local indigenous trees and in local seed collection.

The purpose of the engagement was to enhance the technical capacity of other MOs and affiliate smallholder farmers in agroforestry and farmer managed natural regeneration.

The following were the objectives of the engagement;

- i)** To further strengthen the technical capacity of the host farmers and member; organization staff on agroforestry and FMNR;
- ii)** To identify suitable sites for establishing community-managed agroforestry tree nurseries;
- iii)** To Identify MOs to support to host community-managed agroforestry tree nurseries;
- iv)** To Identify and map out sites for establishing community demonstrations on Agroforestry and FMNR; and
- v)** To further review and improve action plans and provide practical on-site technical support on tree nursery establishment and related issues.

This engagement resulted into establishment of over 15 hectares of FMNR sites established by about 20 small holder farmers and 3.5 acres directly supported by PELUM established by four member MOs. These sites have over 40 different regenerating indigenous trees. There is even more acreage that has been put under regeneration by affiliate farmers to the MOs but has not yet been computed. These sites have also been boosted to increase their value by profiling the uses of indigenous trees, filling their gaps with high value trees and including bee hives for apiary management. Also, at the end of the engagement, 10 MOs had successfully established small capacity tree nurseries of between 10,000 and 20,000 seedlings. An estimated 90,000 tree seedlings were successfully raised and were ready for planting by June 2019. Agroforestry tree species raised included; *Grevillea*, *Calliandra*, *Maesopsis eminii*, *T. superba* and *Melia volkensii*.

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ACRONYMS

CEPA – Communication Education and Public Awareness

CFM – Collaborative Forest Management

CFR – Central Forest Reserve

FMNR – Farmer Managed Natural Regeneration

GHG – Green House gases

MOs – Member Organisations

MPIFA – Mpigi District Farmers' Association

PELUM – Participatory Ecological Landuse Management

TTP – Tree Talk Plus

UBOS – Uganda Bureau of Statistics

A2N - Africa 2000 Network

THP - The Hunger Project,

ARUWE -

YARD - Youth Association for Rural Development,

EADEN,

WoW - War on Want

KCU- Katakwi Conserve Uganda

VEDCO - Volunteer Efforts for Development and Conservation

IUCN – International Union for Conservation of Nature

1 INTRODUCTION

1.1 BACKGROUND

PELUM Uganda recognizes the need for development of resilient agricultural systems that can increase agricultural productivity and food security while ensuring environmental conservation. Such systems include agroforestry which is basically about growing crops together with trees or shrubs and a new and cheap approach to managing trees on farm known as Farmer Managed Natural Regeneration (FMNR). The FMNR approach allows for management of coppicing and regenerating/germinating trees on the farm and has been proved to be a very cheap approach of tree growing and income generation for practicing farmers.

Despite the recognized potential role of agroforestry and FMNR, there is still limited systematic adoption of such approaches especially among smallholder farmers. This can be largely attributed to limited information and know-how of agroforestry and FMNR among smallholder farmers and limited timely access to good quality agroforestry planting material for the rural smallholder farmers.

In order to address these capacity gaps, PELUM Uganda organised a 5 day practical training on agroforestry and farmer managed natural regeneration for 10 member organisation¹ staff and their affiliate smallholder farmers in November 2018 where each MO developed an action plan to implement agroforestry and FMNR within targeted communities. To ensure successful implementation of the action plans, PELUM Uganda organized follow up technical backstopping support for member organizations whose staff and affiliate farmer representatives were trained. This was geared towards further strengthening their skills in agroforestry and farmer managed natural regeneration and ensure successful uptake at community level.

Tree Talk Plus further supported PELUM MOs in construction of tree nurseries, establishment of FMNR sites and enhancing value of the sites to ensure their proper management. This assignment also involved improving MOs capacity on profiling of local indigenous trees and in local seed collection.

1.2 PURPOSE, OBJECTIVES AND SCOPE OF REPORT

1.2.1 Purpose

The purpose of the engagement was to enhance the technical capacity of other MOs and affiliate smallholder farmers in agroforestry and farmer managed natural regeneration.

1.2.2 Objectives

The following were the objectives of the engagement;

- vi)** To further strengthen the technical capacity of the host farmers and member organization staff on agroforestry and FMNR
- vii)** To identify suitable sites for establishing community-managed agroforestry tree nurseries

¹ A2N, THP, KULIKA, MPIFA, ARUWE, YARD, EADEN, WoW, KCU and VEDCO

- viii)** To Identify MOs to support to host community-managed agroforestry tree nurseries
- ix)** To Identify and map out sites for establishing community demonstrations on Agroforestry and FMNR
- x)** To further review and improve action plans and provide practical on-site technical support on tree nursery establishment and related issues

1.2.3 Expected outcomes

The following are the expected outcomes from the engagement to be achieved with follow up by Tree Talk Plus, PELUM Uganda, affiliate farmers and individual organizations;

- i) Four Community tree nurseries established
- ii) Four agroforestry and FMNR demonstration sites established
- iii) 400 agroforestry seedlings in 4 demonstration centers planted
- iv) 40,000 agroforestry tree seedlings with affiliate farmers
- v) Over 15,000,000 UGX generated from sale of tree seedlings by participating groups
- vi) Over 20 hectares under FMNR maintained by community groups and PELUM MOs

1.2.4 Scope of the report

This report covers four activities that were carried out by TTP together with PELUM staff in relation to capacity building of MOs in Agroforestry, tree nursery establishment and the FMNR model. These activities include;

- i)** Training on agroforestry and FMNR
- ii)** Follow up visits and technical backstopping to MOs to provide support on action plans
- iii)** Establishment and of tree nursery sites with MOs and provision of technical support on the same
- iv)** Establishment of FMNR sites and provision of technical and material support on the same

1.3 RATIONALE AND CONTEXT

Uganda's economy is largely dependent on agriculture as its mainstay. The sector contributes 22% of the country's Gross Domestic Product, directly employs 66% of the population, accounts for 48% of the exports and provides a large portion of the raw materials for industry. Women provide majority of the labour force in agriculture estimated at 80%. Despite its importance, the sector performance has continued to decline. This is attributed to a number of factors; one of which is decreasing land resource due to population increase and climate change.

This causes the need for development of resilient agricultural systems that can increase agricultural productivity and food security while ensuring environmental conservation. Such systems include agroforestry which is basically about growing crops together with trees or shrubs and a new approach and cheap approach to managing trees on farm known as Farmer Managed Natural Regeneration (FMNR). The FMNR approach allows for management of coppicing and regenerating/germinating trees on the farm and has been proved to be a very cheap approach of tree growing and income generation for practicing farmers. Upon this background therefore, PELUM built the capacity of her MOs and affiliate smallholders farmers to enhance their technical competence (knowledge and skills) in agroforestry and FMNR and will therefore work towards technically addressing the identified challenges to ensure up scaling up of these practices within targeted communities.

As a member of PELUM, a promoter of agroforestry among smallholder farmers and host for the FMNR Network in Uganda TTP was trusted with the role to provide technical know-how to support PELUM in undertaking this task.

2 MOS TRAINING AND FIELD EXPOSURE VISITS ON FMNR

The first activity of this engagement was to conduct capacity building in FMNR and agroforestry. The training was conducted in Masaka from 26th to 30th November 2018 and attracted 10 PELUM MOs. These MOs were represented by 2 staff (a farmer and a technical officer from the organization). The trainees gained skills in nursery establishment and management, tree seed collection, FMNR practices among others. There were also practicals and exposure visits to three sites including Mpigi District Farmers' Association Nursery Site where participants were taken through nursery establishment and management practices; Nkozi Balikyewuunya Group in Nkozi where income generation in an agroforestry setting, and water harvesting technologies were showcased; Kitebe Kyamagezi Group in Mpigi where participants learnt about integration in agroforestry; and Rtd Capt John Ntengo, a model farmer in Butambala who leads a Collaborative Forestry Management group which practices FMNR in Gangu forest reserve in Butambala district. During the training, participants developed action plans for implementation.

2.1 TRAINING ON AGRFORESTRY AND NURSERY ESTABLISHMENT AND MANAGEMENT AND FMNR

The introductory session on agroforestry training mainly focused on the description, the background of agroforestry in Uganda and the benefits of the practice.



Figure 1: Trainees mixing soil for preparation of nursery beds

The major content of the agroforestry training are summarized in the following section;

2.1.1 Summary of agro-forestry and tree nurseries establishment training

The main purpose of agroforestry extension is to help people to examine problems which are affecting their lives and the landscapes they inhabit to consider if these problems may be solved, or at least alleviated, by using agroforestry techniques, within the range of their skills and financial resources.

Agroforestry systems may be classified based on the following criteria;

- **On a structural basis:** this refers to the composition of the system and the arrangement of it in space and time. Adding woody species into different niches (different parts of farms and the agricultural landscape) can increase diversity, sustainability and productivity.
- **On a functional basis:** this refers to the role or use of the tree component, such as timber, fruit, fodder, medicine. Typically, the inclusion of trees increases the number of products generated by the system, which then acts as a safety net for farmers. Services such as the use of trees as windbreaks and to prevent soil erosion may also be important in addition to tree products.
- **On a socioeconomic basis:** this refers to the purpose of the system with regard to human livelihoods, usually broken down into subsistence, commercial, and/or intermediate production systems. Agroforestry may be promoted to meet specific social goals such as poverty alleviation and food security.
- **On an ecological basis:** this refers to the suitability of the agroforestry system for a given environment. Thus there are different types of agroforestry for tropical, temperate and arid environments that take into account the environmental, ecological and biological conditions of each area.

Criteria for right agroforestry tree selection

The trainees were then taken through the criteria for choosing a good agroforestry tree, the basic characteristics of agroforestry trees to consider as detailed below:

Characteristics to consider while choosing an agroforestry tree;

- Coppicing ability
- Should be able to regenerate even after repeated pruning
- This eliminates problems of replanting
- Ease of propagation from both seed and vegetative materials
- Drought tolerance/ shade tolerance
- Branching characteristics
- Light crown /density. Trees should have a light canopy so that they do not completely cover the smaller crops grown under them
- Tree should be palatable and nutritious as fodder for livestock
- Trees should be nitrogen fixing to improve soil fertility and increase crop production.

An exercise was conducted to identify the species of different uses that can be planted for agroforestry, their advantages and uses were also listed together with the trainees with the help of the trainer. They were classified into five categories including fruit, timber, fodder, firewood, erosion control and poles.

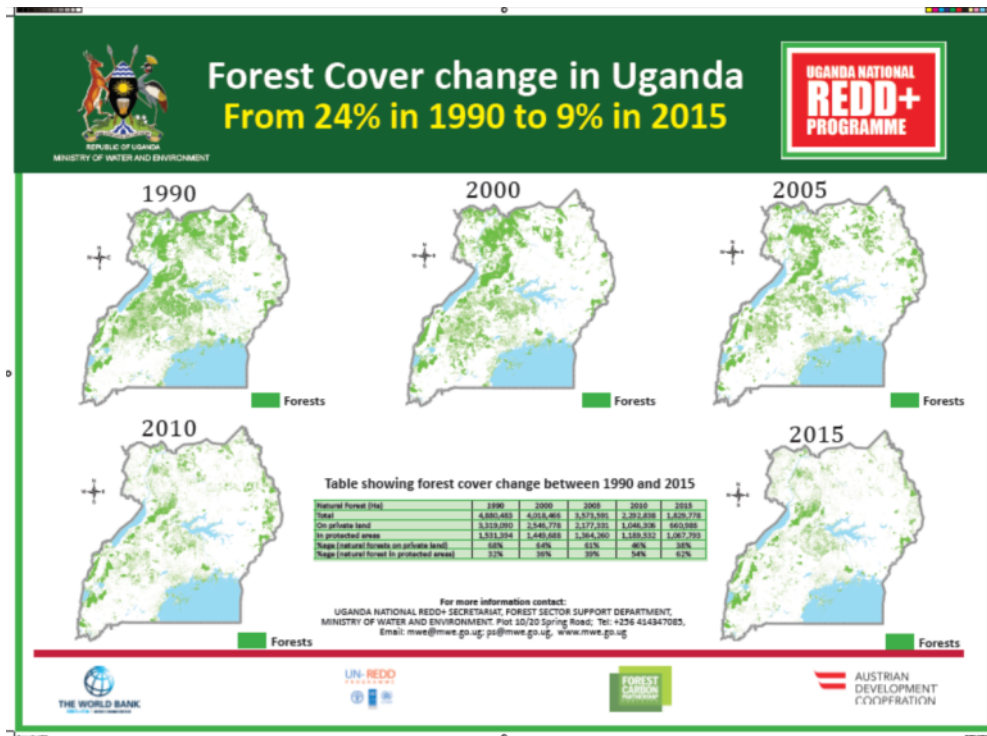


Figure 2: The agroforestry adoption is currently driven by loss of tree cover depicted above

2.1.2 Roadmap for work plans on agroforestry/FMNR interventions by MOs

The trainees were divided into groups, according to the organizations where they came from. The task was to;

- Identify an area where they operate
- Map out key issues in the area (challenges faced by the local population)
- Identify key resources (resource map for the area), and
- Identify possible solutions to the challenges identified, some of which could be solved using the local resources identified.

The resource maps were presented in the afternoon session of the second day.

The first session was a recap of the first days learning activities. The following were presented as the major learning points from the training on agroforestry;

- How we can plant trees and diseases of trees
- Susceptibility of land to erosion and agroforestry
- If agroforestry is put to proper use, poverty is eradicated
- Improving in tactics to improve what farmers are getting from extension services
- Location can determine the type of trees grown in an area
- Agroforestry systems and practices
- Status of forestry destruction in Uganda
- That when we plant trees we get a lot of benefits
- The relevance of agroforestry in changing farmers' lives
- Different types of agroforestry practices
- It is good to plant trees to help improve soil quality
- Tree farming helps stop soil erosion
- The meaning of agroforestry and different agroforestry systems
- Trees are very important when you want sustainability and resilience

- Money that can be generated from agroforestry

2.1.3 Nursery management practices

This session was about nursery practices, including setting up of nursery site and nursery operations as presented below;

The following activities are carried out in a tree nursery during the normal management processes;

- Site selection and preparation;
- Soil preparation and mixing;
- Seed bed preparation
- Pre-sowing treatments;
- Sowing;
- Shade construction;
- Watering;
- Pricking out;
- Root pruning;
- Weeding;
- Hardening off
- Record keeping;
- Transplanting;

Qualities of a good nursery bed

- The bed should be easily accessed from all sides
- It should have enough potting area
- Must be fenced to keep away stray animals that may damage the shade and the seedlings
- Have shelter from extreme sun and rain
- There must be a store for equipment and tools
- Should also have shelter for staff and visitors
- Mother bed (seed germination bed) protected from seed predators

Other topics covered in nursery management include the following;

- Soil Mixing for Potting
- Characteristics of good soil for potting
- Potting seedlings
- Procedures involved in Potting
- Stem and Root cuttings
- Budding
- Grafting
- Slot grafting
- Layering

2.1.4 Development of action plans on FMNR and Agroforestry

During the training all participants developed and presented their action plans for their selected areas of intervention. The plans listed the location, major challenges in the area and possible solutions. Below is a general wrap up of what was presented as challenges and possible solution.

Table 1: Presentation of action plans and comments

Member Organisation	Proposed area	Challenges identified	Possible solutions	Comments
Hunger Project	Magogo village in Iganda district	Deforestation; land fragmentation; broken borehole.	Afforestation; opening up land somewhere else for settlement; drilling wells	Some proposals were unrealistic like opening up land for settlement. Align the plan to agroforestry and FMNR
Hunger Project	Namayumba village Wakiso (Hunger project)	Floods; swamp reclamation; erosion; overplanting of eucalyptus	Making contours; environmental education; agroforestry.	The plan should be short term, getting rid of eucalyptus planted trees is long term.
War on Want/KOSAN	Amotot village – soroti district	Declining soil fertility; charcoal burning; overgrazing	Agroforestry; woodlots; sensitization; fodder trees	
	Abela Village – Apac district	Stone quarrying; wetland encroachment; soil erosion; deforestation; over grazing	Introduce livelihood options; sensitization; planting grass; tree planting; controlling grazing.	Specify other livelihood options and mechanisms to control grazing
VEDCO	Awei wot village, Alebtong district	Deforestation; soil erosion.	Tree planting; hedges; contour ploughing.	
MPIFA	Ntolomwe village - Butambala	Firewood; deforestation;	Afforestation/tree planting	
ARUWE	Kamudindi village – kyankwanzi.	Deforestation; flooding; barren land; overpopulation	Afforestation; community education	Specify community education topics and inferences and mechanism. This might not be possible
VEDCO - Iganga	Maseeke village	Deforestation; soil erosion; water stress; water pollution; fish predators; poor quality education	Afforestation; community education; borehole construction; chain fencing	Specify community education topics and inferences and mechanism. This might not be possible
Kulika Uganda	Lutisi village	Floods; Soil erosion; Soil fertility	Water catchment; contours; agroforestry	
Africa 2000 Network	Kongojje village - Wakiso	Deforestation; predators; soil erosion	Afforestation; chain link; tree planting; hedges	Some proposals like chain link might be expensive to purchase.

2.2 EXCURSION VISITS TO FMNR AND AGROFORESTRY SITES

A field excursion was organized for participants in Mpigi meant to expose them to practices of agroforestry and FMNR. Participants visited four sites; details at each site are tabulated in table 2.



Figure 3: The beginning of field excursion exercise

There were four sites visited during the field excursion. These, the intention of their visit and the learning points are described in the table below.

Table 2: Sites visited by training for exposure

Site	Purpose and relevance	Key lessons/learning points
Mpigi District Farmers' Association Nursery Site	At MPIFA nursery site the group was taken through demonstration for nursery establishment and management. Practices including site selection, bed orientation, construction, and seed bed preparation, sowing, watering and seed treatment before sowing were practically demonstrated.	Nursery establishment techniques. Seedling raising, pre-treatment for seed sowing and nursery management.
Nkozi Balikyewuunya Group	Water harvesting technology Agroforestry Orchard Renewable energy (biogas) Silvopastoralism	On farm income generation and low cost technologies were showcased. Integration Fruit growing (passion and oranges and their management).
Kitebe Kyamagezi	Integration in agroforestry, the home visited had a woodlot, coffee bananas, and have a tree nursery	Integration was well showcased at this site; there were over 30 different

Group	<p>which is supported by MPIFA and Vi agroforestry.</p> <p>During the visit the trainees were made to appreciate different types of enterprises that can be integrated in an agroforestry system.</p> <p>The group also makes wine out of pineapples. The trainees were taken through the process of making wine.</p> <p>At the site trainees also learnt about different medicinal plants that were integrated into the agroforestry system.</p>	<p>tree species with medicinal, woodlot species, fruit trees, vegetables, banana, coffee well maintained in a model Buganda cultural homestead.</p>
Rtd Capt. John Ntengo	<p>John leads a group of farmers is farming in Gunga CFR under CFM arrangements.</p> <p>Gunga, a degraded CFR is being recovered by tree planting. The indigenous trees being planted are failing.</p> <p>There was a regenerating FMNR plot intercropped with eucalyptus. There was also an FMNR site which had been left to regenerate. The area left to regenerate under FMNR was doing very well while the planted trees were struggling due to various conditions including bad weather, diseases and not matching the sites.</p> <p>At this site, trainees were made were able to identify regenerating trees from stamps and roots and were trained on how to manage the coppices.</p> <p>Capt. John also had a pineapple garden which he intercropped with trees. The trees were well spaced not to provide competition with the pineapples.</p>	<p>Management of coppices in FMNR</p> <p>Tree diversity in a regenerating forest.</p> <p>Forest enterprises like bee keeping.</p> <p>Why FMNR is better than tree planting.</p> <p>How to map off areas for FMNR.</p> <p>Commercial farming and alley cropping</p>

3 TECHNICAL BACKSTOPPING AND FOLLOW UP VISITS TO MEMBER MOS ON TRAINING ACTION PLANS

The technical backstopping support visits were carried out for member organizations whose staff and affiliate farmer representatives were trained in agroforestry and nursery establishment. This was geared towards further strengthening their skills in agroforestry and farmer managed natural regeneration and ensure successful uptake at community level. During this exercise TTP together with PELUM identified suitable sites for establishing community-managed agroforestry tree nurseries; confirmed MOs to support to host community-managed agroforestry tree nurseries; mapped out sites for establishment of community demonstrations on agroforestry and FMNR; reviewed action plans and provided practical on-site technical support on tree nursery establishment and related issues.

3.1 ESTABLISHMENT OF TREE NURSERIES

Nine (10) out of the trained 11 organisations had progressed well with the implementation of the action plans. Six out of eleven had already confirmed their tree nursery sites and some of them had gone ahead to start tree nurseries by making germination beds with tree seed collected locally. For FMNR sites, most of those identified within Central Uganda were not suitable due to having been previously over cultivated and/or the farmers having very small land holdings. However, some MOs had already started implementing FMNR within their gardens. This exercise helped PELUM determine which kind of support that is required for each MO depending resources at both PELUM and her MOs disposal in line with this work.

STATUS

*At the end of the engagement, 10 MOs had successfully established small capacity tree nurseries of between 10,000 and 20,000 seedlings. An estimated **90,000 tree seedlings** were successfully raised and were ready for planting by June 2019. Agroforestry tree species raised included; *Grevillea*, *Calliandra*, *Maesopsis eminii*, *T. superba* and *Melia volkensii*.*



Figure 4: Seedlings ready to plant at YARD Nursery

Table 3: Key issues identified during Technical Backstopping visits

Organisation	Key issues on tree nursery	Key issues on FMNR
Africa 2000 Network	<p>The biggest strength of the site is the willingness of the farmer group to contribute materials and labor. The site also has commercial potential because it is located in a trading centre.</p> <p>The nursery site is suitable and has a good location close to the road and water source. The group said they will also be able to afford barbed wire and poles to fence their site to deter roaming animals which looked like would be the biggest problem to the site.</p> <p>The soil mixing in the germination beds was not proper. The soil was not properly sieved and the seed had been buried too deep. Watering has also been late morning. These issues were discussed with the team members of this group and are now in position to do a better technical job.</p>	<p>The site proposed was not suitable, there were no stamps, was being cultivated and was close the wetland. Generally farmers in this area do not have enough land to be dedicated to the FMNR practice, except that the model can be successfully incorporated within the agroforestry system where farmers will be encouraged to manage regretting stamps scattered on farm.</p> <p>There is no potential for a proper FMNR site.</p>
Hunger Project Namayumba.	<p>We visited two sites proposed for nursery establishment, one by the roadside for a farmer who is already planting ornamentals and another for a farmer who was managing fruits including mangoes and oranges on commercial basis.</p>	<p>The FMNR site visited has great potential to be a model site for farmers. The farmer was already regenerating trees but in informal way and was not managing the coppices. The technical knowledge received during the visit could go a long way in changing the way she practices.</p> <p>We visited Ms. Teo Nassozi who has a potential FMNR site. The area she used as grazing land has a lot of Markhamia stamps that continuously regenerate and are cut for firewood and other purposes. The farmer was led through the process of managing of the coppices.</p>
MPIFA	<p>A site in Kibibi was visited intended to support the establishment of the site. The site is close to the road but the area may occasionally be susceptible to flooding and this needs to be checked. The host farmer for the site Ms. Mukalazi Florence was willing to clear the site for the nursery. The water source will need to be enhanced by digging in the wetland a proper well to supply the nursery constantly. An agreement with the land owner and MPIFA will be required.</p> <p>With the nursery site, this time MPIFA should not use a net, and instead construct nursery beds which let in more light. This is required for most indigenous trees that PELUM is proposing to grow in the nurseries. If this is not done there will be a lot of dumping off of seedlings.</p> <p>The strength at MPIFA is technical ability. The</p>	<p>The potential for the FMNR site is great and the farmer has over 3 years' experience practicing the model.</p> <p>The site for FMNR was generally good and the farmers were technical. More spacing between the natural trees will be required when he starts to regenerate trees on his own farm. Regeneration is currently done inside the forest reserves; this is a threat to any project in case the National Forestry Authority changes strategy or the farmers abuse their agreements leading to their cancellation. A site outside the forest reserve was acquired.</p>

	nursery site is not very good in terms of accessibility and slope	
ARUWE - Kyankwanzi	<p>The farmer leader trained has identified a group to work with known as Akalya amagwa farmers group. The group consists of 18 women. They were sensitized about agroforestry and FMNR. The group was also taught about how to start a nursery bed and identified the site for its establishment.</p> <p>The nursery site identified was susceptible to flooding, the group agreed to move it upwards by at least 5 meters. There is a lack of good top soil for using in the mixing of soil for potting at the site and this may require the purchase of forest soil. Generally the soil is sandy loam so there will be no difficulties acquiring the sand. The source of grass was not close enough; farmers will need to move a distance to look for grass for their nurseries.</p>	<p>There is not specific FMNR site that had been identified by the group. Regeneration will be integrated as a practice within the agroforestry system because of the nature of the area (has been over cultivated) especially amongst farmers' gardens. There was a public area that ARUWE is earmarking for regeneration where land is rarely cultivated but often grazed during the dry season.</p> <p>The FMNR site identified could not regenerate fast enough as there were no stamps. FMNR will only enrich the agroforestry sites. The public land proposed for FMNR cannot be relied upon as there may be change of land use of it as it is not controlled by ARUWE or the community members.</p>
YARD	<p>The identified sites for nursery establishment have the following issues;</p> <p>Site1</p> <ul style="list-style-type: none"> • The site is susceptible to thefts. It is far away from the homes and not properly accessible. Members would therefore find it difficult to access it. • The water in the dam was very dirty, and seedlings couldn't use it, maybe this would change if the brick laying activity close to the site stopped. If this doesn't stop, this water is not suitable. <p>Site 2</p> <ul style="list-style-type: none"> • The site near home is ideal. The biggest issue was that the water tank at the site seemed to be down. The capacity is also small for 10,000 seedlings. The fact that the group plans to grow fruit trees as well makes the water source very inadequate. If this site is chosen member will need to fetch water during the dry season to water the plants. 	<p>The FMNR farmers were supported to identify more regenerating stamps on their farms and guidance was further given on how to manage the stamps. The land holdings are small and may not allow for a proper FMNR gazetted site, however the members of the group have already taken on the practice and therefore they will only boost their agroforestry gardens by planting a few trees. Generally the area is suitable for FMNR under an agroforestry system but not as a standalone practice.</p>
AEDEN	<p>The nursery site identified was not suitable (even though it is already under use by the group with support from EADEN) due to the following reasons;</p> <p>The nursery had no source of water close to it. As a result some seedlings were drying due to prevailing hot conditions.</p> <p>The nursery was under polyethylene cover that is not suitable for some indigenous tree seedlings.</p>	<p>The site is good but lacks variability of the tree species regenerating. There is mostly <i>Maesopsis eminii</i> and <i>markhamia lutea</i>.</p>

Hunger Project Iganga	There has not been any progress on the work plan for Hunger Project. According to the community animator who was trained, this is due to limited resources to facilitate the process. Logistics needed were stationery and refreshments for farmers when they are called for sensitization meeting at the centre. The plan will be embarked on as soon as the resources are provided.	
	<ul style="list-style-type: none"> • FMNR site <p>One of the members of the group was already practicing FMNR provided the model site for FMNR. The site has great potential for regeneration; the size is over 1 hectare, although proper regeneration could be started on half an acre. At the time of inspection, 16 different species, more could be identified.</p> <ul style="list-style-type: none"> • Key technical issues <p>The site for the nursery was deemed unfit for production and therefore the group had to shift the site to a different area near a borehole and where there was proper access.</p>	

3.2 ESTABLISHMENT OF FMNR SITES

All MOs were encouraged to establish FMNR sites as models for their affiliate farmers to copy. The potential for this model is enormous in both northern and eastern parts of Uganda, and in these areas naturally occurring multipurpose trees can be regenerated from stump in a taungya system. In the central regeneration is hampered by small land holdings, although, now farmers will know how to manage their agroforestry stumps better. Farmers were supported to identify more regenerating stumps on their farms and guidance was further given on how to manage the stumps. Generally the central is suitable for FMNR under an agroforestry system but not as a standalone practice.

PELUM provided additional support (technical and material) to 4 MOs to establish model FMNR sites. By the end of the engagement, natural regeneration of trees could be seen to be taking place. These sites have over 40 regenerating different tree species. The sites were beefed up with bee hives and fruit trees. This will help increase the value of standing trees and ensure the farmers earn extra incomes from managing these sites.

CURRENT STATUS

*There are over 40 different regenerating indigenous trees on only four sites on a **total of 3.5 acres**. The rest of the area under regeneration in the central is also under agroforestry and hard to compute. These figures are for only 4 organisations provided with material support.*

*An estimated **15 acres** is under regeneration with other organisations that received training in the model.*



Figure 5: At this site in Mpigi, trees can be seen to have acquired over 1 meter height after only 2 months (left)



Figure 6: In Buikwe, this timeline photo shows height increase of *A. gummifera* also in only 2 years.



Figure 7: The FMNR site in Lira managed by VEDCO is well maintained and diverse

4 IN-SITU TRAINING, MATERIAL AND TECHNICAL SUPPORT ON AGROFORESTRY TREE NURSERY ESTABLISHMENT

The technical backstopping field visits were conducted over 11 day's period. During this period, the team held farmer group meetings to discuss progress on the action plans and to identify key issues hindering progress of their plans. On site field visits were conducted to each of the potential sites for the FMNR and agroforestry practices to ascertain their suitability for both or one of the models. The pros and cons for each of the sites were discussed together with the MOs and their affiliate farmers and the most suitable sites were selected each of the models. During the field visits, the team provided additional technical advice on how to proceed with setting up both models in the sites either identified or already existing. An evaluation tool with scores 1 to 3 was used to grade the performance of already existing establishments and the potential for those that may be established.

All of these MOs established community tree nurseries using equipment (including tree seed, and assorted nursery materials) provided by PELUM Uganda. The intended output of these established tree nurseries was a total of 40,000 tree seedlings. The nurseries have produced over 90,000 tree seedlings, over double figures of projection and averaging over 8,000 seedlings per site. The ripple effect could even see more nurseries being established by the MOs due to the capacity that they have now assumed and as a result the outputs of this engagement could further multiply.



Figure 8: The nursery site of Katakwi Conserve Uganda, seedlings can be seen germinating

5 SUPPORT TO MOS ON ESTABLISHMENT OF FMNR SITES

There are four MOs that were supported by PELUM to establish FMNR sites. The criteria for the selection of the MOs for support was based on;

- Availability of land to demonstrate FMNR;
- Regeneration potential of the FMNR site;
- Regional location of the MO;
- Species diversity of the site; and
- Commitment of the affiliate farmer of the MO to manage the site.

Following this criteria, the following were selected for support with materials including bee hives, and fruit tree seedlings to beef up the production potential of the site.

- Katakwi Conserve Uganda
- Mpigi District Farmers Association
- Volunteer Efforts to Conserve the Environment
- YARDProfile of FMNR Sites

5.1.1 MPIFA FMNR Site

Site overview

Site location : Ntolomwe Village – Butambala District

Size of site : 1 Acre

Number of identified species : 13

Number of un identified species : 1



Figure 9: Current appearance of the Ntolomwe site

The following section describes the tree species found at the site. Alternative names of trees are given in Luganda, where possible and in English when not yet identified.

1. *Dombeya torida*, Forest Dombeya



Dombeya is one of the fast growing indigenous trees on this site (see site photo left) wood is soft but tough and heavy, it is used for poles and making tool handles. This species is recommended for planting to increase honey production as it is considered one of the best nectar producing trees Bees collect pollen and nectar throughout the day from its flowers. The bark fibre is used for making cloth and string or rope. Fallen leaves produce rich mulch for soil improvement. High quality forest soil for use in the nursery is collected under dombeya trees.

Medicine: *Root and bark decoction is used for wound dressing.*

2. *Antiaris toxicaria*, False Mvule, Kirundu (Luganda)

Antiaris is dense and is a soil improver through litter fall. It is fast growing and is used in light construction. The species is not suitable for intercropping due to its dense shade.

Medicine: *The leaves and root are used to treat mental illnesses. Seed, leaves and bark are used as an astringent.*

3. *Pycnanthus angolensi*, Lunaaba

Pycnanthus angolensis grows to about 25-35 (40) m high and 60-100 (150) cm in diameter, in Uganda *P. angolensis* is often planted as a shade for bananas, coffee and cocoa. The oil is extracted from the seeds and is used in making soap.

Medicine: *Bark decoction is an emeto-purgative and can act as an antidote to poisoning; help treat leprosy and, if pounded, used for stomachic. Sap acts as a syptic (arrests bleeding). Leaf and bark help to relieve toothache. Leaf decoction as a drink or enema for dropsy. Seed fat and probably leaf juice is used in treating thrush (yeast infection).*

4. *Entandrophragma cylindricum*, Muyovu

This valuable tree has been removed from most of the forests of Uganda due to over harvesting for its strong timber. It is said to be heavier, stronger, harder and more durable than mahogany. It is a first-class timber used for indoor and outdoor furniture and beautiful veneers. It is claimed that this is the tallest tree in Africa.

This is a previously forested area and it is one of the trees regenerating at this site from seed.

Medicine: *Not known*

5. *Sapium ellipticum*, Musasa, Musanvuma (Luganda)

S. ellipticum normally has a crooked trunk and low drooping branches. It is one of the most widely distributed trees. It is a source of firewood and is used to produce charcoal. Timber: The wood is soft, pale coloured, light in weight and tough, but not durable; it is used for tool handles and farm implements.

Medicine: Leaves and roots are used to treat mumps

6. *Tremor orientalis*, Kizogera

T. orientalis is one of the fastest growing trees. Most times, it is the first species to sprout in regenerating land forest land. *T. orientalis* makes good bee forage, coppices well and it can provide plenty of firewood and excellent charcoal which is even suitable for making gunpowder and fireworks. It is used in paper and pulp production. The bark is made into ropes.



Medicine: Both bark and leaf decoctions are used as a gargle, inhalation, drink, lotion, bath or vapour bath for coughs, sore throat, asthma, bronchitis, gonorrhoea, yellow fever, toothache, as a vermifuge, and it is known to have anti plasmodium properties. The leaves are reported to be a general antidote to poisons and a bark infusion is drunk to control dysentery. A leaf decoction is used to deworm dogs.

7. *Tetrapleura tetraptera*, Muyegenye

Tetrapleura tetraptera is deciduous; it reaches 20-25 m in height, with a girth of 1.5-3 m. The common uses for this tree are medicine, food, timber, firewood, shade and cultural applications. The bole is slender and older trees have very small, low, sharp buttresses. In the forest, the crown is fairly small, thin and rounded, becoming flat when old, but it tends to spread when in the open. Bark fairly smooth, grey-brown, very thin; slash reddish, strong smelling, fairly thick. [http://www.worldagroforestry.org/treedb/AFTPDFS/Tetrapleura tetraptera.PDF](http://www.worldagroforestry.org/treedb/AFTPDFS/Tetrapleura_tetraptera.PDF)

Medicine: Unknown

8. *Vernonia amygdalina*, mululuza, muburizi

This is a very common garden tree in Uganda. The leaves of *V. amygdalina* have a bitter taste, but in some communities are eaten as raw vegetables. 'Chewsticks' from the roots and twigs are regarded as an appetizer. Both firewood and charcoal are derived from *V. amygdalina*. It produces very light, fine flavoured honey also believed to have medicinal properties.

Medicine: An infusion from the roots is given to children suffering from infection by a trematode (*Enterobius vermicularis*). A cold infusion of the root bark, together with other plants, is given in daily doses to treat bilharzia. The bark and root are taken as a tonic by people suffering from fevers; leaves are also pounded, the juice extracted and drunk for fever. The leaves are pounded and mixed with warm water for bathing to treat spots on the skin and nausea.

9. *Erythrina abyssinica* (kiyirikiti, muirikiti, jirikiti, muyirikiti)

E. abyssinica is rarely planted but occurs in gardens in well drained soils. In some parts in Uganda its flowering is used as an indication for the onset of rains.

Medicine: Pounded parts are used in a steam form to treat diseases such as anthrax, and the bark is boiled with goat meat for treating gonorrhoea. The bark of the green stem may also be pounded and then tied into a fine piece of cloth and the liquid from it squeezed into the eyes to cure inflammation of the lids. The bark may be roasted until black, powdered, and applied to burns and general body swellings. A decoction is taken orally as an anthelmintic and to relieve abdominal pains. The roots are used to treat syphilis, and the leaves to cure skin diseases in cattle.

10. *Spathodea campanulata*, kifa bakazi)



S. campanulata occurs in most gardens in Uganda, it has soft, light brownish-white wood which is used for carving and making drums. The seeds are edible and used in many parts of Africa.

Medicine: The bark has laxative and antiseptic properties, and the seeds, flowers and roots are used as medicine. The bark is chewed and sprayed over swollen cheeks. The bark may also be boiled in

water used for bathing newly born babies to heal body rashes.

11. *Maesopsis eminii*, Musizi

M. eminii has been successfully used as a shade tree, for coffee in Uganda, cocoa in the Democratic Republic of Congo, and cardamom plantations in southern India. It is commonly retained in home gardens for light shade and does not compete with crops when intercropped.

Medicine: A strong purgative and diuretic can be made by soaking the bark in cold water. The root bark is beaten with clay and used to treat gonorrhoea.



12. *Albizia gummifera*, Nongo

A. gummifera is one of the commonest trees



growing in Uganda. It provides good fuelwood, its timber is pale brown and of medium strength and not very durable. The root system of *A. gummifera* holds soil and prevents gully erosion. Known to fix Nitrogen and is a good mulch tree. The ability to associate with crops is indicated by the tendency to leave the tree standing in cultivated fields, intercropped with coffee in and banana in Uganda. The leaves quicken the ripening process in bananas.

Medicine: A bark decoction is used against malaria antiprotozoal properties further validated in in-vitro tests. In east Africa extracts from the crushed pods are taken for stomach pains and the bark decoction for malaria.

13. *Albizia coriaria*, Mugavu

The mugavu tree is one of the most useful trees across Uganda. Its foliage eaten by livestock; the



tree is a useful source of bee fodder; it's used as firewood and for charcoal making; the heartwood hard and durable and is used for boat building, utensils and furniture manufacture. It is one of the species used in a permanent cultivation indigenous agroforestry system on the central plains of Uganda. Photo by [Charles W. Kane](#)

Medicine: Bark is used for the treatment of menorrhagia (heavy and prolonged periods), threatened abortion and post-partum haemorrhage. The roots and bark in concoctions with *Carissa edulis* and *Euclea divinorum* are used in treating venereal diseases or used in steam fumigation treatments for sore eyes. The bark decoction is used in treating cattle diseases and a number of abdominal problems associated with protozoan parasites.

5.1.2 Buikwe FMNR site - YARD

Site overview

Site location : Buikwe, Buikwe district

Size of site : 0.5 acres

Number of identified species : 17

Number of un identified species : 3

Species at the site of Buikwe managed by a farmer group supervised by YARD. Trees at this site are stated in Lunganda, some have already been described as indicated in the section below.

1. *Vernonia amygdalina*

See species description number 8 under MPIFA site.

2. *Albizia gumifera*

See species description number 12 under MPIFA site

3. *Albizia chinensis*, *Alubiziya*

Albizia chinensis is an unarmed, deciduous or evergreen tree with a flat, spreading crown, up to 30(-43) m tall and trunk up to 70(-140) cm in diameter; bark dark gray, rather smooth, densely hooped, lenticellate, thin; live bark 5 mm thick, pinkish-red. The leaves of leaves of are readily eaten by goats



http://www.worldagroforestry.org/treedb/AFTPDFS/Albizia_chinensis.PDF

Albizia chinensis is a fast growing legume which produces low quality firewood and the wood is lightweight, soft and not very durable used to house building, light furniture. When planted, *A. chinensis* stabilises slopes. It has also been planted in coffee and tea plantations. Photo by [H. Kolster](#)

Medicine: *unknown*

4. *Cordia africana*, mukebu

C. africana has multiple uses; it provides good bee forage, as the flowers yield plenty of nectar. The wood is used for high-quality furniture, doors, windows, cabinet making, drums, beehives, joinery, interior construction, mortars, paneling and veneering. In Uganda it is commonly used to make boats. It is also commonly planted with coffee trees to provide shade.

Medicine: *The fresh, juicy bark is used to tie a broken bone; this splint is changed occasionally with a fresh one until the bone is healed.*

5. *Maesopsis eminii*, Musizi

See species description number 8 under MPIFA site.

6. *Markhamia lutea*, Musambya

M. lutea trees are common across Uganda and are a source of firewood and produce good charcoal. : The wood, which is fairly resistant to termites, is used for furniture, poles, posts, tool handles and can also be used in boat building.

Medicine: *Leaves are known to have medicinal value*

7. *Maesa lanceolata*, Kiwondowondo



A shrub or small tree about 5 m. the back is grey-brown, rough; pale dots of breathing pores on branchlets. The leaves are simple, wide oval, usually up to 10 cm long, shiny green above, pale below, thick and leathery; the edge well toothed, tip pointed, a leaf stalk 2-3 cm, often yellow.

[http://www.worldagroforestry.org/usefultrees/pdflib/Maesa lanceolata UGA.pdf](http://www.worldagroforestry.org/usefultrees/pdflib/Maesa_lanceolata_UGA.pdf)

Medicine: *Used as a traditional medicine against bacterial infections in the small intestine and viral infections in the liver and throat, as well as treatment for rheumatic arthritis. Even though the activity of *M. lanceolata* leaves has been studied in angiogenesis, which is significantly related to cancer and tumorigenesis, tangible evidence for cancer inhibiting activity of *M. lanceolata* seeds has not yet been obtained. The first study in which an anti-cancer compound has been identified from the seeds of *M. lanceolata* and its anti-tumor activity evaluated in HCT116 human colon cancer cells (Soon Young et al, 2014).*

8. *Jatropha curcas*



Jatropha is widely planted as a fence and support to vanilla plants in Central Uganda. It has various uses, mostly its oil rich seeds as fuel and a multitude of listed medicinal uses described below.

Medicine; the seeds of the *Jatropha curcas* have been used as a purgative/laxative: 3–4 roasted seeds are swallowed with lukewarm water or chewed and then swallowed to relieve conditions of constipation. The seed oil is used in the treatment and management of various conditions like arthritis, gout, eczema, skin

diseases, rheumatic pain, jaundice, burns, inflammation, gonorrhoea, and as an abortifacient. The leaf infusion or decoction of *Jatropha curcas* is administered for treatment of vaginal bleeding conditions in many communities and is also used both internally and externally to treat fever and jaundice. Rheumatic conditions are treated and managed by the external application of the leaf decoction or by massaging the affected joint-part using the juice/sap extract from the fresh leaves. The leaf decoction is also taken to treat malaria, mouth infections, guinea worm sores, as well as the treatment of dysentery and colic conditions. The leaf of *Jatropha curcas* is used to increase the milk supply in lactating mothers. Fine dried leaf powder is applied to the wound to speed up its healing and protect it from microbial infections.

The root decoction is used for the treatment of eczema, scabies, ringworm, gonorrhoea, dysentery, diarrhea, and the oil extract from the roots is used as an antihelminthic agent. The root decoction is also used as a mouth wash to treat bleeding gums and to relieve toothache.

In some regions of Africa, the fresh twig of *Jatropha curcas* is used as a toothbrush to treat gumboil conditions as well as to strengthen the gum. In addition, the latex from the stem is collected by the traditional healers and used for a mouth rinse, to treat gum bleeding, toothache, and in some cases for soothing babies' inflamed tongues. The latex is also applied on the wound to quicken its healing, relieve bee sting pain, and is also used to relieve digestive troubles in children. Furthermore, the traditional healers use the stem bark latex for massaging inflamed body parts to relieve the condition. **Extracted from (D.M Reddy, 2012)**

9. *Calliandra calothyrsus*

Calliandra is a very fast growing tree whose leaves and pods are rich in protein and do not contain any toxic substances. Its fodder can be given to all types of ruminants and fulfils 40-60% of their needs. Flowers contain nectar and because flowering lasts throughout the year bee keeping is profitable. The honey produced by *C. calothyrsus* has a pleasant bitter sweet flavour. It is a good firewood species because it is fast growing, multi-stemmed, easy to regenerate and thornless. *C. calothyrsus* can be used to rehabilitate erosion-prone areas and recover land exhausted by agriculture, where it easily dominates undesired weeds such as *Eupatium* spp., *Saccharum* spp.,



and *Imperata cylindrica*. Roots are able to fix atmospheric nitrogen because of the symbiosis with Rhizobium bacteria (to which root nodules bear witness) and the symbiosis with root fungus.

10. *Antiaris toxicaria*

See species number 2 under MPIFA site list

11. *Spathodea campanulata*

See species number 10 under MPIFA site list.

12. *Annona muricata*, *Kitafeeri*



Annona is a common garden and compound fruit that is gaining popularity at a very fast rate in Uganda due to its medicinal uses and fruit. The fruit of *A. muricata* can be consumed fresh for dessert. However, more often the puree is consumed after squeezing the pulp through a sieve. It can be made into fruit jelly, juice (with sugar added).

Medicine: *The crushed leaves are applied to mature boils and abscesses or are used as a remedy for distention and dyspepsia, scabies and skin diseases, rheumatism, coughs and colds. The leaves may also be used to make a decoction, which is taken orally with salt for digestive tract ailments and to relieve fatigue. A crushed leaf and seed decoction is taken orally for intestinal malaise. A massage of the leaves is good for nervous shock, while a leaf or bark decoction is used for anxiety attacks. Flower or flower bud tea is mixed with honey for colds, chest pain and nerve disorders, and the bark and young fruits, which contain tannin, are*

used to treat diarrhoea and dysentery. The green bark is rubbed on wounds to stop bleeding.

13. *Bridelia micrantha*, *Kasangati*, *katazamiti*

B. micrantha A multipurpose tree, it is commonly harvested for its fruit, medicinal applications, timber, fuel and many other applications. The plant can be effectively used as a background plant in the garden, adding a splash of colour with its yellow, orange and purple leaves. [https://uses.plantnet-project.org/en/Bridelia_micrantha_\(PROTA\)](https://uses.plantnet-project.org/en/Bridelia_micrantha_(PROTA))

It makes an excellent shade tree, not only in the garden but also on the farm, forming a neatly shaped crown in only 3 years. Other uses include dyeing. A red dye is extracted by boiling the bark, and a black dye is obtained from the leaves, twigs and wood. The fruit also contains a dye.

Medicine: *A bark decoction is taken as a remedy for stomach-ache and tapeworm. The bark is also boiled to make a soup for treating diarrhoea in children, or is mixed with milk and drunk as a tonic. A decoction of roots is drunk to cure aching joints. The leaf sap is used as an application to sore eyes and, in a decoction with a number of other plants, for the treatment of*



conjunctivitis. The root is used as a remedy for severe epigastric pain and is applied to the scalp to relieve headache. A decoction of the root is drunk as a purgative, an anthelmintic or an antidote for poison, as it causes vomiting or diarrhoea that gets rid of the poison. An infusion made from the root is taken orally for coughs. The powdered bark is applied to burns to speed healing.

14. *Artocarpus heterophyllus*, fene, yakobo

This is one of the commonest fruits in central and western Uganda. The tree is not specifically suitable for planting within gardens because it will result into crop destruction during its yields. It is known to have lots of nutrition value (fruit and seeds)

Medicine: Ashes of leaves, with or without oil, are used in Malaysia and Philippines to treat ulcers, diarrhoea, boils, stomach-ache and wounds. Pulp and seeds of the fruit are regarded as a cooling tonic. Seeds are said to be an aphrodisiac. The sap is believed to cure syphilis and worms. A root decoction is used to alleviate fever, treat diarrhoea, skin diseases and asthma. The bacteriolytic activity of *A. heterophyllus* sap is similar to that of paw paw latex. It can be mixed with vinegar to promote healing of boils, snakebite and glandular swellings.

15. *Premna angolensis*, Mutala

P. angolensis occurs in bushlands, woodlands, on edges and gaps of forests. Its stem is normally crucked when growing outside the forest but straight when competing in shade. The occurrence of this species at the site in Buikwe was an indication that this was previously a forest

Medicine: Used to treat fever and headache (leaves), diarrhea and dysentery (sap), casts a light shade and provides leaf mulch and has potential for intercropping. Stands will close at spacing 2.5 by 2.5 metres.

16. *Psidium guajava*

Guavas generally readily grow in home gardens when dispersed by birds and other animals. They are also said to have invasive characteristics. The best place to plant guavas for home consumption is on the boundary of gardens and in compounds. The wood of *P. guajava* is hard. It is used for tool handles, fence posts and in carpentry and turnery. Wine making from the fruits on commercial level is done in Southern Africa.

Medicine: The dried ripe fruits are recommended as a remedy for dysentery, while the leaves and fruits are used as a cure for diarrhoea. A decoction of the leaves or bark is taken externally as a lotion for skin complaints, ringworm, wounds, and ulcers. Water from soaking the fruit is good to treat diabetes. Some suggested treatments are digestive tract ailments, cold, and high blood pressure: leaf decoction or fruit juice with salt or sugar taken orally. Trauma, pain, headache, and rheumatism: hot leaf decoction compress. Sore throat, hoarse throat: leaf decoction, gargle. Varix, ulcer: leaf decoction, treated with warm water, bath. Hepatitis, gonorrhoea, and diarrhoea: clear fruit juice. http://www.worldagroforestry.org/treedb/AFTPDFS/Psidium_guajava.PDF

17. *Macaranga kilimandscharica*



The species is common but not planted in gardens in these gardens minimises drought, pest and economic risks associated with monocultural farm systems. The species is also used as a coffee shade tree due to its ability to provide proper shade.

Medicine: *This is commonly used traditional medicine in Uganda, angina (chest pain), root extracts are drunk for bilharzia treatment, and the root decoction is drunk as a cough remedy and the leaf decoction for stomach ailments.*

5.1.3 Aweiwot Site – VEDCO

Site overview

Site location : Aweiwot Village

Size of site : 1 acre

Number of identified tree species : 9

Number of un identified species : 5

The tree species identifies at this site are described below, local names are given in Lango (some names are the same in Luo) and sometimes Luganda.

1. *Combretum molle*, Odugu (Langi) – Ndagi (Luganda)



Figure 10: A fruiting *combretum molle* at the FMNR site in Aweiwot, Lira

This is one of the species prominently used to burn charcoal in Northern Uganda and Nakasongola areas, and areas around the cattle corridor. The leaves of *C. molle* are browsed by cattle and its flowers attract bees and make good forage for honey production. The firewood burns slowly, giving intense heat, and is suitable for firewood and production of high quality charcoal. This tree is now assuming high value due to its

Medicine: Boiled root decoction is used to induce abortion and treat constipation, leprosy, headaches, stomach pains, fever, dysentery, general pains, swellings and as an anthelmintic for hookworm. The root and leaf together are believed to be an antidote for snake bite; leaves are chewed or pounded, soaked in water and the juice drunk for chest complaints and as an anthelmintic, or they are used as an inhalant in hot steam bath. An infusion of the inner bark is taken orally or as to relieve various stomach ailments. The bark exudes a gum that can be used to treat wounds, or crushed dried or fresh leaves can be used for the same purpose.

2. *Clerodendrum myricoides*, Okworo

This is a shrub whose medicinal medicinal uses not yet confirmed.

3. *Annona senegalensis*, Obwolo



A. senegalensis has similar appearance and uses to *A. muricata* (**See species list under YARD site**). At this site there were only 2 trees of this species.

From *A. senegalensis*, a yellow or brown dye is obtained from the bark. **Photo credit:** Wikipedia

Medicine: The bark is used for treating guinea worms and other worms, diarrhoea, gastroenteritis, snakebite, toothache and respiratory infections. Gum from the bark is used in sealing cuts and wounds. The leaves are used for treating pneumonia and as a tonic to promote general wellbeing. The roots are used for stomach-ache, venereal diseases, chest colds and dizziness. Various plant parts are combined for treating

dermatological diseases and ophthalmic disorders. In South Africa, roots are said to cure madness.

4. *Terminalia macroptera*, Opok

Opok is one of the most revered indigenous trees in Lango and Acholi sub regions in Uganda. It is facing threats from charcoal burning and woodfuel. A tree with an open, spreading crown; it usually grows from 4 - 10 metres tall, with occasional specimens to 20 metres. It has a short bole that is rarely straight.

Medicine: *T. macroptera* is widely used against a diseases in different countries. The powdered bark is used to treat piles, diarrhoea and dysentery. An enema made from a decoction of the bark is used as a treatment for piles. A decoction of the bark is used as a wash to cleanse sores. The bark is used as a tonic and aphrodisiac, diuretic, haemostatic, purgative and tonic. A decoction is considered a strengthening tonic, and is used in the treatment of many illnesses causing debilitation and depression; it is also used for fevers, jaundice, syphilis and as an aphrodisiac. It is considered a useful treatment in urethral discharge and urinary trouble especially during pregnancy. A decoction is used topically on sprains. The roots are chopped up into small pieces then macerated to a lotion which is applied to sprains. Fruits which have been galled are used as an astringent for dysentery.

A hot decoction of the leaves can be used as a treatment for ringworm and other skin diseases.



variety of uses to from a decoction roots are given in and as an cases of women wounds.

Fruits treating

treatment

5. *Lonchocarpus laxiflorus*, Olwedo

Lonchocarpus laxiflorus is listed on the IUCN Red List². It is distributed in savannah areas from Senegal and Cape Verde Islands through West and Central Africa to Uganda, Its leaves can be eaten by cattle and goats. At this site and neighbouring gardens Olwedo was abundant in distribution.

Medicine: Medicinal uses not currently available.

6. *Vitalleria paradoxa*, Yao

V. paradoxa is one of the trees under threat in Northern and Eastern Uganda due to its multiple uses and demand. It is not a typical agroforestry tree, but due to its usefulness farmers tend to leave it grow with other crops in an agroforestry system. It is said to be the 2nd most important oil crop in Africa, after oil palm



Medicine: The shea nut oil is a product of the *V. paradoxa* tree is used in making of many cosmetics and has several uses including; protection against sunburn, so is a useful ingredient in sun-protection or post-sun-exposure products, encourages wound healing and soothes skin irritation. The oil is traditionally used in medicines, particularly for the preparation of skin ointments, and is used to treat inflammation, rashes in children, dermatitis, irritation, ulcers. Leaf decoctions are used for stomach-ache, headache and as an eye lotion.

Roots and root bark are ground to a paste and taken orally to cure jaundice. They are also used for the treatment of diarrhoea and stomach-ache (Orwa et al. 2009.) Infusions have been taken for the treatment of leprosy and for gastric problems as well as for diarrhoea and dysentery.

7. *Ficus calyptroceras*, Oduru

Species information to be confirmed.

8. *Albizia coriaria*, Owak

See species description 13 under previous YARD site.

9. *Piliostigma thonningii*, Ogali, Kigaali (Luganda)

P. thonningii has a rounded crown and a short but often crooked bole and rough bark. It is common in open woodland and wooded grasslands medium to low altitudes. It is very common in Northern and Eastern Uganda. It is usually associated with *Annona senegalensis*, *Grewia mollis* and *Combretum* spp. It provides good fuelwood and locals use the inner bark to make ropes (usually tied on charcoal sacks). The tree is used in dye production (roots, seeds, bark and pods)



Medicine: *P. thonningii* is used medicinally in many African countries to treat wounds, ulcers, gastric/heart pain (root bark) among other ailments

² The IUCN Red List of Threatened Species (also known as the IUCN Red List or Red Data List), founded in 1964, is the world's most comprehensive inventory of the global conservation status of biological species.

5.1.4 Katakwi site – KCU

Site overview

Site location : Katakwi

Size of site : 1 acre

Number of identified tree species : 11

Number of un identified species : 5



Figure 11: Katakwi site has a diversity of hard wood species

The species under this site are described below and the alternative local name is give in Atesot and sometimes Luganda.

1. *Acacia hockii*, *Ekism*, *Kasaana* (Luganda)

A. hockii is common in drier areas; it is mainly used for firewood and charcoal and this has threatened it as it is very slow growing. The back can also be used to make ropes and dry branches are commonly used for fencing because they are thorny.

Medicine: The roots of this tree are used to treat cough.

Photo credit: Global plants



2. *Acacia sieberiana*, *Etirir* - Luganda (*mweramanyo*, *muwawa*)

A sieberana grows in the savannah and woodland. It occurs with semi-arid areas. Various varieties and local races exist. The species is especially suited for riverbanks or low ground and replaces. It grows

slowly, is drought resistant hard to plant and more suitable for natural regeneration. This tree is threatened by charcoal and fuelwood.



3. ***Prosopis africana*, Eikiki**

Proposis is nitrogen fixing large tree that is grown near homestead in Northern and Eastern Uganda. The tree is nitrogen fixing and is sometimes left to grow within gardens due to its ability to provide useful mulch for the soil. It grows well in semi-arid areas and in rocky soils.

Medicine: *Almost all parts of the tree are used in medicine, the leaves in particular for the treatment of headache and toothache as well as various other head ailments. Leaves and bark are combined to treat arthritis. Remedies for skin diseases, caries, fevers and eyewashes are obtained from the bark. The roots are a diuretic and are used to treat gonorrhoea, tooth and stomach-ache, dysentery and bronchitis. In Mali the leaves, bark, twigs and roots are used to treat and relieve bronchitis, dermatitis, tooth decay,*

dysentery, malaria and stomach cramps.

Photo credit: Wordpress

4. *Combretum molle*, Ekworo

Refer to species 1 under KCU site.

5. ***Combretum collinum*, Ekuloin, Ekulonyi**

This tree is mainly used for charcoal burning and firewood in Northern and eastern Uganda because it makes very good charcoal. In an FMNR setting, *C. collinum* can help in supporting honey production due to its heavy flowering. It is reported to be used for making tool handles and used for wagon building and canoes.

Medicine: *Roots are boiled and the decoction drunk warm as treatment for dysentery and snakebite.*



6. ***Euphorbia candelabrum*, Eputon**

Eputon is common but grows naturally and rarely planted. All parts of the plant produce copious milky latex which is poisonous; if the sap drops in the eye can cause blindness. When dry the light durable wood has many local uses and is sometimes used for roofing.

7. *Piliostigma thonningii*, Epapai

See species description 9 under KCU site

8. *Anacardium occidentale* (cashew nut), Ejugutu

Anacardium occidentale is a medium-sized tree, spreading, evergreen, much branched; grows to a height of 12 m. The root system of a mature *A. occidentale*, when grown from the seed, consists of a very prominent taproot and a welldeveloped and extensive network of lateral and sinker roots. The cashew nut is sparsely distributed in northern and Eastern Uganda.

Medicine: Cashew syrup is a good remedy for coughs and colds. Cashew apple juice is said to be effective for the treatment of syphilis. Root infusion is an excellent purgative. Old cashew liquor in small doses cures stomach-ache. The oil obtained from the shell by maceration in spirit is applied to cure cracks on the sole of the feet, common in villagers.

Cashew apple is anti-scorbutic, astringent and diuretic, and is used for cholera and kidney troubles. Bark is astringent, counterirritant, rubefacient, vesicant, and used for ulcer. Cashew nut shell oil is anti-hypertensive and purgative; it is used for blood sugar problems, kidney troubles, cholera, cracks on soles of feet, hookworms, corns and warts. The kernel is a demulcent, an emollient and is used for diarrhoea. Buds and young leaves are used for skin diseases. The resinous juice of seeds is used for mental derangement, heart palpitation, rheumatism; it was used to cure the loss of memory that was a sequel to smallpox.

Photo credit: Amazon.com



9. *Sclerocarya birrea* ssp. *Caffra*, Ekajekaje

Most well known as the tree with the fruit that is most loved by the elephants, this tree occurs in solitary at this site but is much revered by the locals. At this FMNR site it could be multiplied by planting more seed when it fruits. The tree is known to produce marula fruits which are said to have a lot of nutritional values and for long was a dietary mainstay in Southern Africa. Its fruits are said to contain a lot of vitamin C and fats. Its nuts are also eaten. The nuts produce oil which can be used as a cosmetic and fruits are used in the production of a beverage known as marula beer and liquor.

Medicine: Bark of *S. birrea* ssp. *caffra* is used to treat a variety of ailments, notably fever, boils and diarrhoea. Together with butter, it is applied as an ointment for headache and pains of the eyes. It is claimed that blood circulation is aided by a steam bath of extracts of *S. birrea* ssp. *caffra* mixed with extracts from other plants and roots. Steam from the bark is also used to treat eye disorders. Bark decoction, when mixed with other medicinal plants, treats various infections such as malaria, syphilis, leprosy, hydropsy, dysentery, hepatitis and rheumatism, and is a laxative.

10. *Ficus sycomorus*, Eboborei, Mukunyu (Luganda)

This is a common tree in this area that as an indicator of the high water table. It is often found along watercourses such as streams and rivers, swamps and waterholes. The leaves of this ficus are a much-sought fodder with fairly high nutritive value especially in overstocked semi-arid areas like in this site. It can be used as firewood and for making charcoal. The inner part of the root used as weaving fibre, and a strong rope can be made from the inner bark. The tree gives useful shade and is common at marketplaces, where people gather under it for many social functions. Under agroforestry systems, leaves form a valuable litter improving the nutrient status, infiltration rate and water-holding capacity of the soil.

Medicine: *The bark is used for the treatment of lymphadenitis, coughs, and throat and chest diseases. The milky latex is used for treatment of dysentery and chest diseases, or is applied to inflamed areas, while ringworm is treated with the bark and milky latex. Leaves are said to be effective against jaundice and as an antidote for snakebite, while the roots have laxative and anthelmintic properties.*

11. *Albizia coriaria, etekwa*

See species description 13 under YARD site section.

6 CONCLUSION AND RECOMMENDATIONS

This activity was a success, one of the resulted into establishment of over 15 hectares of Farmer Managed Natural Regeneration sites established by about 20 small holder farmers and 3.5 acres directly supported by PELUM established by four member MOs. These sites have over 40 different regenerating indigenous tree species. There is even more acreage that has been put under regeneration by affiliate farmers to the MOs but has not yet been computed. These sites have also been boosted to increase their value by profiling the uses of indigenous trees, filling their gaps with high value trees and including bee hives for apiary management. Also, at the end of the engagement, 10 MOs had successfully established small capacity tree nurseries of between 10,000 and 20,000 seedlings. An estimated 90,000 tree seedlings were successfully raised and were ready for planting by June 2019. Agroforestry tree species raised included; *Grevillea*, *Calliandra*, *Maesopsis eminii*, *T. superba* and *Melia volkensii*.

The achievements of this project can be scaled up further by recruiting more MOs to undertake agroforestry and FMNR. Considering that forest loss in Uganda's agricultural landscapes is majorly occurring on private land due to a myriad challenges including population pressure, regulation and wood demand these models can help provide sources of wood, improve soil conservation and reduce the impacts of climate change in farming communities.

The interventions of this project require monitoring and evaluation of its progress and achievements, this can help address aspects for scaling up. In implementing the plans for internal M&E of this intervention, it will be important to focus explicitly on the scaling up dimensions of the project by focusing mainly on two questions: (a) What the most important aspect of the project is? (b) what areas of the intervention are ready for replication or scaling up by MOs and the community? These two questions will also help identify additional capacity needs and support required for scaling up of this intervention.

7 ANNEXES:

7.1 ANNEX1: TREE NURSERY SITUATION ANALYSIS

Table 4: Situation analysis on tree nursery establishment for PELUM MOs

Organization	Tree Seed available locally	Tree seed unavailable	Other support required	Comments
Africa 2000 Network	Musizi Avocado Jackfruit	<i>Terminalia superba</i> <i>Calliandra c</i> <i>Cordia</i> <i>Grevillea robusta</i>	Watering cans Potting material Wheel barrow	The group has progressed and even fenced off the nursery. They need a few items to continue.
Hunger Project Namayumba	Jack fruit, musizi	<i>Terminalia superba</i> <i>Calliandra c</i> <i>Cordia</i> <i>Grevillea robusta</i> <i>Albizia chinensis</i> <i>Albizia coriaria</i>	Watering cans rake, potting material, wheel barrows	The groups has not had proper progress on nursery and may delay in implementation. At the epicenter, there is a good demonstration site for Farmer Managed Natural Regeneration.
Mpigi District Farmers Association	Not any at this time	<i>Terminalia superba</i> <i>Calliandra c</i> <i>Cordia</i> <i>Grevillea robusta</i> <i>Prunus Africana</i>	Barbed wire, potting material, wheel barrow, rake, poles, nails, hammer, binding wire.	The nursery requires significant resources to set up the nursery. It was not clear if the labour to manage and start the nursery will be provides by the farmers.
ARUWE – Kiryandongo	Do not have capacity to collect	<i>Terminalia superba</i> <i>Calliandra c</i> <i>Cordia</i> <i>Grevillea robusta</i>	Barbed wire, potting material, wheel barrow, rake, nails, hammer, binding wire.	The community have the capacity to set up the nursery
Buikwe – YARD	<i>Cordia melinii</i>	<i>Terminalia superba</i> <i>Calliandra c</i> <i>Grevillea robusta</i>	Barbed wire, potting material, wheel barrow, rake, nails, hammer, binding wire.	There is sufficient labour, capacity to collect seed and set up the nursery. Potting soil might be an issue.
EADEN Iganga	Calliandra	<i>Terminalia superba</i> <i>Cordia</i>	Barbed wire, potting material, wheel barrow, rake, nails,	Support needs to be directed

			<i>Grevillea robusta</i>	hammer, binding wire.	
Hunger Project – Iganga	None		<i>Terminalia superba</i> <i>Calliandra c</i> <i>Cordia</i> <i>Grevillea robusta</i>	Barbed wire, potting material, wheel barrow, rake, poles, nails, hammer, binding wire.	There will be delays of implementation
War on Want – Soroti	Termarindus		<i>Terminalia superba</i> <i>Calliandra c</i> <i>Cordia</i> <i>Grevillea robusta</i>	Barbed wire, potting material, wheel barrow, rake, nails, hammer, binding wire.	The group is vibrant, there are technical issues to be solved including pre-treatment and sowing in germination beds
Katakwi Uganda Conserve	Termarindus indica		<i>Terminalia superba</i> <i>Calliandra c</i> <i>Cordia</i> <i>Grevillea robusta</i>	Barbed wire, potting material, wheel barrow, rake, nails, hammer, binding wire.	With minimal support of seed and some equipment, the group can go ahead with raising seedlings they have already started.
VEDCO – Lira	None		<i>Terminalia superba</i> <i>Calliandra c</i> <i>Cordia</i> <i>Grevillea robusta</i> <i>Maesopsis eminii</i>	Potting material, wheel barrow, rake, nails hammer, binding wire.	More technical support is required but the group is vibrant.
Kulika Uganda	Jack fruit, Pawpaw		<i>Terminalia superba</i> <i>Calliandra c</i> <i>Cordia</i> <i>Grevillea robusta</i> <i>Maesopsis eminii</i>	Barbed wire, potting material, wheel barrow, rake, nails, hammer, binding wire.	They have technical knowledge but are engaged in a lot of other activities under Kulika, it remains to be seen how they will catch up with progress under this component.

7.2 LIST OF COMMON TREE SPECIES IN FMNR SITES

<i>Abutilon ramosum</i>	<i>Combretum fragrans</i>	<i>Hibiscus fuscus</i>	<i>Pseudocedrela kotschyi</i>
<i>Acacia hecatophylla</i>	<i>Combretum molle</i>	<i>Huslonidia opposita</i>	<i>Psorospermum febrifugum</i>
<i>Acacia hockii</i>	<i>Combretum schweinfurthii</i>	<i>Hymenocardia acida</i>	<i>Pterocarpus lucens</i>
<i>Acacia macrothyrsa</i>	<i>Cordia africana</i>	<i>Hymenodictyon parvifolium</i>	<i>Pycnanthus angolensis</i>
<i>Acacia polyacantha</i>	<i>Crassocephalum mannii</i>	<i>Indigofera arrecta</i>	<i>Rhamnus prinoides</i>
<i>Acacia sieberiana</i>	<i>Craterispermum schweinfurthii</i>	<i>Indigofera emarginella</i>	<i>Rhus natalensis</i>
<i>Acalypha ornata</i>	<i>Crossopteryx febrifuga</i>	<i>Isobertia doka</i>	<i>Rhus vulgaris</i>
<i>Acalypha villicaulis</i>	<i>Cussonia arborea</i>	<i>Khaya grandifoliola</i>	<i>Rhytigynia bugoyensis</i>
<i>Acanthus arborescens</i>	<i>Dalbergia lactea</i>	<i>Khaya senegalensis</i>	<i>Rhytigynia paniciflora</i>
<i>Aeschynomene schimperii</i>	<i>Dalbergia melanoxylon</i>	<i>Kigelia africana</i>	<i>Rothmannia longiflora</i>
<i>Azelia africana</i>	<i>Daniellia oliveri</i>	<i>Kotschyia africana</i>	<i>Sapium ellipticum</i>
<i>Albizia amara</i>	<i>Desmodium velutinum</i>	<i>Lannea barteri</i>	<i>Sclerocarya birrea</i>
<i>Albizia coriara</i>	<i>Dichrostachys cinerea</i>	<i>Lannea fruticosa</i>	<i>Sesbania macrantha</i>
<i>Albizia glaberrima</i>	<i>Diospyros mespiliformis</i>	<i>Lannea humilis</i>	<i>Sesbania sesban</i>
<i>Albizia malacophylla</i>	<i>Dombeya bagshawei</i>	<i>Lannea schweinfurthii</i>	<i>Sida ovata</i>
<i>Albizia zygia</i>	<i>Dombeya burgessiae</i>	<i>Lannea welwitschii</i>	<i>Solanum incanum</i>
<i>Alchornea cordifolia</i>	<i>Dombeya rotundifolia</i>	<i>Lantana trifolia</i>	<i>Solanum indicum</i>
<i>Allophylus abyssinicus</i>	<i>Dracaena fragrans</i>	<i>Linociera nilotica</i>	<i>Spathodea campanulata</i>
<i>Allophylus africanus</i>	<i>Durania rapens</i>	<i>Lonchocarpus laxiflorus</i>	<i>Steganotaenia araliacea</i>
<i>Allophylus ferruginea</i>	<i>Ekebergia senegalensis</i>	<i>Lophira lanceolata</i>	<i>Sterculia setigera</i>
<i>Amblygonocarpus andongensis</i>	<i>Ensete ventricosum</i>	<i>Maerua angolensis</i>	<i>Stereospermum kunthianum</i>
<i>Annona senegalensis</i>	<i>Entada abyssinica</i>	<i>Mallotus oppositifolius</i>	<i>Strychnos henningsii</i>
<i>Antiaris toxicaria</i>	<i>Entada africana</i>	<i>Manilkara dawei</i>	<i>Strychnos innocua</i>
<i>Antidesma laciniatum</i>	<i>Entandrophragma cylindricum</i>	<i>Manilkara multinervis</i>	<i>Strychnos spinosa</i>
<i>Antidesma membranaceum</i>	<i>Eriosema psoraleoides</i>	<i>Margaritaria discoideus</i>	<i>Syzygium cordatum</i>
<i>Antidesma venosum</i>	<i>Erythrina abyssinica</i>	<i>Markhamia platycalyx</i>	<i>Syzygium guineense</i>
<i>Artabotrys monteiroae</i>	<i>Erythrina excelsa</i>	<i>Maytenus buxifolia</i>	<i>Syzygium owariense</i>
<i>Asparagus falcatus</i>	<i>Erythrococca bongensis</i>	<i>Maytenus gracilipes</i>	<i>Tamarindus indica</i>
<i>Barkheya spekeana</i>	<i>Erythrophleum suaveolens</i>	<i>Maytenus senegalensis</i>	<i>Teclea nobilis</i>
<i>Beilschmiedia ugandensis</i>	<i>Euclea divinorum</i>	<i>Maytenus serratus</i>	<i>Terminalia brownii</i>
<i>Belonophora hypoglauca</i>	<i>Euclea schimperii</i>	<i>Mimusops kummel</i>	<i>Terminalia glaucescens</i>
<i>Bersama abyssinica</i>	<i>Euphorbia candelabrum</i>	<i>Monanthotaxis buchananii</i>	<i>Terminalia macroptera</i>
<i>Blighia unijugata</i>	<i>Ficus amadiensis</i>	<i>Morinda titanophylla</i>	<i>Terminalia mollis</i>
<i>Borassus aethiopicum</i>	<i>Ficus asperifolia</i>	<i>Mussaenda arcuata</i>	<i>Terminalia spinosa</i>
<i>Bridelia atroviridis</i>	<i>Ficus glumosa</i>	<i>Nauclea diderrichii</i>	<i>Tetrapleura tetraptera</i>
<i>Bridelia micrantha</i>	<i>Ficus ingens</i>	<i>Ochna holstii</i>	<i>Trema orientalis</i>
<i>Bridelia scleroneura</i>	<i>Ficus natalensis</i>	<i>Ochna schweinfurthiana</i>	<i>Tricalysia niarniamensis</i>
<i>Burkea africana</i>	<i>Ficus ottoniifolia</i>	<i>Ocimum suave</i>	<i>Trichilia prieureana</i>
<i>Butyrospermum paradoxum</i>	<i>Ficus ovata</i>	<i>Olax gambecola</i>	<i>Trichilia roka</i>
<i>Caloncoba crepiniana</i>	<i>Ficus platyphylla</i>	<i>Olea mildbraedii</i>	<i>Triumfetta macrophylla</i>
<i>Canthium vulgare</i>	<i>Ficus pseudomangifera</i>	<i>Oncoba spinosa</i>	<i>Triumfetta tomentosa</i>
<i>Capparis erythrocarpos</i>	<i>Ficus sur</i>	<i>Oxyanthus speciosus</i>	<i>Vangueria apiculata</i>
<i>Capparis tomentosa</i>	<i>Ficus sycomorus</i>	<i>Oxyanthus unilocularis</i>	<i>Vernonia adoensis</i>
<i>Carissa edulis</i>	<i>Ficus trichopoda</i>	<i>Oxytenanthera abyssinica</i>	<i>Vernonia amygdalina</i>
<i>Carpobolia alba</i>	<i>Ficus vallis-choudae</i>	<i>Pappea capensis</i>	<i>Vernonia brachycalyx</i>
<i>Cassia sieberiana</i>	<i>Flacourtia indica</i>	<i>Parinari curatellifolia</i>	<i>Vernonia conferta</i>
<i>Cassia singueana</i>	<i>Flueggea virosa</i>	<i>Pavetta crassipes</i>	<i>Vitex doniana</i>
<i>Cassine buchananii</i>	<i>Garcinia buchananii</i>	<i>Pavetta oliveriana</i>	<i>Vitex madiensis</i>
<i>Cissus quadrangularis</i>	<i>Gardenia erubescens</i>	<i>Phoenix reclinata</i>	<i>Ximenia americana</i>
<i>Clausena anisata</i>	<i>Gardenia ternifolia</i>	<i>Phyllanthus nummulariifolius</i>	<i>Zanha golungensis</i>
<i>Clerodendrum myricoides</i>	<i>Grewia mollis</i>	<i>Phyllanthus ovalifolius</i>	<i>Ziziphus mauritiana</i>
<i>Clerodendrum rotundifolium</i>	<i>Harrisonia abyssinica</i>	<i>Piliostigma thonningii</i>	<i>Ziziphus mucronata</i>
<i>Coffea liberica</i>	<i>Harrisonia occidentalis</i>	<i>Premna angolensis</i>	
<i>Combretum capituliflorum</i>	<i>Harungana madagascariensis</i>	<i>Protea madiensis</i>	
<i>Combretum collinum</i>	<i>Hexalobus monopetalus</i>	<i>Pseudarthria hoockeri</i>	

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Direct links to some species description

http://www.worldagroforestry.org/treedb2/AFTPDFS/Dombeya_torrida.PDF

http://www.worldagroforestry.org/treedb/AFTPDFS/Antiaris_toxicaria.PDF

http://www.worldagroforestry.org/treedb2/AFTPDFS/Pycnanthus_angolensis.PDF

http://www.worldagroforestry.org/usefultrees/pdflib/Entandrophragma_cylindricum_UGA.pdf

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http://www.worldagroforestry.org/treedb2/AFTPDFS/Sclerocarya_birrea_ssp_caffra.PDF

http://www.worldagroforestry.org/treedb/AFTPDFS/Calliandra_calothyrsus.PDF

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