



**Do organisations provide quality seed to smallholders?
a study on tree planting in Uganda, by NGOs and CBOs**

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Titel

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Cover photo

ICRAF staff discussing species choice with farmer, Uganda
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Preface

The present report contains methods and findings from the survey of organisations involved in seed supply in Southwestern Uganda. The overall objective of the assessment was to contribute to an improved seed supply to tree planting farmers in Africa and the immediate objective to contribute to a comprehensive understanding of opportunities and constraints for improving seed systems for agroforestry in Uganda.

The assessment was made within the framework of Improved Seed Supply for Agroforestry in African Countries (ISSAAC), a Danida supported programme implemented in cooperation between Forest & Landscape Denmark and World Agroforestry Centre (ICRAF).

ISSAAC carried out surveys on different aspects of tree seed systems in Burkina Faso (with a focus on villagers' use of seed), Kenya (with a focus on sources of reproductive material), Malawi (with a focus on small-scale nurseries, and Uganda (with a focus on non-governmental organisations and community-based organisations).

The surveys are documented in the following reports:

Ræbild, R., Bassirou, B., Lillesø, J.P.B., Yago, E.L. and Damas, P. 2004.

Farmers' planting practices in Burkina Faso. A survey carried out by the project 'Improved Seed Supply for Agroforestry in African Countries' (ISSAAC). Forest & Landscape Working Papers No. 5-2004.

Mbora, A. and Lillesø, J.P.B. 2007.

Status of tree seed and vegetative sources of various organisations in Kenya: Mt. Kenya Area as a Case Study. Development and Environment No 9-2007. Forest & Landscape Denmark.

Mvula, P. and Lillesø, J.P.B. 2007.

Tree Seedling growers in Malawi – who, why and how? Development and Environment No 5-2007. Forest & Landscape Denmark.

Namoto, M. and M.G. Likoswe. 2007.

Case studies of nurseries in Malawi. Forest & Landscape Working Papers No. 20. 2007.

Brandi, E., Lillesø, J.P.B., Moestrup, S. and Kiseru, H.K. 2007.

Do organisations provide quality seed to smallholders? A study on tree planting in Uganda, by NGOs and CBOs. Development and Environment No 8-2007. Forest & Landscape Denmark.

In addition to the above surveys, two preliminary baseline studies were conducted in Uganda (a district study of nurseries and farmers) and in Malawi (a preliminary investigation of organisations involved in seed supply).

Asare, R. and Pedersen, A.P. 2004.

Distribution of Tree Seed and Seedlings. A survey conducted in Kabale District, Uganda. The ICRAF/Danida Programme on Improved Seed Systems for Agroforestry in African Countries (ISSAAC). Forest & Landscape Working Papers no. 2-2004.

Executive Summary

One of the main constraints to tree planting by small scale farmers is often claimed to be lack suitable planting material. The present study is one of a series of ISSAAC diagnostic studies in Kenya, Uganda, Malawi, and Burkina Faso to »establish a comprehensive understanding of opportunities and constraints for improving seed systems for agroforestry« .

This baseline study of the existing tree seed supply systems in Uganda is a part in this process. An inventory of all organisations involved in tree planting was done in two selected study areas (Lake Victoria Crescent and South Western region of Uganda).

In the inventory a total of 771 relevant organisations were identified within the two study areas. The bulk of these were small CBOs (77 %) and the number of organisations reduced drastically with size (only 8 were categorised as »big organisations«).

Based on that inventory, organisations along 5 different strata (according to their size and reach) were selected for further interviews in the South Western region of Uganda.

Based on the interviews with the selected organisations the following can be concluded:

- (i) Matching species to sites is not an established procedure – by any of the organisations included in this survey;
- (ii) Species selection by CBOs and local NGOs is almost exclusively based on availability of seed and only to a limited degree on the knowledge of possible useful species that could be grown;
- (iii) A few species are dominantly used;
- (iv) Genetic quality of germplasm is generally not considered and when organisations procure seeds from others they do not evaluate genetic quality;
- (v) Almost all NGOs and projects distribute germplasm to farmers for free (except for some that sell fruit tree seedlings at a subsidized price).

Acknowledgements

Thanks to key informants from government offices in the survey districts, for their help in identifying organisations involved in tree planting.

Special thanks to Dr. Tony Simons, Principal Tree Scientist of ICRAF for providing funds for this study. Thanks to Richard Coe, Head of Research Support Unit, ICRAF, for his invaluable support in the preparation of the questionnaires used in the surveys and for his advice on sampling in preparation for the surveys.

We are grateful to the Foundation - G.B. Hartmanns Fond - for making it possible for J.P.B. Lillesø to write up and finalise the present document as part of a more general assignment of documenting tree seed supply in the tropics.

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Abbreviations

A2N	Africa 2000 Network
ADRA	Adventist Development and Relief Agency
AEE	African Evangelic Enterprise
AFRICARE	Africare (NGO)
ARDC	Agricultural Research Development Centres
BAT	British American Tobacco Company
CAPP	Catchment Afforestation Pilot Project
CBO	Community based organisation
DFO	District forestry officer
ICRAF	World Agroforestry Centre
ICRAF Kabale	ICRAF field station in Southwest Uganda
ICRAF Kampala	ICRAF country office in Uganda
ISSAAC	Improved tree Seed production and Supply Systems for Agroforestry in African Countries
Kawanda	Kawanda Agricultural Research Institute (KARI)
KECPP	Kantaama Environment Conservation Protection Project
LC3	Sub-county Local Government
LG	Local Government
LGDP	Local Government Development Programme
NAEA	National Adult Education Association
NGOs	Non Governmental Organisations
NTSC	National Tree Seed Centre
PMA	Plan for Modernisation of Agriculture
SIDA	Swedish International Development Assistance
UCDA	Uganda Coffee Development Authority
UGADEN	Uganda Agroforestry Development Network
UNDP	United Nations Development Programme

1. Background

Improvement of livelihoods for smallholder farmers often involves bringing more trees onto farms and into the agricultural landscape. This will require that efficient seed and seedling production and distribution systems reach larger numbers of scattered and relatively isolated small-scale farmers

A well-functioning seed system has been defined by Maredia *et al.* (1999) as »one that uses the appropriate combination of formal and informal, market and non-market channels to stimulate and efficiently meet farmers' evolving demand for quality seed«. A well functioning tree seed system therefore also requires availability of species and provenances that can meet the requirements of farmers and that farmers are well informed about the availability of these species and provenances.

In many African countries the National Tree Seed Centres (NTSCs) have traditionally had the responsibility to provide seed to tree planters. The role of NTSCs is declining in tree seed procurement, while a large number of projects procure and deliver tree seed to farmers. Most of these projects exist for a limited time and are active in relatively small areas and work with a limited number of species¹.

Tree seed and seedlings production and distribution systems share these problems with agricultural seed and agricultural input systems, where most of the formal crop seed activities in sub-Saharan Africa have been through parastatals² (Tripp, 2001, Maredia *et al.*, 1999, Wiggins and Cromwell, 1995; Friis-Hansen, 2000). For the majority of smallholders, success of the formal crop seed systems has been limited to a few crops such as hybrid maize and sorghum (Wiggins and Cromwell, 1995). Many of the crop seed parastatals have now been privatised or dissolved, mainly because they were seen as inefficient and too dependent on state or donor subsidies. However, access to improved seed of a wide variety of suitable crop varieties has not been improved by privatising the parastatals and the seed production and marketing is still a major limitation for poor farmers (Tripp and Rorbach, 2001).

Constraints for large-scale tree seed systems

Tree seed systems in developing countries are still regarded as solely belonging to the sphere of forestry, although most trees these days are planted on farm land and the majority of customers of seed and seedlings are the millions of poor farmers in rural areas in the tropics and subtropics. Availability of tree seed is regarded as one of the main obstacles for large scale improvement of tree planting for smallholder farmers and the question posed most often by organisations is **»How can we increase the efficiency of National Tree Seed Centres, Research organisations and NGOs to produce and distribute seed«**, while the lessons from agricultural crop systems would have lead to the question **»How and to what extent can National Tree Seed Centres, Agricultural and Forestry Research Organisations and NGOs support development of a decentralised market for seeds and seedlings?«**

¹ There are probably at least 60,000 tree species on Earth (Grandtner, 2005) and perhaps even up to 100,000 (Oldfield *et al.*, 1998). Some 3,000 of these species have been registered as forestry or agroforestry species (Simons, 1998) and only a small handful of these species have ever been tested for the performance of their populations in different environments. Experience from well-known eucalypt and pine species shows that for a large proportion of species, an individual species is composed of different populations that are adapted to different types of environments.

² For example, the FAO Seed Development and Improvement Programme supported 60 countries during 1972-84, the World Bank supported 13 national seed projects and 100 other seed-related projects during 1975-85, and USAID provided long-term support to public bodies concerned with seed in 57 countries during 1958-87 (Wiggins and Cromwell, 1995).

Taking the approach of the emerging consensus for crop systems it is likely that creation of sustainable tree seed systems will require a fundamental change in the approach of government, donors and NGOs. In particular development of sustainable tree seed systems will require that the state redefines its main role from a provider of seed to an enabler of small and larger scale private tree seed/seedling producers and distributors. The lessons from crop seed systems is also that markets for seed systems only seem to work efficiently for a few crops such as hybrid maize and that the prevailing producers and distributors are unable to provide other crops to smallholder farmers (deVries and Toenniessen, 2001). It is therefore likely that privatising tree seed production and distribution will not by itself lead to efficient production and distribution of tree seed and seedlings to smallholders.

Furthermore, due to nature-given differences between trees (perennial woody species) and annual crop species, not all aspects of crop seed systems are valid for tree seed systems. In particular the seed source identification/establishment and management is different due to larger size, breeding systems, and longevity of perennial woody species as compared to crops. For practically all products from trees the seed is a very small part of the total cost of production for the products. These nature-given differences indicate that seed production, procurement and distribution should be thought of at larger landscape units than for crop seed production.

The ISSAAC (Improved Seed Systems for Agroforestry in African Countries) project is a collaboration between Forest & Landscape Denmark, World Agroforestry Centre and National Tree Seed Organisations (NTSOs) in Burkina Faso, Kenya, Malawi and Uganda. The immediate objective is to »establish a comprehensive understanding of opportunities and constraints for improving seed systems for agroforestry in the selected regions«.

2. Introduction

2.1 Specific objectives of the study

This study seeks to collect and analyse information on tree planting and tree germplasm distribution by organisations³ in South Western part of Uganda and along the Lake Victoria crescent.

The main objective of the study is to test five hypotheses that have been established from accumulated evidence and casual observations on:

- (i) generally organisations distribute seed or seedlings to small-scale farmers free of charge
- (ii) organisations have no strategy or support to set-up independent structures to deliver tree seed, and none or minimal consideration for the sustainability of the tree seed delivery after their projects have ended
- (iii) none or minimal consideration is given to genetic quality (see text box 1 for definitions of genetic quality for trees and shrubs)
- (iv) a very small number of species is promoted and/or used
- (v) no thorough analysis is done to establish the species with the highest potential benefits locally. Thus the species and or technologies promoted are often exotics species that are »preferred« by the organization or its principal partners.

Apart from testing these hypotheses, the study will also give an organisational overview that outlines the *modus operandi* of the different stakeholders in relation to tree planting and especially tree germplasm provision.

Box 1.

Aspects of genetic quality of trees and shrubs that are used as seed sources

Seed trees should be 'good trees' as evaluated by local farmers using the species. In practice, this criterion can be handled by defining 'ideotypes', based on farmers' description of 'good trees' of a given species in a given region. All selected trees should be healthy and show good performance (in traits as relevant) and the source should be documented.

Apart from the immediate appearance of a tree, there are two aspects of genetic quality of trees and shrubs. The first aspect is related to the fact that most trees and shrubs are outbreeders, i.e. they must receive pollen from unrelated trees to avoid inbreeding. The most common seed collection practice in agroforestry is to collect seed from farmland. The trees that are planted in farmland will therefore not only produce agroforestry products for farmers, but will also be the mother trees for the next generations of trees to be planted. To maintain a healthy population of trees in the landscape it is therefore very important that the population continue to consist of many unrelated trees, and this is best done by collecting seed from many trees throughout the landscape. The second aspect is related to the fact that trees adapt to the environment in which they grow. Many tree species with distributions across different environments may develop different ecotypes. For example, if a species is distributed in areas with relatively low rainfall and high temperatures as well as in

³ Organisations refer here to NGOs, CBOs, church groups, government entities (local and national), private commercial companies and donor funded projects.

areas with relatively high rainfall and low temperatures, the species may have developed two different ecotypes (also called provenances), such that one provenance grows optimally only in its own environment. Most often it is only possible to discover ecotypes through long term tests. A common sense approach to avoid this potential problem is to develop a planting zone system, which can provide guidance on where to collect seed for planting of different species at different sites. A planting zone system for trees and shrubs has not yet been developed for Uganda.

When species are introduced to smallholders it is of utmost importance to mobilise the genetic potential of the species and to make this potential widely available in accessible sources, such that smallholders can produce good quality products in the shortest possible time.

2.2 Linked surveys (I, II, III, IV)

The study includes four sub-studies:

- (I) an exploratory survey to identify the organisations in the study areas;
- (II) a survey of larger organisations working with tree planting and small-scale farmers;
- (III) a survey of small and locally based organisations in the South western part of Uganda; and
- (IV) a survey on tree planting by small community based organisations (CBOs) in the South western part of Uganda.

The aim was to obtain an overview of the types of tree planting activities and the species that are used across the study area, but also to capture the differences in the modus operandi of the different types of organisations. The exploratory survey (i) was utilised as a sampling frame for the other studies. The exploratory study included both the South western part of Uganda and the area along the Lake Victoria crescent. The field work proved to be very time consuming and the field work therefore concentrated on the South western part of Uganda (henceforth called the Southwest). The comparisons between all the different types of organisations encountered during the surveys (ii), (iii), and (iv) therefore only include organisations inside the Southwest.

2.3 Exploratory survey (i)

2.3.1 Sampling frame

As described above the exploratory survey concentrated on two study areas: The Southwest and the Lake Victoria Crescent (see figure 1). The districts covered (N=22) were 1. South west wet: Rukungiri, Kanungu, Kasese, Kisoro, Kabale, Bushenyi, Bundibugyo; 2. South west dry: Ntungamo, Mbarara; 3. Lakeshore wet: Busia, Sironko, Mpigi, Mukono, Bugiri, Wakiso, Jinja, Mayuge, Tororo, Masaka, Iganga, Mbale; 4. Lakeshore dry: Kumi.

The target areas were chosen for three reasons. Firstly, they represent areas with high population density and as such represent a significant portion of the total population of Uganda. Secondly, the study areas represent areas

were agroforestry and tree planting have a great potential (i.e. relatively high rainfall). Thirdly, they represent areas where ICRAF and partners have invested significantly in research and development of agroforestry.

In the Southwest some work had already been done in Kabale district by an associate of ISSAAC (Asare and Petersen, 2004) and some of the results from this study have been incorporated into the findings of this report.

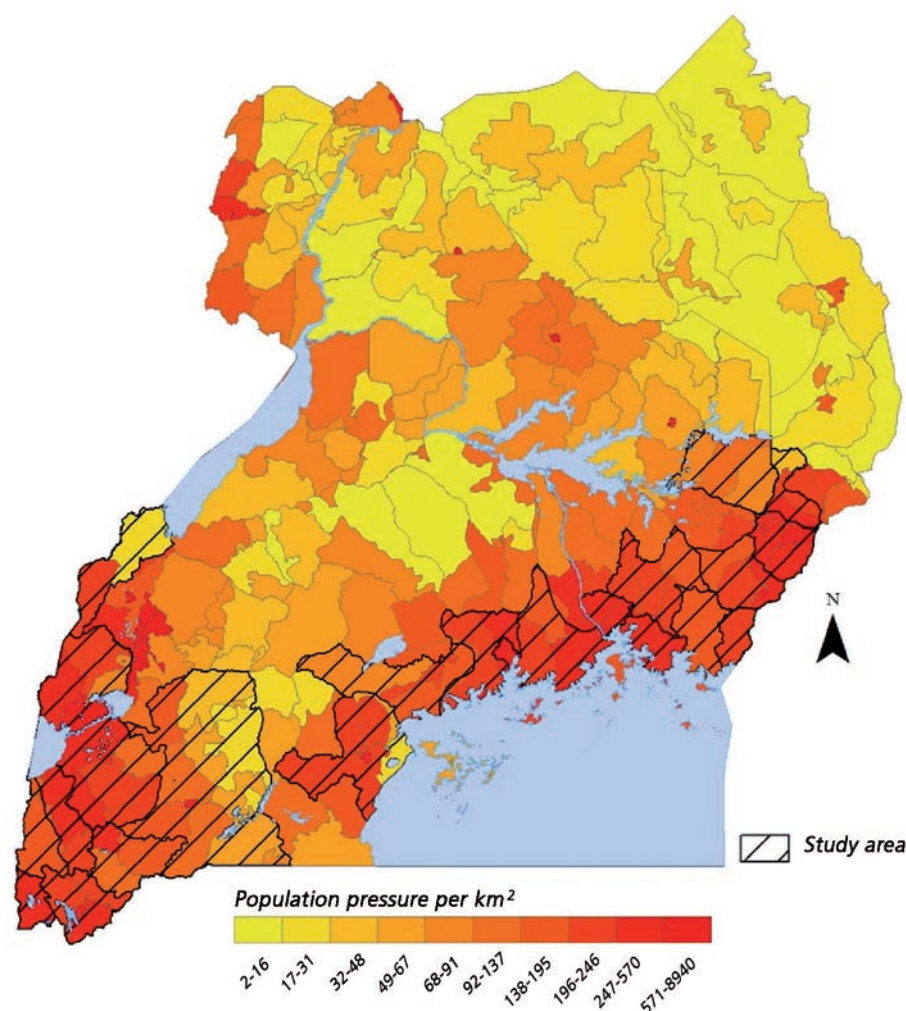


Figure 1. Target districts of the exploratory survey and population density (Source: Compiled by ICRAF GIS Unit in 2004 from Uganda Sub-county administrative layer from National Biomass Study data of 1997, Forest Department and National Human Population Census of 1991 from Uganda Bureau of Statistic, Ministry of Finance and Planning.)

2.3.2 Strategies for identifying organisations

Multiple strategies were deployed to identify as many as possible of the existing organisations.

⁴ Our typology of NGOs is defined in the present document. We agree with White and Eichler (1999) that it is difficult to implement a precise classification

All written material made available by the UGADEN network, ICRAF Kampala, ICRAF Kabale, the telephone book and information from stakeholders were screened. A number of organisations that were found by our initial screening, were based in Kampala, but it was uncertain whether they (i) still existed and (ii) if they did any relevant work within our study area. Therefore

a small survey was carried out to investigate this. A total number of 70 small and large NGOs⁴, projects and donor agencies were selected (see appendix I) for a short structured interview. The objective of this sub-survey was to: (i) to establish if the organisations truly existed, (ii) identify if the organisations were indeed involved in tree planting (directly or indirectly); and (iii) the scope and operational area of their work.

Information about smaller locally based NGOs and especially CBOs were not available in Kampala or in written directories. Thus visits to all the target districts were necessary. In the districts key informants (see appendix II) within the district local government and development NGOs were interviewed to identify all organisations that operated in that district.

2.3.3 Findings

Classification of the organisations

The organisations were divided into five classes (see table 8), based on as objective criteria as possible. The classification was based on the research team's knowledge of the organisations as well as information given during surveys in the districts. The criteria for the classification did not completely exclude one level from another. However, as will be shown in the following, the classification appears to provide reasonably clear differences between categories.

The division between the strata were as follows:

The Big organisations

All these organisations implemented major agroforestry projects and had considerable funding. They were furthermore identified as key collaborating partners to ICRAF and the UGADEN network. The World Bank and European Union were also included because of their large size and the possibility that they were implementing projects.

National and international

All international organisations that were identified, but were not among the »Big Organisations« were placed in this category. The national NGOs were divided between this and the subsequent stratum based on the available information. To qualify for this stratum the National NGOs were to be nationally known within the sector and/or have considerable funding for relevant projects.

Small national

All national NGOs that did not qualify for the above strata were placed within this stratum. The team's knowledge of the different organisations was initially limited; and some NGOs were transferred to other strata after the field investigation. Small national NGOs were often umbrella organisations with smaller local sub/units.

Local NGOs

NGOs that only had a local mandate were placed in this stratum. The distinction between local NGOs from the CBOs strata was that they had altruistic objectives (i.e. help the widows get firewood) while CBOs had more pragmatic community development objectives.

Community based organisations (CBOs)

As opposed to the smaller local NGOs, CBOs had more pragmatic community development objectives (i.e. »lift our selves out of poverty« or »make money so that we can pay school fees for our kids«). The difference in the activity level between local NGOs and the bigger CBOs may not be apparent, but what distinguishes them is their objective.

Identified organisations

The following data of organisations were based on the database presented in appendix III (this database could be continuously updated as projects stop and other projects start). The study collected information on 771 particular organisations. As can be seen in table 1, the majority of organisations were community based (77 % of the total), and the number of organisations within a stratum fell with increasing size of their operations (and of funding).

Table 1. Number of particular organisations identified

Type of organization	N	%
NGOs – The “big organisations”	7	0.9
NGOs - National and international	14	1.8
NGOs - Small national	27	3.5
NGOs – Local	128	16.4
CBOs	602	77.2
Total	771	100

Spatial distribution of organisations

There were considerable differences between the number of organisations operating in each of the different districts (table 2 and figure 2) especially for the CBOs.

Table 2. Descriptive statistics on number of organisations and types per districts

	Total	Big Org.	National and international	National but small	Local	CBO
Mean	40.5	1.6	1.9	4.8	7.1	28.7
Min	15	1	1	2	1	1
Max	115	4	5	10	19	84
Var.	566.0	1.0	1.1	5.2	32.8	417.1
Stand. Dev.	23.8	1.0	1.1	2.3	5.7	20.4

Some organisations work in more than one district, as can be seen in table 3. The Small national NGOs have a wider distribution in districts than the Big organisations.

It should however be noted that a presence in a district does not necessarily mean a significant impact in the district, e.g. the Wildlife Clubs of Uganda occur in most districts, but the size of their operations is very small seen in relation to other more focused organisations.

Table 3. Organisations with operation in more than one district

	Organisations with operation in more than one district	Number of districts for each organisation					
		Mean	Median	Min	Max	St. dev.	Var.
Big organisations	4	4.0	4.5	2	5	1.4	2.0
National and international	3	5.7	3.0	3	11	4.6	21.3
Small national	14	6.6	4.0	2	21	6.7	44.7
Local	5	2.4	2.0	2	3	0.6	0.3
CBOs	0	-	-	-	-	-	-

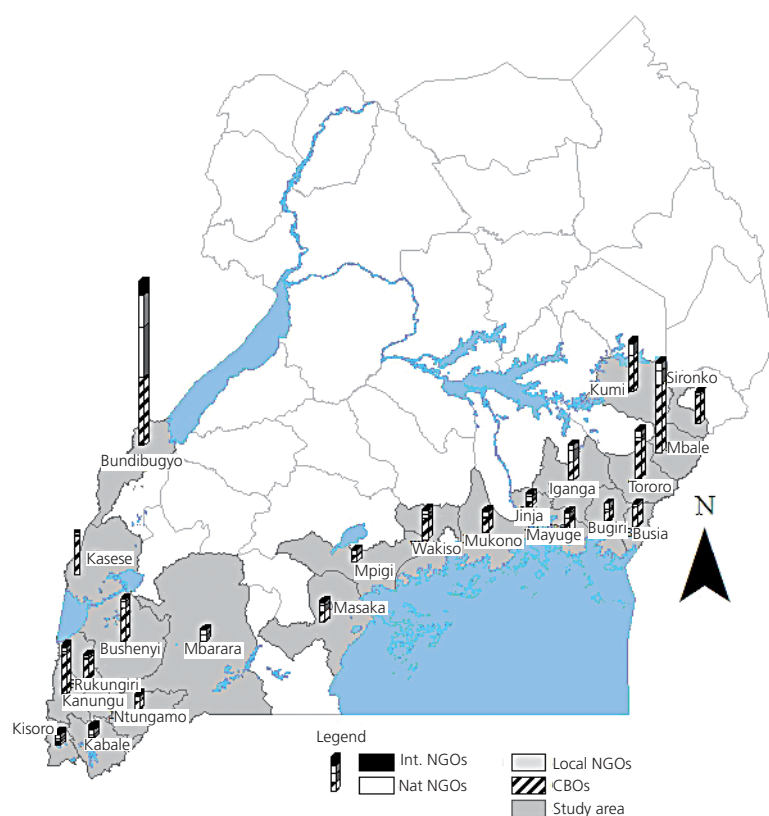


Figure 2. Spatial distribution of identified organisations within surveyed districts (Source: Compiled by ICRAF GIS Unit in 2004 from Uganda Sub-county administrative layer from National Biomass Study data of 1997, Forest Department).

2.3.4 Discussion and Conclusion

Working with trees is part of many organisations' agenda and it requires thorough visits to the field to fully capture the work done by the many different organisations. In particular it is difficult to capture information about the CBOs because a large proportion of the CBOs function outside formal

support systems and are not registered anywhere. The CBOs occur in all districts, often in large numbers, and may collectively have a large impact on tree planting.

The exploratory survey should be considered as a necessary exercise to capture information about tree planting, but not sufficient to provide a complete picture. The information available is not always up to date and as such some of the identified organisations, especially the CBOs, could be mere names on a list. On the other hand, in some of the areas key informants may not know all CBOs and the number of CBOs could be an underestimate. Consequently the list can only be used as a guide to the level of activity in the different regions or a starting point for further investigations or interventions. In particular the CBOs will be underestimated because there are no reliable lists of their occurrence in districts.

Differences in district activity can be attributed to several factors. One main factor could be that donor investment in tree planting in districts close to major biodiversity areas (i.e. the conservation areas Bwindi in the Southwest, and Mt. Elgon in the east) have encouraged many CBOs (funds and assistance) to start. The difference in the number of tree planting CBOs could be attributed to cultural differences of labour-sharing for different ethnic groups occurring in districts (e.g. in the Southwest labour-sharing to cultivate millet is common; while banana production of the lakeshore banana areas does not lend it self to labour sharing). Another reason could also be that wetter areas provide more natural incentives than dry areas for tree planting.

2.4 Larger organisations working with tree planting and small-scale farmers (ii)

Sampling

The objectives of the sampling were to capture the totality of tree planting activities as well as the diversity across scale (from big to small organisations) and different growing conditions (spatial). The stratified sampling frame used in the exploratory survey (i) was used as the basis for the sampling of the different organisations. Due to time and resource limitations, this part of the study was focused on the Southwest. Thus only organisations that worked in the Southwest were included in the analysis.

The Big organisations, and National and international

Within these two strata all organisation were selected for further investigation. They represent a large part of the total activities in relation to planting trees with farmers. Interviewing all was regarded as a cost effective measure to ensure that a large part of the totality of activities were surveyed.

The Small national

A random sample⁵ of 14 organisations was selected for interviews. If it was established that an organisations was either wrongfully allocated to this strata or that the organisation was not engaged in tree planting at all, an alternative organisation was randomly selected and included in the sample.

⁵ All random selections were done using the random number function in MS Excel.

2.5 Small and locally based organisations in the Southwest (iii)

The 128 Local NGOs identified within the study area were distributed in all the 22 districts of the exploratory survey. To account for different growing conditions the Southwest was divided into two climatic areas by districts, based on the ecological zones of Langdale-Brown *et al.* (1964). The main difference between the wet and dry areas is the higher level of planting activities in the wet areas. Although climate does not fully follow district boundaries we classified wet districts are Rukungiri, Kanungu, Kasese, Kisoro, Kabale and Bushenyi; and dry districts are Ntungamo and Mbarara.

A multistage sampling technique was used to select the organisations. First all districts were split into 3 groups (low, medium and high) according to the number of local NGOs present in the district (table 4).

Table 4. Sampling of NGOs in the South Western districts according to the number of local NGOs and the districts selected for further investigation

	No of Local NGOs Identified	Strata	Randomly Selected
South West wet			
Rukungiri	1	Few (1-2)	✓
Kanungu	3	Medium (3-4)	
Kasese	3	Medium (3-4)	
Kisoro	3	Medium (3-4)	✓
Kabale	4	Medium (3-4)	
Bushenyi	7	Many (7-9)	✓
South West dry			
Ntungamo	1	Few (1-2)	✓
Mbarara	9	Many (7-9)	✓
South West wet – extra			
Bundibugyo	Identified later	Identified later	✓

Within each of the groups (low, medium and high) one district was selected randomly (if more than one district in the group).

Bundibugyo was later in the process added to the wet category and was selected for further interviews, without being part of the original sampling procedure. This district was not originally intended to be part of the survey, but was later included to increase the diversity of districts within the SW sub-sample of districts within the SW sub-sample (wet and far away from Bwindi national park).

In districts with few and medium number, all Local NGOs were selected for interviews. In districts with many, four Local NGOs were randomly selected; so as to ensure equal representation of all districts.

2.6 Community based organisations (CBOs) in the Southwest (iV)

As already discussed it was difficult to know if the listed CBOs were in reality existing and had tree planting as an activity. Furthermore it was clear from the collection exercise that the listed number of CBOs in any particular district was not only a product of the general activity in that district, but also a product of the diligence and commitment of the key informants we were able to meet for the inventory.

Consequently a census in one district in each of the two »climatic areas« was done. The purpose of the census was to find out, how many CBOs were in fact relevant for seed/seedlings and then interview these »CBOs«. The results and conclusions can thus be compared to those of the NGOs, however, as we cannot be sure how well the CBOs are sampled, the results and conclusions may not be fully representative of the Southwest, but will provide some indications. The chosen districts Ntungamo (dry) and Kanungu (wet) were selected randomly.

The large number of CBOs (N=51) in Kanungu district required a sampling procedure for interviews. To get an overview of existing CBOs and their activities, all sub-counties and most parishes were visited. When one sub-county had a large number of CBOs a sample of 4-5 CBOs were chosen. This was done in a two-step procedure. The first objective was to find and interview a few of the CBOs. During this process additional CBOs would be identified and a random sample was then selected for the next batch of CBOs to find and interview, until a minimum of four CBOs were interviewed per sub-county.

Both in Ntungamo and Kanungu many new CBOs were found and interviewed. In Kanungu, however, some of the identified and some of the newly discovered CBOs were not interviewed. This was mainly due to time constraint. Table 5 shows the results of the census.

Table 5. Results of the census of CBOs

	In the original inventory	Not found	Found but not working with trees	Working with trees but not interviewed	Not found	New entries	Interviewed
Ntungamo	11	0	1	4	1	11	21
Kanungu	371	9	0	6	9	5	22

Note: After scrutinising the inventory some of the CBOs were dropped from the list as they were not directly involved in tree planting

While Ntungamo and Kanungu has the same number of CBOs interviewed this should not be confused with the total number of CBOs present. In Ntungamo the survey represents a much larger part of the total number of CBOs. On every crossroad and in every parish visited in Kanungu, new CBOs were discovered and with the very limited time available, only a small fraction of the total number of CBOs in Kanungu could be interviewed.

The differences in numbers of CBOs interviewed from different sub-counties also represent the difference in actual number of CBOs found to be present (table 6). The numbers are, however, approximations as the study can not claim to have found all CBOs in the two districts - the numbers to some extent depended on the iterative process of finding and interviewing the CBOs.

Table 6. Number of CBOs in sub-counties

District	Sub-county	N	District	Sub-county	N
Ntungamo	Ruhaama	4	Kanungu	Kayonza	7
	Bwongyera	3		Rugyeyo	4
	Rubaare	3		Kambuga	3
	Rukoni	3		Kihihi	3
	Ngoma	2		Nyamirama	3
	Ntungamo	2		Kanyantorogo	1
	Rweikiniro	2		Kirima	1
	Ihuga	1			
	Kayonza	1			
	Nyabihoko	1			

2.7 Reclassification, missing respondents and newcomers

The exploratory nature and difficult access to information for the inventory that formed the basis for this study required iterative procedures in order to approach an approximation to a representative sample.

During the process of carrying out the survey, new organisations were identified and others were reclassified to other strata, e.g. UCDA was identified as »Small national« NGO but was in reality a larger player and was thus moved to the »Big organisations« strata. Organisations were targeted for interviews if they were reclassified as »Big organisations« or »National and international« strata. Organisations reclassified as »Small national and Local« NGOs were only included in the inventory but not included in the sampling.

Table 7 provides an overview of the changes that occurred during the classification process. Within the »Small national« strata 10 of the originally 14 selected were either moved to another strata or were not involved in tree planting directly.

Table 7. Organisations interviewed, rejected, including alternatives and new entries for the Southwest

	Done	Originally selected	Transferred to other strata	Transferred from other strata	Newly identified or alternate included in survey	Not involved in tree planting	Defunct	Not done	Revised total N	% of sampled organisation of total N within strata (revised)	Excluded due to no activities in SW	N included in inventory	% of all NGOs in the Southwest
Big organisations	6	7	1	-	-	-	-	-	6	100	2	4	2.6
National and International	15	14	1	5	1	6	-	-	15	100	5	10	6.5
Small national	12	14	6	-	10	4	1	1	13	75	4	9	5.8
Local													
Ntungamo	1	1	-	-	-	-	-	-	1	100			0.6
Bushenyi	4	4	-	-	-	-	-	-	7	57			4.5
Kisoro	3	3	-	-	-	-	-	-	3	100			1.9
Rukungiri	3	1	-	-	2	-	-	-	3	100			1.9
Bundibugyo	6	6	-	-	-	-	-	-	6	100			3.9
Mbarara	4	5	-	-	-	-	-	-	7	55			4.5
Local in total	21	20	-	-	2	-	-	-	132	105	n.a	132	85.2
Total NGOs	54	55	8	5	13	10	1	1	167		11	155	100

2.7 Obtaining information

Interviews

All interviews were conducted as semi-structured interviews (appendix IV). In a few instances nurseries or plantations were visited.

The data that was gathered in this survey was based almost exclusively on the information obtained from the interviews. It was not possible to triangulate this to other sources or visit their operations in the field and therefore some of the information collected may be biased with respect to admitting failures or exaggeration of successes. During the process of the survey this issue was observed, especially when talking to the smaller locally based NGOs and CBOs. Whenever this was observed in the field, measures were taken to triangulate their responses, (i.e. can we see your nursery?). The bias was probably not important for the more qualitative questions, but will be discussed for the quantitative questions.

2.8 Comparing results of surveys of NGOs and CBOs

While the sample of NGOs is a representative sample, the survey of CBOs is a census rather than a sample survey. Thus comparisons between the two should be treated with care.

3. Locally based NGOs, National and international and »Big organisations«

3.1 Primer on NGOs

In this part of the survey 54 organisations (table 8) within the four strata described above were interviewed. 11 organisations were excluded as they did not work in the Southwest (see table 8).

Table 8. NGOs interviewed in the Southwest

Big organisations	
Africa 2000 Network – Uganda	Forest Resources Conservation & Management Program
ICRAF Uganda SW	Africare
VI Agroforestry Project*	Catchment Afforestation Pilot Project*
National and international	
FORRI EU AF Project West Uganda	Heifer Project International
British American Tobacco	Organic consult
Ecotrust	International Union for Conservation of Nature
International Gorilla Conservation Project	Uganda Coffee Development Authority
Care international	Adventist Development Relief Agency
Agroforestry Research and Development project	Plan Uganda*
Farm Africa*	Student Partnership Worldwide*
World Vision Uganda*	
Small national	
Wildlife Clubs of Uganda	National Adult Education Association – NAEA
African Evangelistic Enterprise (AEE)	Integrated Rural Development Initiative
United Tree Planting Association	Church of Uganda- PDR
Uganda Women's Effort to Save Orphans	Uganda Wildlife Authority
Uganda Neem Movement*	National union of coffee agribusiness and farm enterprises (NUCAFE)*
Joint Energy and Environment Conservation Project*	Horticultural Exporters Association of Uganda*
Local	
AMA (unknown acronym)	Edward Sculter & co
NORACCO (unknown acronym)	Rukungiri local government
Selfcare	National Council of Traditional Healers and Herbalist Association
Rwenzori Vanilla Project	RUASSA
Bushenyi district government	Mbarara district government
Kisoro foundation for rural development	Kyera farm training centre

continued....

Local	
Rotary club - Bushenyi chapter	Church of Uganda Ankole dioceses
Tukore farmers Association Ltd.	Mbarara District Farmers Association
Good Samaritan	Ntungamo Local Government
Rukungiri Gender and Development Association	Bugombwa Parish Catholic Church
Kisoro Local Government	

*marked organisation was excluded as they did not work in the SW

The NGOs interviewed had very different ways of operating. This made detailed quantitative statistics and conclusions difficult. For the bigger NGOs the people interviewed would either have limited knowledge of the totality of their operations or would have very limited knowledge of the actual operations. Consequently the answers related to some of the hypotheses (especially number two, three and five) of this study lean more on qualitative data.

3.1.1 Big organisations

This class of organisations comprised of a small but inhomogeneous number of organisations. British American Tobacco was identified from the inventory and UCDA was reclassified from the Small national group).

A brief outline of the big organisations:

British American Tobacco (BAT) has been planting trees with farmers for many years. Most of the tobacco produced in Uganda is cured using firewood and the company therefore promoted the growing of fuelwood in the tobacco growing areas. Every year farmers collect new tobacco seedlings from the BAT central nursery. Along with the tobacco seedlings every farmer is given 200 eucalyptus seedlings to be grown alongside the tobacco. The cost of 50 Uganda shilling per seedling is deducted from their subsequent sales of tobacco to BAT. Currently more than 70,000 farmers grow tobacco with BAT. All the seed is sourced locally by BAT staff (each growing area has a forester on the payroll) from local plantations or government reserves. Normally BAT staff contact a farmer to supply the seed and request the farmer to collect from superior trees.

Uganda Coffee Development Authority (UCDA) is a statutory body that was set up to develop the coffee sector in the Uganda economy. In response to the coffee wilt disease clonal coffee was promoted from 1991 with support from the World Bank. With the funds from the World Bank, UCDA supported 900 private nurseries with training and inputs (3,000 USD per nursery). With an exceptional boost in coffee prices in the early 1990s the nurseries thrived and were selling their clonal seeds on the free market. In the year 2000 the focus was shifted towards providing the seedling for free to farmers, subsidised by the government (200 Uganda shilling per seedling). The market for free seedling production increased to 100 million seedlings in 2002 with 1500 private nurseries (on average 67,000 seedlings per nursery) supplying seedlings to farmers. In 2004 the programme was cut back to approximately 2000 nurseries with a supply of 15 million free seedlings (on average 7,500 seedlings per nursery) and consequently

many nursery operators are abandoning their coffee nurseries. The procurement of reproductive material for all nurseries is done centrally from Kampala. Sources are all certified sources, partly owned by private farmers.

EU's Forest Resources Conservation & Management Program is a multi-million Euro project that aims at mitigating the foreseen shortfall in domestic supply of round wood timber. To facilitate private investment in timber production the EU have set up a grant scheme to reduce the initial costs of investment. This program is aimed at larger investors establishing industrial plantations and is as such outside of the ToR of this survey, however, the impact this project might have on the seed sector still warrants its inclusion. As part of the grant scheme, investors can only grow three exotic fast growing timber species (*Pinus caribaea*, *Araucaria cunninghamii*, and *Pinus patula*) and one indigenous species (*Maesopsis eminii*). Furthermore, the exotic species have to be established using specific seed sources (imported seed), while *Maesopsis eminii* seed has to be procured through the National Tree Seed Centre.

Catchment Afforestation Pilot Project (CAPP) is a government project funded by the World Bank. The objective of the project is to increase forest cover in the Lake Victoria watershed through afforestation with exotic pines and eucalypts. The first phase of the project is almost concluded and a second phase is about to be formulated. All seed has been procured through the National Tree Seed Centre.

Africa 2000 Network (A2N) is an Ugandan NGO. A2N was originally a ten year UNDP project, which was transformed into a NGO in 2001. A2N's goal is to alleviate poverty by supporting grassroots activities of farmer groups. The farmer groups undertake community based projects geared towards livelihood improvement and natural resources regeneration and conservation. Trees play a prominent role in A2N's activities but in contrast to the NGO Vi Agroforestry (see box 2) seed supply is not dealt with separately. Much seed is sourced locally without any particular emphasis on quality. The selection of species is not based on any formal process. The species dominantly used are exotic agroforestry species such as *Calliandra calothyrsus* and *Grevillea robusta*. Seed is distributed to farmer groups, which produce seedlings in small nurseries. The nursery attendants receive a small allowance.

Africare is an American NGO. As a development NGO Africare works in a number of fields. In the Southwest they implement a major natural resources project. Africare is currently relying exclusively on ICRAF (Kabale) for their tree germplasm needs as well as advice on appropriate technologies and species to be used in agroforestry.

Box 2. An outlier in the Victoria crescent

The NGO VI agroforestry project is an outlier compared to all other NGOs. The project, which is funded by SIDA, aims to help to increase tree planting in the Victoria crescent. The VI approach with respect to seed is to promote agroforestry options using indigenous and exotic multipurpose tree species in a very intensive manner utilizing to a large extent tree species from local sources and introducing them in large numbers on farmers' fields with the help of participatory methods through extension agents, and farmer facilitators. VI is probably unique among NGOs in Africa in the focus of making a large number of indigenous species available to farmers and to the outstanding degree of concern it applies to quality aspects of seed. The basic philosophy for seed production and distribution is to satiate the landscape with trees that will function as the future seed sources for farmers.

3.1.2 National and international organisations

Some main points can be made on National and international organisations. Tree planting and agroforestry is most often part of a larger programme, e.g. adult literacy or sustainable agriculture. In these programmes little or no emphasis is given to species selection or quality control. Several organisations - where tree planting is only a minor activity - do not have in-house knowledge on important elements of tree planting. For instance many organisations have no knowledge on the difference between different cultivars of fruit trees.

For bigger organisations in this category, the management of tree planting is often decentralised. Consequently the top managers do not have information on seed production, procurement and distribution.

3.1.3 Small national organisations

Most of these NGOs have a very small budget. They often looked to ICRAF and the survey team as a possible source of funding. This may have biased the responses obtained from this group, but as the survey was primarily concerned with seed flow pathways rather than numbers of seed and seedlings produced, the bias is not likely to have important effect on the results. It could be argued that some of these organisations were merely consultancy companies that were camouflaged as NGOs.

3.1.4 Locally based NGOs

Two groups fall within this stratum (i) district local government and (ii) small and local NGOs. From the point of view of production and distribution of reproductive material, district local government functions as locally based NGOs - with the money from Local Government Development Programme (LGDP) and Plan for Modernisation of Agriculture (PMA) - the different local governments have invested in planting trees to reforest barren hills and to improve farm productivity with grafted fruits seedlings. The funds are limited and the numbers of beneficiaries are small compared to the total number of inhabitants in the districts. Seed and seedlings are given to farmers for free. The »Local« NGOs share many of the similarities to the »Small national« NGOs. Seed sourcing within this group is done almost exclusively locally except for grafted fruit trees, which are always procured from Kawanda.

3.2 Sources and modalities of seed supply

NGOs procure their seed in a number of ways (see table 9 and 10). The data was derived by asking respondents first what species they planted and later how they obtained the seeds or planting material for those species. Thus a NGO that used, say, eucalyptus could get their planting material from own collection of eucalyptus seed as well as buying seedlings from a local nursery.

The formal sector (NTSC, ICRAF Uganda⁶, ARDC, Kawanda, and UCDA) provide 36% of the cases of procuring germplasm of species. While Kawanda, ARDC, and UCDA provides certified clonal material of fruit and coffee plants, NTSC and ICRAF Uganda provide seed that is mainly collected from farmland sources (except for a few exotic species of well-known provenances promoted by ICRAF) – and this germplasm is similar to that procured by collections from ‘Mature trees’ (own collection), and collection by entrepreneurs, contractors, farmers, nursery operators, and seed from fruit consumption, which constitute 37% of the cases of procuring germplasm of species. The sources of germplasm of species in this group are of unknown quality. Other NGOs (and BAT) provide 9% of cases. Germplasm of species procured from outside Uganda provides 7% of the cases.

It can be concluded that a majority of the germplasm provided to the beneficiaries by the NGOs comes from farmland landscapes in Uganda and is of undocumented quality. Furthermore, from our general knowledge of the sector we know that there are no widely disseminated guidelines for seed collection and there are no associations for seed dealers or other types of networking support for this industry.

Table 9. Percentage of times procurement types are used (based on cases of species used by NGOs)

Source	%	Source	%
NTSC	15	International seed dealer	3
Mature trees	14	Local NGO	2
Unknown*	11	Farmer	2
ICRAF Uganda	9	National NGO / Donor	2
Kawanda	8	Private contact Uganda	2
Contractor collected from farm/forest	5	ICRAF Kenya	2
Affiliated farmers	5	Affiliated sister NGO	1
Consumed fruits	4	Donor outside Uganda	1
Nursery operator	3	Private contact abroad	1
Entrepreneur within working area	3	UCDA	1
Vi Agroforestry	3	Local market	Under 1
ARDC	3	Company e.g. BAT	Under 1

*Mainly due to survey constraints

The »Big organisations« mainly procure their own seed through private entrepreneurs and own collection, while »National and international« to a

6 ICRAF Uganda in the south-west shares the research station with Ministry of Agriculture

large extent rely on government and research organisations for provision of seed. »Small national« and »Local« use the two ways of procurement in almost equal proportions (however, the percentage of unknown for »Small national« is large, and the assumption for the comparison is that revealing the unknown would not change the distribution of responses).

The »Big organisations« procure almost three times as much from abroad as the »National and international« and »Local«, which may be explained by their better networks. Procurement from »Other NGOs« is used by all strata through their networks.

To investigate if germplasm came from sources that were adapted to the local growing conditions or not, the different procurement types were reclassified into a procurement location and a seed source location, and a flow chart was produced (figure 3). In this procedure a list of species and procurement method pairs was used, this list does not distinguish between which organisations was the originator of this pair. Thus an organisation with many ways to procure a few species would contribute more to the results.

It is clear from figure 3 that NGO germplasm procurement has several channels. One of the two main channels for procurement is regional procurement of seed from national and international sources and the other main channel is to obtain seed locally from local sources. Some of the regionally obtained seed may in fact come from local sources but as organisations rarely document seed sources that can not be substantiated.

Table 10. Procurement types used (%) for the four strata of organisations (based on species procurement)

	Big organisations		National and international		Small national		Local	
	N	%	N	%	N	%	N	%
Private entrepreneurs & own collection								
Mature trees	12	14.3	8	11.0	2	3.3	30	19.1
Contacter collected from farm/forest	13	15.5	1	1.4			7	4.5
Affiliated farmers	10	11.9	6	8.2	3	5.0		
Consumed fruits	3	3.6	2	2.7	3	5.0	6	3.8
Nursey operator	3	3.6					10	6.4
Entrepreneur within working area	5	6.0	2	2.7	3	5.0	2	1.3
Private contact Uganda							6	3.8
Farmer							6	3.8
Company e.g. BAT							1	0.6
Local market							1	0.6
Total	46	54.8	19	26.0	11	18.3	69	43.9

continued overleaf

	Big organisations		National and international		Small national		Local	
	N	%	N	%	N	%	N	%
Government Institutions & Research								
NTSC	2	2.4	8	11.0	8	13.3	40	25.5
ICRAF Uganda	11	13.1	23	31.5	1	1.7	1	0.6
Kawanda	3	3.6	11	15.1	3	5.0	12	7.6
UCDA							3	1.9
ARDC	3	3.6	5	6.8			4	2.5
Total	19	22.6	47	64.4	12	20.0	60	38.2
Other NGOs								
Local NGO			3	4.1			5	3.2
Vi Agroforestry	7	8.3					5	3.2
Affiliated sister NGO							4	2.5
National NGO / Donor					3	5.0	3	1.9
Total	7	8.3	3	4.1	3	5.0	17	10.8
From abroad								
International seed dealer	7	8.3					1	0.6
ICRAF Kenya	3	3.6	3	4.1				
Private contact abroad							3	1.9
Donor outside Uganda							3	1.9
Total	10	11.9	3	4.1	0	0.0	7	4.5
Unknown	2	2.4	1	1.4	34	56.7	4	2.5
N	84	100	73	100	60	100	157	100

The local procurement by NGOs could be ascertained in around 28 percent of cases, while the location was not clear for 10 percent of cases – some of these cases could probably be allocated to local sources. National and international procurement could be ascertained in around 55 percent of cases. In around 6 percent of cases the NGO had no records of procurement - in most of these situations the procurement was handled by field staff and information did not flow to the main office of the NGO.

Even with the large proportion of cases with insufficient information it is noteworthy that in a substantial proportion of cases, seed was procured from outside the local area – in a country where hardly any high quality seed sources of any agroforestry species have been documented. When information cannot be obtained about seed sources most often it indicates that the organisations are not concerned with the genetic quality of species and therefore do not document procurement. When such a large proportion of species is obtained non-locally it indicates that organisations are not attempting to establish local seed sources that can produce documented seed of good quality.

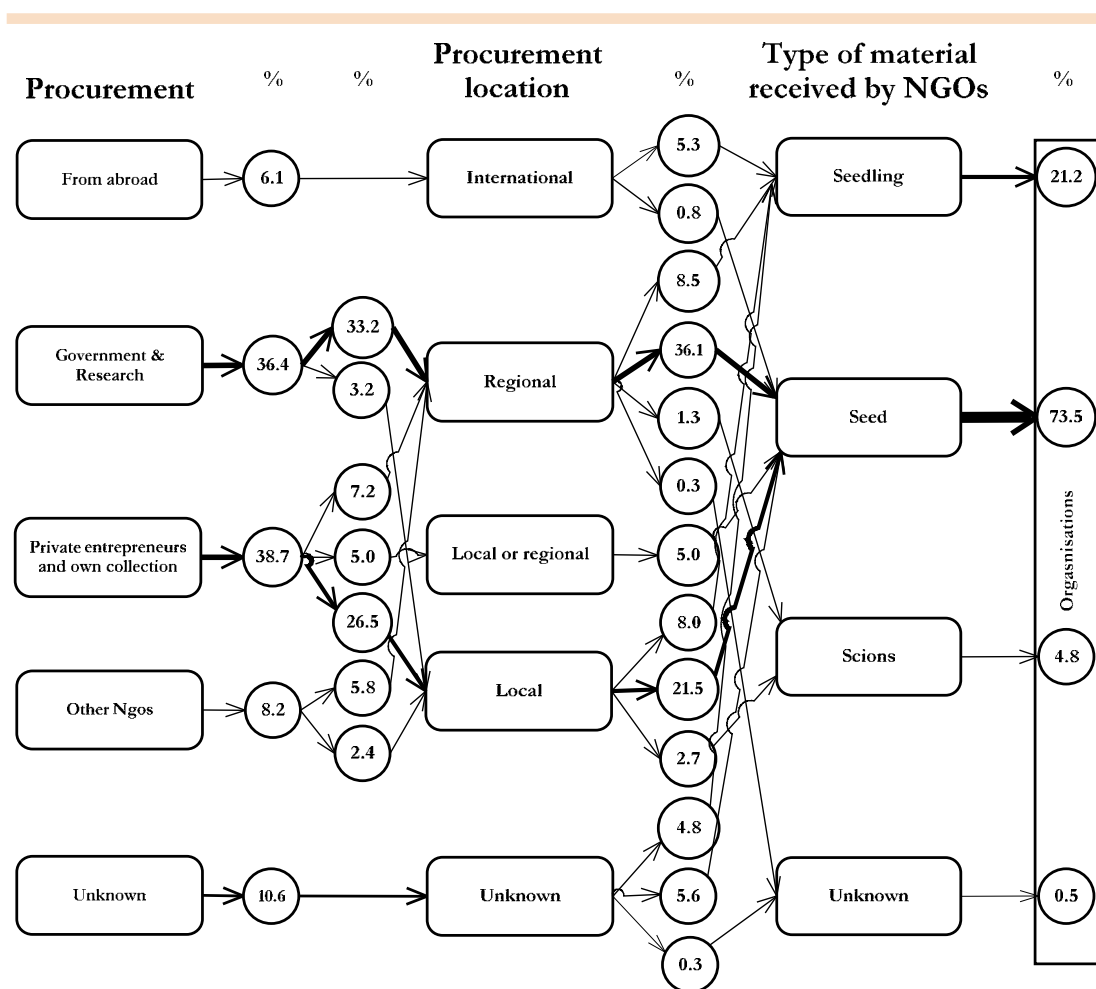


Figure 3. Procurement model for NGOs. Numbers represent the percentage a given »route« has been used for species irrespective of NGOs. The pathways of the flow from left to right illustrate from whom (procurement) and where (procurement location) and in what form (type of material) the organisations (NGOs) receive material. The thicker arrows indicate the dominant pathways and forms.

Figures 3 and 4 do not represent quantitative numbers of seeds but provides a picture of the different ways NGOs procure germplasm. In figure 3 the basic unit of investigation is the species and the number of times a particular procurement path has been used for a particular species⁷.

Table 11 shows that the procurement patterns for the top ten species are not much different to the overall patterns.

Table 11. Procurement location (%)

Seed source	Based on the procurement systems for all species	Based on the procurement systems for the top 10 species
Local	25.6	32.8
Location unknown	11.0	17.2
National and international	52.0	43.7
Unknown	10.7	6.2

⁷ In the procedure to make flowchart a list of species and procurement method pairs was used, this list does not distinguish between which NGO was the originator of this pair. For NGOs 86 out of 377 are duplicates, representing 23% of cases.

In figure 4, the basic unit of investigation is the NGOs. Our interest is to show how NGOs distribute the reproductive material through centralised or

decentralised structures and how much is given out for free. The channels show the percentage of times a channel is used out of the total number of channels (some NGOs use multiple channels)⁸.

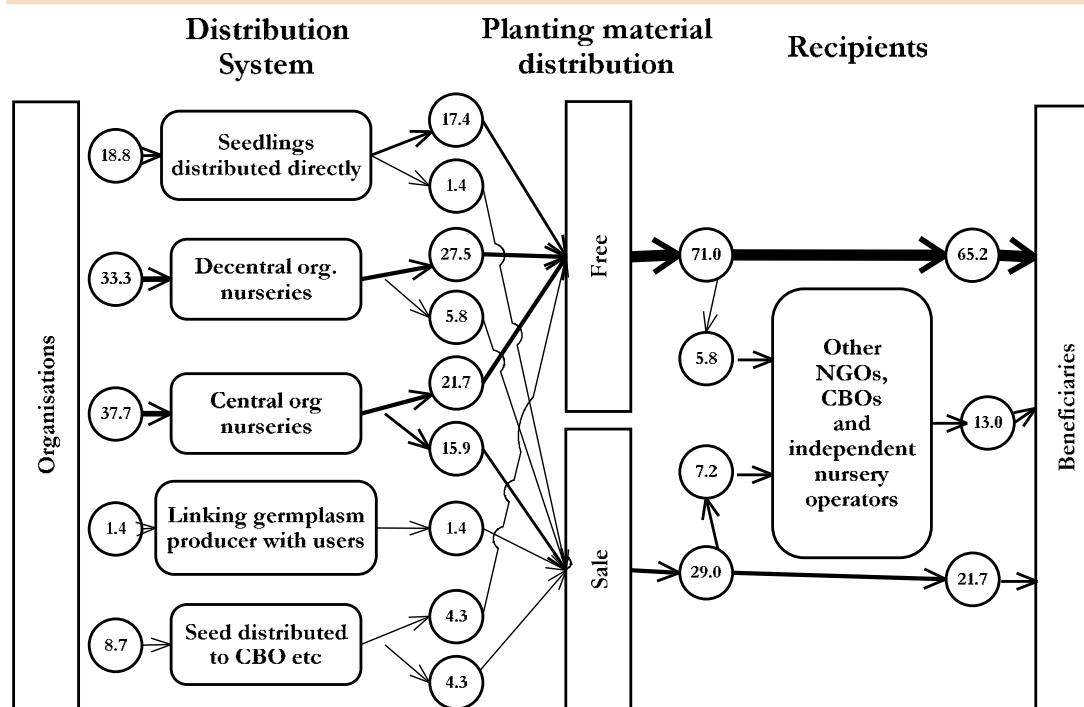


Figure 4. Distribution model for NGOs. Numbers represent percentages of times channels are used out of the total number of channels (some NGOs use multiple channels). The pathways of the flow from left to right illustrate what type of actors are involved in distribution (distribution system), if the material is given out for free or by sale (planting material distribution), and if additional actors are involved in the input supply chains (recipients). The thicker arrows indicate the dominant pathways.

The seed flows do not represent actual quantitative seed flows, but only what ways the NGOs work. In other words each channel used by a NGO is equally represented in the flowchart, although each channel does not distribute equal amounts of planting material. We are here concerned with the different distribution models utilised by NGOs and not with the amounts of seed/seedlings that flow through the different channels.

The most popular distribution model (28 %) is to supply seed to decentralised NGO affiliated nurseries that raise seedlings that are given for free to beneficiaries. 19 percent of the cases procure seedlings that are distributed, while 81 % procure seeds. Only very few organisations link beneficiaries with potential seed sources.

Across distribution models a majority of beneficiaries (71 %) receive their planting material for free. In general it is only high value fruit trees that are paid for by the beneficiaries.

None of the sampled organisations had set up systems (seed production and distribution strategies) to secure long term availability of seeds and seedlings

⁸ Figure 4 shows how the interviewed organisations distribute the planting material to beneficiaries. In addition to what is illustrated, five organisations representing 12 % of all organisations distributed seed and seedlings directly to afforestation projects.

to farmers in their areas of work. However, during the interviews, many organisations acknowledged the need to do this.

3.2.1 Quality

To all organisations quality meant that the seeds would germinate. The genetic aspects of quality were not taken into account. The organisations that procured seed from others trusted the source without evaluation (Comments like: »we buy from NTSC and we trust that the seed they give us is of the best quality« were typical).

The importance of keeping records of procured seed including their origin was not widely acknowledged and no procedures were in place to safeguard provenance or cultivar information. For example none of the interviewed organisations that bought seedlings from Kawanda had records of the cultivars that were purchased.

3.2.2 Species richness and criteria for species selection

NGOs utilised a total of 76 species with much variation between different NGOs (table 12).

Table 12. Number of species per organisation

Mean	Min	Max ⁹	St. Dev.	Var.
9.0	1	37	7.4	54.4

Species were ranked according to their relative importance. *Calliandra calothyrsus* was the species that was distributed most often. The ranking should only be regarded as a rough tool to identify the most important species (table 13). Thus we present only a list of the top ranked species in the main text. Among these, the exotic fruit trees are the ones with most entries within the top 16 species.

It should be noted that the ranking of species is likely to change substantially if species were ranked according to the number of seedlings produced through the assistance of NGOs. Many of the grafted fruit trees would decrease, while species for which seed is easily available would be the top species.

Table 13. Species most often distributed through NGO channels.

Ten most used species	Type (as classified by authors)
<i>Calliandra calothyrsus</i>	Exotic fodder/soil fertility
<i>Citrus species</i>	Exotic fruit trees
<i>Eucalyptus species</i>	Exotic timber
<i>Grevillea robusta</i>	Exotic timber
<i>Maesopsis eminii</i>	Indigenous timber / medicinal /Fodder / soil improvement / fruit
<i>Mangifera indica</i>	Exotic fruit trees
<i>Moringa oleifera</i>	Exotic medicinal
<i>Passiflora edulis</i>	Exotic fruit trees
<i>Persea Americana</i>	Exotic fruit trees
<i>Sesbania sesban</i>	Indigenous timber / medicinal /Fodder/ soil improvement / fruit

⁹ ICRAF distribute a large number of species and cultivars

continued overleaf

From 11 to 16 most used species	
<i>Azadirachta indica</i>	Exotic medicinal, timber
<i>Coffea Arabica</i>	Exotic fruit trees
<i>Leucaena diversifolia</i>	Exotic fodder/soil fertility
<i>Markhamia lutea</i>	Indigenous timber/medicinal/Fodder/ soil improvement / fruit
<i>Pinus species</i>	Exotic timber
<i>Prunus africana</i>	Indigenous timber/medicinal/ Fodder/ soil improvement / fruit

Figure 5 shows the thirty-one species that were most often utilised by NGOs. The thirty-one represent all species that was used by at least three organisations. The accumulated percentage is derived from the cases of species distributed by NGOs¹⁰, i.e. Calliandra represent slightly less then 10 % of all cases of species distributed by NGOs and the top ten most popular species represent 60 % of cases of species distributed by NGOs. Twenty-five species were used by at least ten NGOs. It should be noted that the data is across all climatic zones investigated.

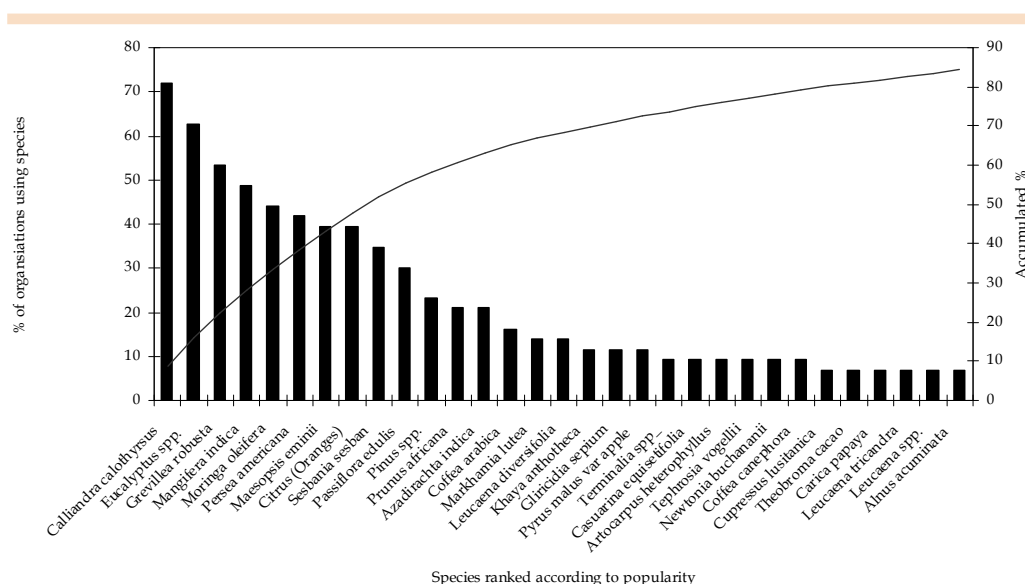


Figure 5. Species sorted according to the accumulated percentage of cases of species distributed by NGOs.

One respondent made a remark that could in part explain the limited number of species used: ‘The farmers wish to have many different tree species, balancing those interests was a nightmare. It’s not possible for a small NGO like ours to handle such diversity of choice’. Other reasons given were that other species were not available (especially for the local NGOs), or that they were simply the best species.

¹⁰ Number of species cases is 377

3.2.3 Species site matching

The survey team introduced the concepts of species-site matching and planting zones to all the organisations interviewed (see box 1). No one had regarded it as an important issue and species used by other big organisations were used without consideration as to whether they were suited for their growing area. For example, *Calliandra calothyrsus* were given to farmers all over Uganda without considering if it would be well suited for drier areas.

4. Community based organisations (CBOs)

4.1 Census of CBOs

Ntungamo and Kanungu were randomly selected for further studies in relation to tree planting CBOs. The survey should be regarded as a census (see methods in section 1.4.4), but the results provide indications of their situation. The Ntungamo stratum represented districts with few identified CBOs (N= 11) while Kanungu (N=51) represented districts with many identified CBOs. The interviewed CBOs were identified as having tree planting activities.

4.1.1 Primer on CBOs

Some basic information on the groups is given in table 14. Although most CBOs were women's groups, many had a small number of men as members. Most groups had around 30 members while few CBOs had substantially more.

Table 14. Data on CBOs (with activities related to tree planting)

	Year of formation	No. of Members	Female members	Male Members	% Female members
N	30	31	27	27	27
Mean	1997	34.3	22.7	11.9	72.4
Median	1999	30	22	5	78.9
Min	1985	6	0	0	0
Max	2003	120	50	120	100
St. dev.	5	21.7	11.8	23.6	29.7
Var.	22	472.9	138.4	556.4	880.5

CBOs were rarely an implementing vehicle of a NGO or donor. Most CBOs (82 %) had no affiliation with any organisations and those who had, only had a loose relation. Despite this, groups show a remarkable level of activity (table 15).

Table 15. Other activities of the identified CBOs

Other activities	% CBOs
Animal rearing local breeds	37
Beekeeping	21
Animal rearing exotic breeds	19
Handcraft	19
Merry-go-round (<i>mutual support scheme</i>)	19
Labour sharing	14
Formal credit	9
Drama	9
Mean number of activities per CBO	2.2
Var.	1.3
Median	2
Min.	0
Max.	5

Having a tree nursery was the most popular activity for the CBOs (table 16). The most popular combination of activities was to have a tree nursery and to give the seedlings to members.

CBOs in Kanungu were generally more active than those in Ntungamo. In Ntungamo a large proportion of the CBOs were actually sub-county local government¹² that used money from PMA to either set up nurseries or buy seedlings to be given to members of the community and/or public institutions.

Table 16. Types of tree planting activities

No of activities	N	%	Tree nursery*	Giving seedlings to members	Joint woodlot	Selling to the public	Giving seedlings to the community
2	14	33	Yes	Yes	No	No	No
1	6	14	No	No	Yes	No	No
3	5	12	Yes	Yes	Yes	No	No
2	3	7	Yes	No	Yes	No	No
2	3	7	Yes	No	No	Yes	No
1	2	5	No	No	No	No	Yes
3	1	2	Yes	No	Yes	Yes	No
3	1	2	Yes	Yes	No	Yes	No
3	1	2	Yes	Yes	No	No	Yes
2	1	2	Yes	No	No	No	Yes
3	1	2	No	Yes	Yes	No	No
3	1	2	No	No	Yes	Yes	Yes
2	1	2	No	No	Yes	Yes	No
1	1	2	No	Yes	No	No	No
0**	2	5	No	No	No	No	No
N of all CBOs in both districts engaged in activity			29	23	18	7	5
% of the CBOs engaged in activity			67	53	42	16	12
% CBO engaged in activity for Kanungu			77	55	68	14	5
% CBOs engaged in activity for Ntungamo			38	19	29	14	14
Mean number of activities per CBO						2.07	
Var.						0.92	
Median						2	
Min.						0	
Max.						3	

* If no nursery, CBOs buy from local entrepreneurs, NGOs, *etc.* or receive handouts ** These two CBOs were not directly involved in planting trees; one was a Local Government that worked with other CBOs and the other was a CBO that were set up to attract funding for the members' woodlots.

More than 70% of the CBOs in Kanungu acquired land for planting trees. In half of the cases the CBOs had been able to utilise public land for free from churches or from local government. 44 % of CBO members pooled their

¹² It can seem counter intuitive that sub-county local government (LC3) accounts for most of the CBO activity in Ntungamo and still a large part of CBOs are regarded as independent. However, even though LC3 is part of the government of Uganda the way they operated was consistent with a CBO with little or no backing or influence from outside, aside from some limited funding. LC3 is the smallest elected unit of the Ugandan government and as such operates much like a CBO. For instance they have no significant payroll.

financial resources, and were thus able to buy or rent land. The last 6% was on one member's land, with the agreement that when the woodlot is ready for harvesting the member will take a larger cut of the profits. All CBOs state that they grow the woodlots as an investment. Consequently conflicts might arise in the future for the CBOs growing trees on public land.

Overall Kanungu had a higher level of activities than Ntungamo, both for nursery establishment and for establishment of woodlots. Both climatic differences and the practise of shared cropping in Kanungu could make joint woodlots more attractive in that district.

4.1.2 Outlier CBO

One outlier should be highlighted, because it utilised more species and had an innovative business approach. The name of the CBO is Kantaama Environment Conservation Protection Project (KECPP). It is located in Kantaama parish in Rukoi Sub-county in Ntungamo. The parish is very close to a Forest Reserve and appear to have higher tree coverage than the surrounding parishes. The nursery that the CBO operated had 14 different species. Seed were acquired from the forest and from commercial nurseries operating in Mbarara town. The seed received from the commercial nursery operators were bartered against pine seed (from the reserve), collected by KECPP. This way of procuring seed was not used by anybody else (CBOs and NGOs) and the number of species was much higher than any other CBO.

All seedlings were sold and no seedlings were given to members. In fact the CBO could be classified as a private nursery.

4.2 Sources and modalities of seed supply - CBOs

Table 17 highlights where and how CBOs get their planting material. CBOs' procurement types of seed and seedlings of species: bought, collected, gifts, exchange were utilised in a ratio of 31:35:31:1 (plus one unknown). Only around one third of their species are procured as gifts, which indicates that many CBOs are not well connected to free hand-outs from NGOs, but source most of their material on their own.

Species were procured from (i) seed collection from mature trees and collection of seed, when consuming fruits; (ii) from farmers/entrepreneurs (and one CBO); (iii) Local Government representative; (iv) National NGO/Donor and Local NGOs; and (v) Kawanda; in a ratio of 29:21:13:8:7 (plus one unknown). Most species were therefore likely to be collected locally, limiting the species choice.

43% of the procurement cases of exotic fruit trees were from »collection of seed, when consuming fruits«, while 37% respectively were from Kawanda (not shown directly in table 17). This sets exotic fruit trees apart from the other species. On the one hand the high percentage of good quality germplasm from Kawanda indicates that many of the CBOs have access to good quality fruit seedlings. On the other hand the high proportion of production

from seed indicates that an equal number of CBOs have no knowledge of the advantages of vegetative fruit tree seedling production or have no access to Kawanda.

Table 17. Ways of procuring planning material for the CBOs based on species

Germplasm type	Procurement way	From	N types used	% of org
Private entrepreneurs & own coll.				
Seed	Collected	Mature trees	32	19,4
Seed	Collected	Consumed fruits	21	12,7
Seedling	Buy	Farmer / entrepreneur	17	10,3
Seed	Buy	Farmer / entrepreneur	8	4,8
Seed	Gift	Farmer / entrepreneur	6	3,6
Wildlings	Collected	Mature trees	5	3,0
Seed	Exchange	Farmer / entrepreneur	4	2,4
Seed	Buy	CBO	1	0,6
			94	57,0
Government Institutions & Research				
Seed	Gift	LG representative	22	13,3
Seedling	Buy	Kawanda	17	10,3
Seedling	Gift	LG representative	4	2,4
Seed	Buy	Kawanda	1	0,6
			44	26,6
Other NGOs				
Seed	Gift	National NGO / Donor	10	6,1
Seed	Gift	Local NGO	9	5,5
Seed	Buy	Local NGO	5	3,0
Seedling	Buy	National NGO / Donor	2	1,2
			26	15,8
From abroad			0	0
Unknown				
Seed	Unknown	Unknown	1	0,6
			165	100

To investigate if germplasm came from sources that were adapted to the local growing conditions or not, the different procurement types were classified into a procurement location and a seed source location. Figure 6 illustrates the procurement systems among CBOs after the classification. Figure 6 does not represent quantitative numbers of seed but provides a picture of the different ways CBOs procure germplasm. The basic unit of investigation is the species and the number of times a particular procurement path has been used for a particular species¹³.

Seed procured locally from a local source by »own collection« and »private entrepreneurs« are the most popular ways to procure seed. Government and

¹³ In the procedure to make flowchart, a list of species and procurement method pairs was used, this list does not distinguish between which CBO was the originator of this pair. In contrast to NGOs, there are very few cases where a CBO procure the same species from more than one source.

Research organisations are sources of procurement for about a quarter of the procurement cases (a large part of this is exotic fruit species). NGOs only account for one sixth of the cases, indicating that NGOs are not supporting the CBOs in general.

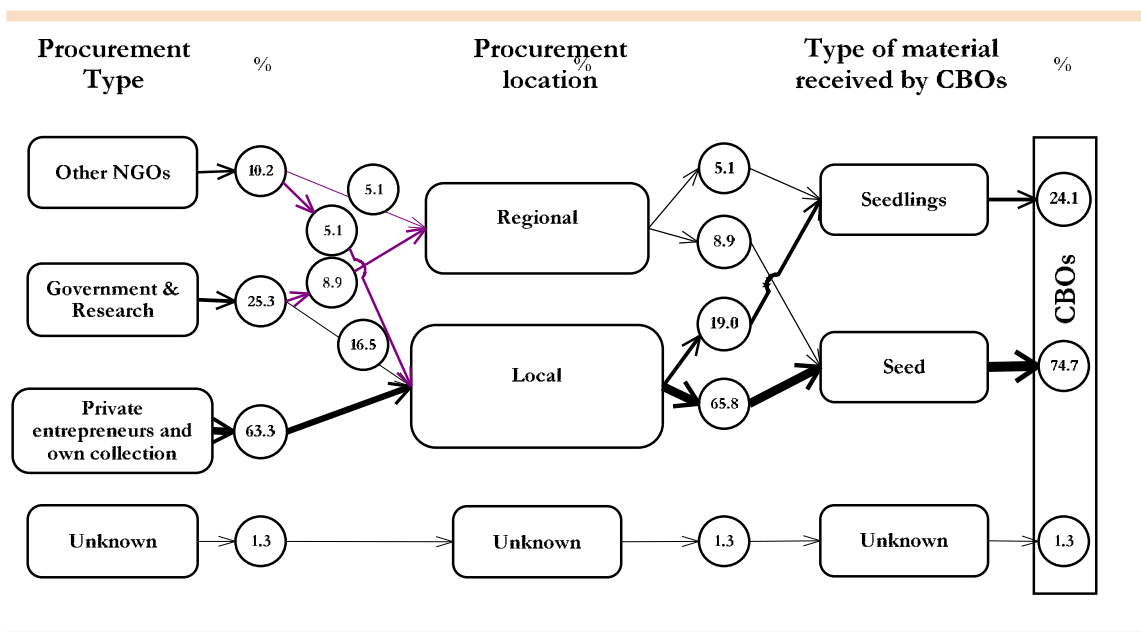


Figure 6. Procurement flows for CBOs. Numbers represent the percentage a given »route« has been used for species irrespective of NGOs

4.3 Seed supply strategies CBOs

4.3.1 Quality

Genetic quality was not a concept that CBOs were well acquainted with. However, CBOs would often attempt to collect from selected trees. For example when collecting eucalyptus seed, CBOs explained that they would collect from larger trees, and when getting fruit seed they would select nice and big fruits. Seed were rarely mixed and a minimum number of mother trees were not considered an issue. Other genetic aspects, cf. Box 1, were not considered

4.3.2 Species richness and reasons for species selection

The CBOs had on average 4 different species (table 18) and in total 28 species for all CBOs.

Table 18. Number of species in total and per CBO

Mean	3.89
Var.	8.15
Median	4
Min.	1
Max.	12
Total no of species for all CBOs	28

Figure 7 shows the relative species popularity for the CBOs. *Eucalyptus* was utilised by more than 80 percent of the CBOs and the top five and ten species encompassed 56 percent and 81 percent of all tree planting done by CBOs. The numbers represent species used and not number of plants planted.

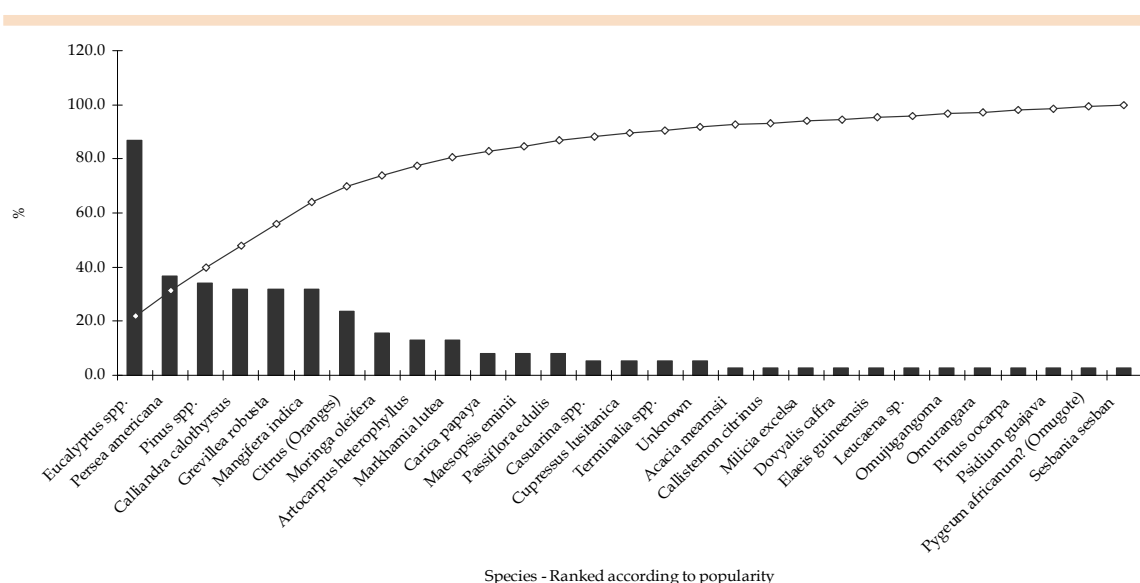


Figure 7. Species popularity (CBOs) and accumulated percentage of all plantings attributed to each species.

Among the top thirteen most popular species (see table 19) the majority (7) are exotic fruit trees, three are exotic timber species, two are indigenous species, and one an exotic fodder species. This confirms the general picture that growing fruit trees for home consumption is a major objective for many CBOs.

Table 19. top thirteen species among CBOs

Species	Type
<i>Artocarpus heterophyllus</i>	Exotic fruit trees
<i>Calliandra calothyrsus</i>	Exotic fodder/soil fertility
<i>Carica papaya</i>	Exotic fruit trees
<i>Citrus</i> (Oranges)	Exotic fruit trees
<i>Eucalyptus</i> spp. ¹	Exotic timber
<i>Grevillea robusta</i>	Exotic timber
<i>Maesopsis eminii</i>	Indigenous timber/medicinal/ fodder/ soil improvement/fruit
<i>Mangifera indica</i>	Exotic fruit trees
<i>Markhamia lutea</i>	Indigenous timber/medicinal/ fodder/ soil improvement/fruit
<i>Moringa oleifera</i>	Exotic fruit trees
<i>Passiflora edulis</i>	Exotic fruit trees
<i>Persea Americana</i>	Exotic fruit trees
<i>Pinus</i> spp. ²	Exotic timber

¹ Mostly *Eucalyptus grandis* and *Eucalyptus saligna*; ² Mostly *Pinus patula*

The CBOs were asked to provide criteria for selecting species to plant. The answers were classified into eight categories (see examples of criteria in box 3). Table 20 shows the frequency of the primary criteria (categories) used by the CBOs. The most important answers for species selection were that it was »the only available« and »can not explain reason«.

Box 3.

Quotations from the interviews regarding criteria for species selection

1. Because others very expensive to buy
"...We wanted muzizi (Maesopsis eminii) and black wattle (Acacia mearnsii) in Ntungamo town but they were too expensive."
So why only eucalyptus? "They had other species in the nursery but they were all too expensive, we have failed to raise enough money to buy them."
2. Tried to explain the uses of the trees, but could not explain why that particular species and not another with the same uses
Why these fruits? "They are fruits doing better"
"The chosen species are better."
"They are the trees that can grow here"
3. Because it was the only available
"... We didn't get a chance of getting other types of trees"
"... We see other people have "new" type of trees and they seem to be very nice so we want them also"
Why so few of each species? "We did not have more seed"
"We only planted eucalyptus as it was the only available seed"
4. Species were given to them and thus dictated what they used
"We did not choose these tree species! They just gave us"
"The foreman for the ADRA nursery gave us advice on what species to pick and he picked those two."
"We wanted others but the DFO did not have them" such as neem and moringa.
5. Because of the superiority of the species
"Eucalyptus is the only one that has market and grows fast."
"Eucalyptus will give money, the fruits are only for eating."
6. What they thought we wanted to hear
"This species was what we could find in the nursery." This was verified not be true as the nurseries referred to had many more species available.
7. The combinations
Why eucalyptus for the woodlot? "It mature fast and that was the only one available."
8. Lack of knowledge
"We need a seminar on trees; we just plant what we know"
"We don't know them, but we want the new ones"
"This the trees we know, later we can start with others"

The reason for selecting species is probably a large part of the explanation for why eucalyptus is the most popular CBO species (see figure 7). Eucalyptus is a very common species in the landscapes of the Southwest, it produces large amounts of seed and is relatively easy to produce seedlings from. A similar reasoning can be applied to several of the other popular species, including fruit trees produced from seed.

Table 20. Number of CBOs claiming a criteria group for species selection

Reason groups	N	%
The only available	17	45
Can not explain reason	11	29
Given to them and thus dictated what they used	6	16
Because of the superiority of the species	4	11
Expensive to buy	3	8
Lack of knowledge	3	8
What they thought we wanted to hear	2	5
The combinations	1	3
Total	38	100

A reasonable (new) hypothesis for a quantitative survey of the production of seedlings in CBO nurseries would therefore be »that CBOs are not selecting optimal planting material of species for improving their living conditions and cash incomes«. CBOs are probably producing material that is very far from the optimal.

4.3.3 Species-site matching

The CBOs' criteria for species selection and the large proportion of species that are procured locally indicate that to some extent the material used for planting will be local land races of exotic species and local populations of indigenous species. On the other hand, the CBOs use phenotypic characters, but not genetic quality criteria for selection of material, so they are not protecting themselves from mal-adaption and inbreeding of species through the use of sub optimal material (see also text box 1). Furthermore the dominance of Eucalyptus does indicate a limited availability of species – despite the species' usefulness, it does not intercrop well.

Table 21 shows the ranking of species in each of the two districts as well as the combined ranking. The combined ranking shows an overall similarity between the two districts.

Table 21. District wise use of species by CBOs

Species	Ntungamo		Kanungu		Both districts	
	N	Rank	N	Rank	N	Rank
<i>Eucalyptus</i> spp.	18	1	20	1	38	1
<i>Persea Americana</i>	7	2	7	3	14	2
<i>Grevillea robusta</i>	7	2	6	5	13	3
<i>Calliandra calothyrsus</i>	5	5	7	3	12	4
<i>Mangifera indica</i>	7	2	5	7	12	5
<i>Pinus</i> spp.	3	8	8	2	11	6

continued overleaf

Species	Ntungamo		Kanungu		Both districts	
	N	Rank	N	Rank	N	Rank
<i>Citrus</i> spp. (Oranges)	4	6	5	7	9	7
<i>Markhamia lutea</i>	-	-	6	5	6	8
<i>Moringa oleifera</i>	4	6	2	10	6	8
<i>Artocarpus heterophyllus</i>	1	11	4	9	5	10
<i>Carica papaya</i>	1	11	2	10	3	11
<i>Maesopsis eminii</i>	1	11	2	10	3	11
<i>Passiflora edulis</i>	2	9	1	13	3	11
<i>Cupressus lusitanica</i>	1	11	1	13	2	14
<i>Terminalia</i> spp.	1	11	1	13	2	14
Unknown	1	11	1	13	2	14
<i>Casuarina</i> spp.	2	9	-	-	2	14
<i>Elaeis guineensis</i>	-	-	1	13	1	18
<i>Leucaena</i> sp.	-	-	1	13	1	18
Omujugangoma	-	-	1	13	1	18
Omurangara	-	-	1	13	1	18
<i>Psidium guajava</i>	-	-	1	13	1	18
<i>Pygeum africanum</i>	-	-	1	13	1	18
<i>Sesbania sesban</i>	-	-	1	13	1	18
<i>Acacia mearnsii</i>	1	11	-	-	1	18
<i>Callistemon citrinus</i>	1	11	-	-	1	18
<i>Chlorophora excelsa</i>	1	11	-	-	1	18
<i>Dovyalis caffra</i>	1	11	-	-	1	18

In general the responses from the CBOs indicate that getting the right species is a priority for CBOs (text box 4).

Box 4. Quotations from the interviews regarding the suitability of Eucalyptus

Why not Eucalyptus? "It doesn't mix well with bananas"

"Now, we want the modern ones, not only eucalyptus, those trees that can be inter-cropped. Because eucalyptus dries up our gardens"

"Eucalyptus was the only available alternative. We would like others as we feel that eucalyptus is degrading the land."

5. Discussion and conclusion

The classification of organisations involved in providing germplasm to farmers requires a detailed field survey because information required to classify the organisations was often not available at a central level in the country. The smallest class of NGO - local NGOs - constituted 85% of the number of NGOs in the districts. In Ntungamo the number of CBOs did seem much more limited than in Kanungu, perhaps due to the drier climate and less opportunities for tree planting under the current socio-economic conditions, as well as less conservation areas to attract donor support to tree planting. While the sample of NGOs is a representative sample, the survey of CBOs is a census rather than a sample survey. Thus comparisons between the two should be treated with care. However, the results indicate that the way CBOs procure seed (buy, gift or collect) is different from the way NGOs procure seed. CBOs are more likely to get germplasm locally and from own collections while NGOs source more seed nationally and internationally.

5.1 NGO survey – Summary of findings

A majority of the germplasm provided to the beneficiaries by the NGOs comes from farmland landscapes in Uganda and is of undocumented quality. It appears that there is an incipient industry of entrepreneurs, contractors, farmers, and nursery operators, which are providing germplasm to the NGOs. This incipient industry is not supported by any widely disseminated guidelines for establishing seed sources and there is no institutional support for the industry to evolve sound business management and quality chains such as through participation in associations for seed dealers or other types of networking support.

The »Big organisations« to a large extent procure seed from own collection and private dealers, while »National and international« rely more on procurement through formal channels.

One of the two main NGO channels for procurement is regional procurement of seed from national and international sources and the other main channel is to obtain seed locally from local sources. Some of the regionally obtained seed may in fact come from local sources but as organisations rarely document seed sources that can not be substantiated.

Even with the relatively large proportion of cases with insufficient information it is noteworthy that in a substantial proportion of cases, seed was procured from outside the local area – in a country where hardly any high quality seed sources of any agroforestry species have been documented (i.e. procurement from outside the local area makes for more expensive seed of the same undocumented quality).

The most popular distribution model is to supply seed to decentralised NGO affiliated nurseries that raise seedlings that are given for free to beneficiaries.

19% of the cases procure seedlings, while 81% procure seeds. Only very few organisations link beneficiaries with potential seed sources. Across distribution models a majority of beneficiaries (71%) receive their planting material for free. In general it is only high value fruit trees that are paid for by the beneficiaries. None of the sampled organisations had set up systems (seed production and distribution strategies) to secure long term availability of seeds and seedlings to farmers in their areas of work. However, during the interviews, many organisations acknowledged the need to do this.

To all organisations quality meant that the seeds would germinate. The genetic aspects of quality were not taken into account. The organisations that procured seed from others trusted the source without evaluation. Comments were typically: »we buy from NTSC and we trust that the seed they give us is of the best quality«.

The importance of keeping records of procured seed including their origin was not widely acknowledged and no procedures were in place to safeguard provenance or cultivar information. For example none of the interviewed organisations that bought seedlings from Kawanda had records of the cultivars that were purchased.

No NGO regards species-site matching and planting zones as an important issue and species were used without consideration as to whether they were suited for their growing area.

5.2 CBOs – Summary of findings

Most CBOs were women's' groups, but many had a small number of men as members. Most groups had around 30 members. CBOs were rarely an implementing vehicle of a NGO or donor. Most CBOs (82 %) had no direct affiliation with any organisations and those who had, only had a loose relation. Despite this the CBOs show a remarkable level of activity.

Having a tree nursery was the most popular activity for the CBOs. The most popular combination of activities was to have a tree nursery and to give the seedlings to members. CBOs in Kanungu were generally more active than those in Ntungamo, both for nursery establishment and for establishment of woodlots. More than 70% of all CBOs in Kanungu acquired land for planting trees. All CBOs state that they grow the woodlots as an investment.

Only around one third of CBO species is procured as gifts, which indicates that many CBOs are not well connected to free hand-outs from NGOs, but carry out their own procurement of germplasm. Most species were primarily collected locally, limiting the species choice. On the one hand the high percentage of good quality fruit tree germplasm from Kawanda indicates that part of the CBOs has access to good quality fruit seedlings. However, another large part of fruit tree seedlings were produced from seed indicating that many CBOs have no knowledge of the advantages of vegetative propagation for fruit tree seedling production or have no access to Kawanda.

Seed procured locally from a local source by 'own collection' and 'private entrepreneurs' are the most popular ways to procure seed. Government and Research organisations are sources of procurement for about a quarter of the procurement cases (a large part of this is exotic fruit species). NGOs only account for one sixth of the cases, indicating that NGOs are not supporting CBOs in general.

Genetic quality was not a concept that CBOs were well acquainted with. However, CBOs would often attempt to collect from selected trees, but a minimum number of mother trees were not considered an issue.

The CBOs had on average 4 different species and in total 28 species for all CBOs. Eucalyptus was utilised by more than 80% of the CBOs and the top five and ten species encompassed 56% and 81% respectively of all tree planting done by CBOs.

Among the top thirteen most popular species the majority (7) are exotic fruit trees, three are exotic timber species, two indigenous species and one an exotic fodder species. This confirms the general picture that growing fruit trees for home consumption is a major objective for many CBOs.

The most important criteria for species selection were that it was »the only available« and »cannot explain reason«. Availability is probably a large part of the explanation for why eucalyptus is the most popular CBO species, it produces large amounts of seed and it is relatively easy to produce seedlings from. A similar reasoning can be applied to several of the other popular species, including producing fruit trees from seed.

A reasonable (new) hypothesis for a quantitative survey of the production of seedlings in CBO nurseries would therefore be »that CBOs are not selecting optimal planting material of species for improving their living conditions and cash incomes«. CBOs are probably producing material that is very far from the optimal.

5.3 The hypotheses revisited

Hypothesis one: Organisations distribute seed or seedlings to small-scale farmers for free

It can be concluded that the proposed hypothesis is valid. In most cases organisations distribute seed and seedlings for free. Organisations do however acknowledge the problems of distributing seed for free and have especially in relation to high value grafted fruit trees started to ask beneficiaries to pay at least part of the costs.

Hypothesis two: No strategy to set up a sustainable long term seed supply system exists

The second hypothesis is also confirmed. NGOs do not have a deliberate strategy on how to ensure seed supply after their projects have ended.

Building local capacity to collect and use seed was a goal for several organisations but was always seen as a way for the organisation to procure seed, often cheaply, and then to distribute the seed to other farmers for free. Local quality seed production was not encouraged so that entrepreneurial farmers themselves could set up their own distribution systems (although many organisations encouraged individual farmers to save a few trees so that they could collect their own seed).

A reason for this hands-off approach may be that many of the organisations implement tree planting and agroforestry as a small component of other larger projects (e.g. functional adult literacy, biodiversity conservation or sustainable farming).

Hypothesis three: No or minimal consideration is given to genetic quality

With very limited knowledge among the organisations of what constitutes genetic quality it is no surprise that the hypothesis holds true - the main concern is with germination percentage. Although phenotypic appearance is sometimes used as a criterion, no procedures are implemented to ensure that seed has a sufficiently good genetic quality, cf. box 1. If seed used is of high quality it is only by chance and not because of a deliberate effort.

Hypothesis four: Limited number of species is promoted and/or used

The hypothesis holds true for CBOs - the species they use are the species that are available to them although some of them have access to good quality fruit tree cultivars. The hypothesis holds true to some extent for NGOs, but the NGOs use more species. One explanation for the relatively few species may relate to conclusions on hypothesis five below.

Hypothesis five: No thorough analysis is done to establish the species with the highest potential benefits locally

Generally organisations procure most of their seed from what is available in the farmland. This has two consequences: (i) what is available is not necessarily of optimal genetic quality; and (ii) farmland species are limited in number. One of the only examples of new species introduction in the Southwest is the - limited by a lack of an efficient strategy - few new species promoted by ICRAF, in particular *Calliandra calothyrsus* for fodder. The assumption of ICRAF has been that farmer-to-farmer diffusion will ensure the rapid adoption of species by encouraging farmers to retain a few seed trees and give away seed. The strategy, as it is adopted by NGOs, has the consequence that NGOs purchase seed (in the first instance from ICRAF and then by selected farmers) and maintain a dependence by farmers in the NGO areas of operation on continued free provision of seed.

Overall we could find no relationship between particular growing conditions in an organisation's area of operation and the species promoted in that area. In other words it appears more likely that NGOs promote tree planting because NGOs perceive any tree planting as a benefit in itself rather than NGOs promote tree planting because the species and cultivars can provide optimal benefits to farmers.

Tangible evidence of such an analysis would have been established seed sources of high yielding provenances and cultivars, awareness and marketing programmes to make farmers well informed customers of high quality germplasm, and the existence of local entrepreneurs that will make sure that customers can select seedlings of their favourite germplasm.

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Appendix I.

Pre-identified Kampala NGOs

Donor organisations and Embassies

Danida
 Deutsche Gesellschaft für Technische Zusammenarbeit
 European Union
 Food and Agriculture Organisation of United Nations
 International Development Association
 Ireland
 Italy
 International Union for the Conservation of Nature and Natural Resources
 Japan
 Netherlands
 Norway
 Spain
 Sweden
 Switzerland
 UK Department for International Development
 United Nations Children's Fund - UNICEF
 United Nations Development Programme (UNDP)
 UNDP GEF small grants program
 United Nations Population Fund - UNFPA
 United States Agency for International Development
 World Bank
 World Food Programme

NGOs

Actionaid
 Adventist Development and Relief Agency Advocates coalition for development and Environment
 Africa 2000 network
 Africa Wildlife foundation
 Africare
 Agricultural council of Uganda
 Agricultural sector program support
 Ankole young agricultural professionals association
 Association of Country-wide afforestation
 Care International
 Catholic Relief Services
 Central Uganda Farmers association
 CESVI – Italian NGO

Community development organisation
 Eastern Uganda environmental forum
 ECOTRUST
 Environmental alert
 Farm Africa
 Heifer Project International
 Horticultural exporter association of Uganda
 Hunger Project
 Integrated rural development initiative
 International Aid Sweden
 International care and relief
 Joint energy and environment project
 Living earth
 Moringa association
 MS Uganda (Danish voluntary organisation)
 Muslim world league
 Nature Uganda
 Norwegian forestry society
 Onfarm Uganda
 Oxfam
 Platform Uganda
 Rural community development association
 Rural women development association
 Support for women in agriculture & env't
 Uganda coffee farmers association
 Uganda ecumenical church
 Uganda Neem Movement
 Uganda wildlife club
 Uganda women tree planting movement
 Uganda youth voluntary efforts in afforestation & environmental protection
 United tree planting association
 VSO Uganda (UK voluntary organisation)
 Wildlife clubs of Uganda
 World Vision

Appendix II.

Resource persons for the Who-is-out-there survey

Name	District	Title / designation
Mr. Anthony Ogwal	Wakiso	District Forestry/Environment Officer
Mr. D. B. Kalibbala	Wakiso	District Agriculture/Extension Officer
Mr. Charles Njolwa	Wakiso	District Statician
Mr. F. Sekagya	Wakiso	District Community Development Officer
Mr. Polly Birakwate	Mpigi	District Forestry Officer
Ms. Patience Nsereko	Mpigi	District Environment Officer
Mr. Mwogeza	Mpigi	District Agriculture/Extension Officer
Mr. Freddie Kabango	Masaka	District Agriculture/Extension Officer
Mr. Absolom K. Wasswa	Masaka	Extensionist
Mr. Lamuel Bwengye	Masaka	District Community Development Officer
Ms. Rose Nakyejjwe	Masaka	District Environment Officer
Mr. James Kabanda	Sembabule	District Forestry Officer
Mr. Mutyabule Naluswa	Masaka	Forest Ranger DFO's office - Acting DFO
Mr. William Kasango	Masaka	District Forestry Officer
Mr. Kaggwa	Masaka	Ass. Comm. Development Officer
Ms. Doreen Kataama	Mukono	District Agriculture/Extension Officer
Mr. William Mujuni	Mukono	District Forestry Officer
Mr. Moses Balimunsi	Mukono	Forest Officer
Mrs. Alice Nyanzi	Mukono	District NAADS Cordinator
Mr. Solomon Musoke	Mukono	District Environment Officer
Mr. Joel Musisi	Mukono	District Community Development Officer
Mr. Jim Katto	Mukono	NGO Coordinator
Ms. Christine Ampaire	Mukono	Director Gender and Community Service
Mr. Dickson Lufafa	Jinja	District Environment Officer
Mr. Fred Baruzalire	Jinja	District Forestry Officer
Mr. Nasser Wambi	Jinja	Forest ranger DFO's office
Mr. Sulaiman Bagalana	Jinja	District Agriculture/Extension Officer
Mr. Lugero	Jinja	District Community Development Officer
Mr. Musa Lubanga	Mayuge	District Environment Officer
Mr. Moses Murrani	Mayuge	District Forest Officer
Ms. Victoria Namwase	Mayuge	District Community Development Officer
Mr. Moses Kayiira	Mayuge	District Agriculture/Principal Ikulwe ARDC
Mr. Stephen W.M. Atisa	Mayuge	NGO Forum
Mr. James Kugonza	Iganga	Ag. District Forestry Officer
Mr. Fred Kagino	Iganga	District Agriculture/Extension Officer
Mr. Isabirye Kozaala	Iganga	District Community Development Officer
Mr. Samuel Batuuuka	Iganga	District Culture/Youth Officer
Mr. Ofwono Osinde	Bugiri	District Agriculture/Extension Officer
Mr. John W. Isabirye	Bugiri	Ass. Forest Officer/IC Irimbi F/r & DFO off.
Mr. Shaffiq Butanda	Bugiri	Gender and Youth Officer
Mrs. Betty Nandudu Mubiita	Bugiri	District Community Development Officer
Mr. Charles Mutemo	Bugiri	District Environment Officer
Mr. Steven Galima	Busia	District Forestry Officer
Mr. Anthony Ouma	Busia	Ass. Forest Officer & DFO off.
Mr. Longnot Onauro	Busia	Ass. Forest Officer/IC West Bugwe
Mr. Desderius Eriima	Busia	Forest Guard
Ms. Rebecca Nanjala	Busia	District Environment Officer
Mr. Titus Ouma	Busia	District Community Development Officer
Mr. Fred Wakapisi	Busia	District Agriculture/Extension Officer
Mr. Dennis Opio	Busia	Agric Officer
Mr. Daniel H. Higenyi	Tororo	District Community Development Officer
Mr. John Wakinya	Tororo	District Agriculture/Extension Officer

Name	District	Title / designation
Mr. Silas Anguti	Tororo	District Forest Officer
Ms. Asenath Namwenge	Tororo	Sec. DFO
Mr. Desderius Wasike Okello	Tororo	AFO
Mr. Okware	Tororo	Agric Officer Dept of Production/Marketing
Mr. Masaba Bwire	Tororo	District Youth and Gender Officer
Mr. John Gongo	Tororo	District Environment Officer
Ms. Florence Apolot	Tororo	Stenographer- DEOffice
Mr. Paul Mwambu	Mbale	District Environment Officer
Ms. Betty Alupo	Mbale	Stenographer- DEOffice
Mr. George Mabuye	Mbale	District Forest Officer
Mr. James Mwalye	Mbale	AFO
Ms. Modesta Nambuya	Mbale	District Agriculture/Extension Officer
Mrs. M. N. Mwambu	Mbale	Chief Production Officer
Mr. Rashid Mafabi Nambale	Sironko	District Environment Officer
Mr. Dunstan Tatumwa	Sironko	District Forest Officer
Mrs Matilda Makabayi	Sironko	District Agriculture/Extension Officer
Ms. Esther Kagusuma	Sironko	District Community Development Officer
Mr. Levi Etwodu	Bushenyi	District Forest Officer
Mr. Tom Rukundo	Bushenyi	Forest Officer - Ndekye
Ms. Betty Nakyobe	Bushenyi	Ass. Forest Officer - Nkombe
Mr. Eriab Bampabura	Bushenyi	Ass. Forest Officer - Nkombe
Mr. Cyril Mugenyi	Bushenyi	District Environment Officer
Mr. W. Kamukama	Bushenyi	District Agriculture/Extension Officer
Ms. Angela Kamasaza	Bushenyi	Ass. District Agriculture Officer
Mr. Jonathan Nziwa	Kasese	Forest Ranger
Mr. Gideon Bitakaramire	Kasese	District Forest Officer
Mr. David Musenero Kyamwangana	Kasese	Agric Officer - AAMP
Mrs. T. Munyazikwiye	Kasese	District Agriculture/Extension Officer
Mr. Kule Asa Musinguzi	Kasese	District Environment Officer
Phillo Mbambu	Kasese	Stenographer- DEOffice
Mr. Zachary Bahizi	Kisoro	District Agriculture/Extension Officer
Mr. Everest Tumwesigye	Kisoro	District Community Development Officer
Mr. Enock Arinaitwe	Kisoro	District Forest Officer
Ms. Mabel Sebikari	Kisoro	Ag. District Environment Officer
Mr. Jackson Zagira	Kisoro	Forest Ranger - Echuya reserve/Kanaba st.
Mr. David Kanyeihamba	Kabale	AFO - Mafuga
Mr. M. Besigye	Kabale	AFO - Mafuga
Mr. Boniface Behakanira	Kabale	FR-Mafuga
Mr. Francis Mbabazi	Kanungu	District Environment Officer
Ms. Mackie Asimwe	Kanungu	Stenographer- DEOffice
Mr. Adios Kyomukama	Kanungu	District Forest Officer
Mr. Edgar Musinguzi	Kanungu	District Fisheries Officer
Mr. Peter Turiyo	Kanungu	District Agriculture/Extension Officer
Mr. John Ngabi	Kanungu	District Community Development Officer
Mr. Richard Muzimbwe	Rukungiri	District Environment Officer
Mrs. Phoebe K. Baddu	Mbarara	Coordinator SW - AAMP program
Mr. Yosam Karugaba	Rukungiri	District Forest Officer
Mr. G. B. T. Tumushabe	Rukungiri	Director Production and Marketing
Mr. L. Kasigazi	Rukungiri	District Agriculture/Extension Officer
Mr. Cleophas Tiwaitu	Rukungiri	District Community Service Coordinator
Mr. Justus Tusubira	Ntungamo	District Environment Officer
Mr. Mukasa Tibesigwa	Ntungamo	District Forest Officer
Ms. Goretti Karikwisya	Ntungamo	District Agriculture/Extension Officer
Mr. John Turyatunga	Ntungamo	District Community Development Officer
Dr. Callist Ngabirano	Ntungamo	Agric Officer
Mr. David Katusiime	Ntungamo	Admin/Sec NGO forum Ntungamo district

Appendix III.

Organisations identified to be working with tree planting

Bugiri

Action sino development group
 Active Health, Culture and Education care Association
 Bugiri farmers association
 Bukooli Livestock Farmers Association - BULIFA
 Busoga Environmental and Conservation Organization BECO
 Busoga Youth Development Association - BUYODA
 Community Integrated Development Agency - CIDA
 FAOC Fund for AIDS orphan Children
 Human rural development scheme
 Integrated Network for Farmers & Business Dev't- INFABUD
 Isagaza Community Development Initiatives
 Kikolayenda Women Group
 Kitondha intergrated farmers organisation
 Lolwe Community Development Association
 Mwana Mugimu Group
 Namwera Env't Protection & Economic Devt Ass
 National Adult Education Association - NAEA
 Organisation for Rural Development & Environment
 Organisation of Lwangosia United Youth Association OLUYA
 Uganda Change Agent Association
 Uganda Coffee Farmers Association
 Uganda Moslem Rural Development Assoc- UMURDA
 Wildlife Clubs of Uganda
 World Muslim League

Bundibugyo

Baghendera farmers of organic farming
 Bughendera Youth development foundation
 Buhundu Kighununu farmers group
 Buhundu Youth & women development association
 Bumathe – Karangitsyo women farmers group
 Bundibugyo agro – producers & sellers organization
 Dumba Kwelungania women group
 Harugale Joint organic farmers group
 Ibanda II united farmers development group
 Integrated rural women & orphans development association
 Itojo parish women farmers group
 Kabango passion fruit farmers group
 Kakuka rural education development association
 Kakuka Youth development association
 Kamangala united farmers group
 Kasulenge Twekulhayee women group
 Kasulenge united agro – farmers
 Kibale I women group

Kibale II women farmers group
 Kihoko I women farmers group
 Kihoko II women farmers group
 Kikyoo I passion fruit farmers group
 Kilhubo nursery farmers group
 Kisiina Kweyamba women group
 Kitsolina I women farmers group
 Kyabikere Abanzene cattle keepers association
 Mabere passion fruit farmers group
 Masule II women association
 Mutiiti II women development association
 National council of tradinal healers association
 Nombe II united widows & orphans group
 Nyalulu women farmers group
 Rusamba rural women farmers group
 Wildlife Clubs of Uganda
 World Muslim League

Bushenyi

Ankore Young Agricultural Professionals Association
 Association for Rural Development -ASASURUDE
 Bitereko Womens Group
 Buramba Farmers Development Association
 Bushenyi Bakyara Twimukye
 Bushenyi Banana&Plantains Farmers Assoc.-BUBAPFA
 Bushenyi District Farmers Association (BUDFA)
 Bushenyi Local Government
 Bushenyi Rotary Club c/o Rotary International
 Bushenyi Women in Development Association (BWIDA)
 Crescent Conservation and Development Forum
 Kabwohe Itendero Youth Unity & Peace Initiatives
 KAKEDEYO project, Katunguru Parish
 Kamusiime Memorial Pilot Scheme
 Kanyinya Agroforestry, Mazinega
 Kararo Development Association - KADI
 Kashorero twombekye Womens Group
 Katara Wildlife Club
 Katunguru-Kigabo Environment Development Youth organisation
 - KAKEDEYO
 Keirere F.A.L. Development Association
 Kichwamba Wildlife and Drama club
 Kitembe Womens Development
 KOBI
 KYADA Credit and Saving Society
 Kyagaju Development Association

Kyagaju Twimukye Cooperative Society
 Kyangyenye Community Natural Health Providers
 Kyeibare Women Association
 Kyeizooba Community Based Reproductive Health
 Mahega in Development
 Migyera Women Twetungure Group
 Mutara Foundation for Rural Development
 NACOTHA
 Network for Environment, Agriculture & Rural Development - NEARD
 Nyabubare Development and Environment Association
 Poverty Alleviation Focused Multiproject Scheme
 RUASSA
 Rubare Development Womens Group
 Ruhinda Aids Community Initiatives
 Rukorarwe Partnership Workshop for Rural Development
 Rwandaro Bataka Tweyambe
 Tukore group
 Uganda Change Agent Association
 Uganda Coffee Farmers Association
 Wakame Drama Actors
 West Ankole Diocese - Anglican
 Wildlife Clubs of Uganda
 Workers Association

Busia

Babiri bardu
 Bukedi Dioceses mobile farm school
 Bukeobe development association
 Bukoda association
 Bulumbi Environment Group
 Busia District Youth Association
 Busia youth farmers association
 Busime rural development association
 Butakome self
 Catchment Afforestation Program -LVEMP
 Daaki Choti
 Dabani Community Development Program
 Emboongo environmental care group
 FORRI/NARO
 Khakhaba Hadidi womens association
 Maduwa community based organisation
 Maluko farmers group
 Nderero Bananda Buhonyani
 Rural Development & Health Care Association
 Seke womens group
 Sihubira Farmers Group
 Sikuda united development group
 Simba yikona abahwane
 Sinani Community Nursery

Southern development organisation
 St. Cosmas environmental protection association
 Tororo Youth Conservation Dev't Assoc - TOYODA
 West Bugwe Forest Conservation Project - dissolved
 Wildlife Clubs of Uganda
 World Muslim League
 Youth environment service organisation

Iganga

Adaga Sawmillers
 Africa 2000 Network
 Bakuseka Majjya Women Farmers Development Assoc
 Balikyewunya Rural Womens Development Association BRWDA
 Bukanga Participatory Development Program
 Bukoyo Twekalangule Tree Planting Group
 Bulmaji Integrated Farmers Association
 Busiki Multipurpose Rural Development Association
 Busoga Consortium Rural Development Agency BUCORUDA
 Busoga Development Association
 Busoga Diocese
 Busoga Environmental and Conservation Organization BECO
 Busoga Youth Development Association - BUYODA
 Busolera Kyaterekera Tree Planting Movement
 Buteme Fruit Cructo Tree Planting Association
 Buwaya Cultural and Farmers General Enterprises
 Community Association for Rural Development - CARD
 COOPIBO Uganda
 Entrepreneurship Development Association ENDEVA
 Environment Alert - EA
 FK Agroconsultancy (FRACO) Ltd
 Heifer Project International
 Hyabene Tree Planting Group
 Iganga District Farmers Association
 Joint Energy and Environmental Projects
 Kalungi Health Care Program
 Kigulu Development Group
 Mbeera Community Initiatives
 Mid Eastern Rural Development Association
 Mukitono Urban Rural Rehabilitation Development - MURRDD
 Multipurpose Training and Employment Association MTEA
 Multi-Sectoral Environmental Development Association MEDA
 Multisectoral Rural Development Program
 Musingi Rural Development Association - MURUDA
 Nabinyoyi Development Group
 Nagemura Youth Development Association
 Nawamingi Tufungiize Development Assoc.
 Pied Farmers Group
 Rural Integrated Enterprises - RIE
 Team Efforts to Promote Farmers Village
 Toka Farmers Association

Uganda Coffee Farmers Association
 Uganda Neem Movement
 Wildlife Clubs of Uganda
 World Muslim League
 Jinja
 Busoga Environmental and Conservation Organization BECO
 Busoga Youth Development Association - BUYODA
 Buyala women's group
 Catchment Afforestation Program -LVEMP
 Green belt foundation
 Jinja district environmental catholic organisation
 Jinja district wildlife association
 Jinja Wetland Women Project
 Living Earth Uganda
 Mbeera Community Initiatives
 Multisectoral Rural Development Program
 Nsube united tree farmers
 Uganda Coffee Farmers Association
 United Tree Planting Assoc.
 World Muslim League
 Kabale
 Africa 2000 Network
 Africa Highlands Initiative (AHI)
 African Evangelistic Enterprise (AEE)
 African International Christian Ministry (AICM)
 African Medical Research Foundation (AMREF)
 AFRICARE
 CARE-international
 District Agriculture
 District Forestry Office Kabale
 ICRAF/AFRENA
 Kabale District Farmers Association
 Kigezi Diocese
 Lake Bunyonyi Development Trust
 Mgahinga/Bwindi Impenetrable Forest Conservation Trust - MB-IFCT
 NAADS and District agriculture
 National Environmental Management Authority (NEMA)
 Ndorwa Agroforestry Association
 Rwere Development Association
 Small Towns Water and Sanitation Project
 Two Wing Agroforestry Network (T'WAN)
 World Muslim League
 World Vision International

Kanungu

AFRICARE
 Bikuto B Bataka Kwetungura Womens Group
 Bubale Group
 Bugarama Womens Glub

Burandama Womens Group
 Burema Young Conservation Actors
 Burondo Progressive Womens Group for Development
 Burora Tukore Hamwe Development Group
 Bwindi Rural Extension & Conservation Program
 COBS
 Community protected area committee - CPAC
 Homeland Farmers Society
 ICRAF/AFRENA
 Integrated Rural Development Initiative
 International Gorilla Conservation Program - IGCP
 International Tropical Forest Conservation Program - ITFC
 Itembezo Womens Group
 Kabuga Rice Farmers
 Kaforero savings & credit cooperatives group
 Kakoni Tukore Namani Group
 Kambenze Tree planting Women's Group
 Kanungu district Local Government
 Karangara Youth Progressive Wildlife Club Actors
 Karubeizi Twimukye Tree Planting Group
 Kashenyi Development Group
 Kashojwa Farmers Group
 Kashuri Association Women Group
 Katojo womens group
 Katunga Womens Development group
 Katungu/Kitojo Fish Farmers
 Kayonza sensitization club
 Kayonza womens group
 Kayungwe/Mishenyi Farmers Association
 Kifunjo Tukore Group
 Kihembe Youth Students efforts for Dev't Association
 Kihhi Womens Poverty Alleviation Group
 Kishande Bakyara Bataka Tutere Entambu
 Kishororo Environment Restoration Group
 Kyabworo cooperatives
 Kyepatiko Womens Group
 Mgahinga/Bwindi Impenetrable Forest Conservation Trust - MB-IFCT
 Mukinga Farmers group
 Murokore Womens Group
 Mushorero Womens Group
 National Adult Education Association - NAEA
 Nyamirama Women Farmers Group
 Nyaruhanga "Wake-up" Women group
 Ruhayo Womens Group
 Rukarara afforestation & revolving fund group
 Rukarara Tuhwerane Development Association
 Rukarara Womens Group
 Rukungiri Functional Adult literacy
 Rushabya Farmers

Rushebeya farmers
 Rutendere Womens Group
 Rwakishana womens group
 Traditional Healers & Herbalist Assoc
 Tukwatinise Development & Care for Orphans gp
 Uganda Coffee Farmers Association
 Uganda Neddagala Lyayo
 Wildlife Clubs of Uganda
 World Muslim League

Kasese

Banyo Development Foundation
 Base Camp Women Group
 Burangwa General Development Agencies - BUGEDA
 Burangwa Eyisuka Ningabo Development Group
 Busongora Womens Association
 Busyangwa United Women Association
 Care International in Uganda
 Diocese of Kasese - Catholic
 Foundation for Rangeland & Resource Development
 Hamukungu Active Group of Women
 Hamukungu Women Association
 Heifer Project International
 Ibanda Community Development Group
 Ihani Women United Group
 Ikongo Rural Development Association
 Isule Kulha Mixed Group
 KABBE group
 Kajwenge United Farmers Association
 Kamirihhi United Muhite Farmers
 Kamuruli United Rural Women Association
 Kanamba Mixed Farming
 Kasese District Farmers Association
 Kasese District Scout Council
 Kathembo LC1 Women Group
 Kathi Rural Women Development Association
 Katsere Group
 Kibandama C. O. U. Women Development Association
 Kibumba Foundation for Rural Women Development Assoc.
 Kipaya United Families
 Kirabaho Rural Development Association
 Kirembo Youth Progressive Association
 Kisarwa Kweyamba Group
 Kisarwa Women Brick Makers Group
 Kitakombya Rural Development Association
 Kyanya Tree planting Women Group
 Kyanzuki United Group for Development
 Luhwahwa Foundation for Rural Women Dev't
 Mubuku Wood Farmers
 Mubuku Youth Rural Development Association Project

Muhokya Youth Development Association
 Mukunyu Land Mine Victims & Amputees Association
 Muramba Foundation for Rural Development
 Nyakasanga II Youth Development Group
 Nyambuko United Development Association
 Nyamwamba Valley Management on Environment prote
 Nyangorongo Sustainable Organic Farming
 Omukathi Widows and Orphans Group - OWOGA
 Railways Capital Investment Farmers Association
 Ruboni Community Conservation Development
 Rural Integrated Heritage
 Rural life Improvement
 Rwankingi Youth Development Association
 Rwenzori Rural Reconstruction Services
 St James Brides Choir
 St Joseph Kyabazana Association Women Group
 Uganda Coffee Farmers Association
 Wildlife Clubs of Uganda
 World Muslim League
 YMCA Kasese branch

Kisoro

Adventist Development and Relief Agency
 Africa 2000 Network
 AFRICARE
 Gisorora Twubake Association
 Good Samaritan Association
 ICRAF/AFRENA
 Kisoro Development Foundation
 Kisoro District Farmers Association
 Kisoro district Local Government
 Kisoro Foundation for Rural Development (KFRD)
 Mgahinga/Bwindi Impenetrable Forest Conservation Trust - MB-IFCT
 Uganda Coffee Farmers Association
 Uganda Wetland & Resources Conservation Assoc.
 Wildlife Clubs of Uganda
 World Muslim League

Kumi

Actionaid
 Agolfa
 Agolupe Community Development Project
 Aguurat Agroforestry group
 Ajuket Youth Development Association
 Akeit Rural Development
 Amosingo Community Development Initiative
 Asinge farmers group
 Aswam Ber Christian Youth Project
 Atamata United Kachumbala

Ater Youth
 ATRADO Farmers Group
 Atutur Youth Project
 Birth of Cekiceki Women Group
 Bukedea Development Organisation
 Bukedea Jazz Band and Drama Group
 BUWOSA
 CREATE Aterai Youth group
 Elim Pentecostal Ministries
 Engangito Abwotunaka Akonye
 Faith Action Limited
 Heifer Project International
 Hope Children's village
 Igang/Icat
 IPADIC Women Group
 Itimoi Women's Group
 Kanapa Farmers Association
 Kangoku Rural Poverty Alleviation
 Kapir Otengor Orphan Potato Integrated Group
 Kodokoto Women's Aminanara Group
 Kokwechagro based youth project
 Komolo Development Association
 Komolo Women Group
 KUDFA: Kumi District Farmers' Association
 Kumel Youth Development Association
 Kumi Agency for rural development
 Kumi Development Foundation
 Kumi Moringa Oleifera Growers Association
 Kumi Network of Development Organization
 Kumi Teachers Pensioners Development Association
 Lake Bisina Horticulture and Agro – Forestry
 Moru Ateko (Mortek) Fish Ponds, Agro Forestry and Agricultural Project
 Moru-Irion Joint Youth Association Limited
 Mukongoro Gari processors' Women's Association
 Mukura Integrated Development Association
 Mukura Youth Promoters Group
 NWOMA- Nuoduk Women and Men's Association
 Oguye Rural Development Initiative
 Okarukei Farmers field school
 Okumi Orphans Care Project
 Omatakipi Farmers field School
 Omateng Poultry and Farmers Association
 Ongino sub county
 Oseera agroforestry group
 Osion farmers group
 Osopoit Development Association
 PADIC Women Group
 PAG/PDC
 PAMO Volunteers

Popular Kumi Women's Initiative
 Red Barnet (Save the Children DK)
 Serve the Nation Uganda
 Soroti Catholic Diocese Development Organization
 Sustainable Development Initiative (SUSD-K)
 Teso Student Development Association (TESDA)
 The future in our hands
 Toto Odwe Women's Group
 Vision Terudo
 Wildlife Clubs of Uganda
 World Muslim League
 Youth Development Association

Masaka

AHEPEA and Red Cross
 Buddu Social Development Association - BUSODA
 Global Initiative for Wetlands Development
 Heifer Project International
 Horticultural Exporters Association of Uganda
 Kijjabwemi Buyambi Group
 Kitenga Development Foundation - KIDEF
 Kitengeesa Community Health Workers Association
 Kyoja Wetland Management Association
 Livable Future Group
 Masaka Diocesan Development Organisation - Caritas-MADDO
 Masaka Diocesan Youth Development Organisation - MADYO
 Masaka District Farmers Association
 Masaka Women and Youth Development Association
 Masaka Youth Development Organisation - MAYODO
 Nakyenye Community Based organisation
 PMA project with direct support from district
 Renewed Efforts to Alleviate Poverty - REAP
 The Foundation VI Plantera Trasd
 Tukolore Wamu Kibira Group
 Tukolore Wamu Mixed Farmers
 Tulina omubeezi womens group
 Uganda Coffee Farmers Association
 Umoja Development Group
 United Tree Planting Assoc.
 VI Agroforestry Project
 Wildlife Clubs of Uganda
 World Muslim League
 Mayuge
 Africa 2000 Network
 Agali Awamu Rural Integrated Development Initiative
 Baseke Development Group
 Biridampoola Community Development Assoc. BICODA
 Bukasero Environment Agrofarmers Association
 Buseera A. Tugezeku Youth Development Group
 Busoga Forest Company

Buwaya Youth Development Association - BUYODA
 Community Organisation for Rural Development - CORD
 Deustch Forst Consult
 Gaanyana Women Association
 Ikulwe Farmers Association
 InterRural Link Farmers & Health Activities Ass.-IRUFHA
 Katubone Gender Development Association
 Kigandalo Voluntary Efforts to Development Association-KIVE-DA
 Kyebando Integrated
 Kyoga Development Association
 Luubu Zinunuls Women Group
 Mayuge Christian Community Development&AIDS program
 Mayuge Development Association - MADA
 Mayuge Development Foundation
 Mayuge Integrated Apicultural Farmers Association
 Nakazigo Computary General Enterprise
 Namukembo Farmers Association
 Saudi Marble Forest Company
 SIDENTA
 Uganda Neem Movement
 Wairama Development Association
 Wildlife Clubs of Uganda
 World Muslim League

Mbale

Bangoma Farmers Association
 Bubikhulu FAL Group
 Bubuyela Women Development Association
 Bubwaya United Development Agency - BUDA
 Buchunya Farmers Association/ FAL & TBA
 Bududa Women Tree Planting Group
 Bugema Youth Association
 Bugobero Aids Initiative
 Bugobero Boda Boda
 Bugobero Busanga Yetana Association - BBYA
 Bugobero Orphans of Hope -BOOH
 Bukhaukha Environment Project/Bushika Christian Asso.
 Bukhofu Parish Farmers Association
 Bukiabi Parish Farmers Association
 Bukigai Common Need Teachers Association
 Bukigai Women Tree Planting Group
 Bukimuma Tree Planting Association (Under Uganda Red Cross)
 Bukisence Micro Project Enterprises (Butiru catholic church)
 Bukonde Womens Group
 Bukoto Baloosi Iyeeta
 Bulobe Yenus - Appropriate Tech Assoc
 Bulumino FAL Class (under Uganda Red Cross)
 Bulusambu Enviroment Promotion Project
 Bumatanda North Parish Farmers Association

Bumatanda Parish Farmers Association
 Bumboi Development Association
 Bumwalukani Main FAL and Brick Making Group
 Bunakanga Tubana Group
 Bunambutye Pull Together Group
 Bunamuhenje Women Group
 Bunanimi Parish Farmers Association
 Bundesi Farmers Association
 Bunghoko Youth Sport and Cultural Development Assoc
 Bungokho Rural Development Centre
 Busamaali Youth Development Association
 Buselenge Women Group
 Busoba Tubana Agroforestry Farmers
 Busyulai Women and Youth Association
 Butuwa Environmental Youth Program
 Buwamboka Women Group
 Buwerenge II United Farmers Association
 Buzinga Buremba Multipurpose Project - BUBMUP
 Church of Uganda Bushika Heifer Project
 Community Empowerment for Sustainable Development
 Community Innovation in Development - CIIDU
 Crafts Development Project
 Eastern Seedlings and Environment Association
 Face Foundation (Forests Absorb Carbon Emissions)
 Forests for absorb carbon emissions - FACE
 Habana Breeders Association
 Heifer Project International
 Integrated Rural Development Initiative
 Kanzo Women Group
 Kesemulila Farmers Group (KEFA)
 Khaweka Women Tree Planting Project
 Kitsi Farmers Non Governmental Organization (KIFANGO)
 Kolonyi Home and Family Child Care
 Kolonyi Mothers Union
 Kwanikwa Peasants Association
 Kwenda/Sobi Project
 Lwanda Women Development Association
 Mabanga Environmental Development Association
 Mabuku Community Environmental Protection Assoc.
 Makudui Tree Farmers Association
 Mango Community Action
 Mbale Chrisco Fellowship Church - Agroforestry
 Mbale district private sector promotion centre
 Mbale Municipality Environmental Cleaning Assoc.
 Mt. Elgon Conservation and Development Project - UWA
 Mukenya Tree Planting Youth Group (Under Uganda Red Cross)
 Nabitsikha CCF
 Naimutsi Environment Project Bududa Development Ass (Under Uganda Red Cross)
 Naimutsi Ground Project Bududa s/c (Under Uganda Red Cross)

Nakatsi Environmental Development Association
 Nakululwe Women Tree Planting Group
 Nalukhale Tree planting group
 Nalukubo Development Association
 Namatiti Fall Class (under Uganda Red Cross)
 Namutakha Yetaana Association
 Nanje Womens Savings and Gravity Scheme
 Nasasa Young Farmers Association
 Nashaliliso Women Group (under Yiga Ngakola Folk Institute)
 Nashikaso Womens Association
 Nashisaka Young Farmers Association
 Nasitsapi Women Group
 Natondome Environmentl Development Group
 Natsere John and Brothers
 Nefule Women Group
 Organic Consult
 Pearl Siima Project
 Salem Brotherhood
 Salem Brotherhood Kolonyi
 Shanzowu Womens Group (under Uganda Redcross)
 Shikoye Multipurpose Group
 Shimwemwe Sustainable Farming Association (under Uganda Red Cross)
 Shitokata Youth Group (under Uganda Red Cross)
 Shitokota Functional Literacy Adult Group (under Uganda Red Cross)
 Shunya Yetana For Rural Development
 Silirwa Survival Association
 Sironko Valley Intergrated Projects
 Students Partnership World Wide
 Sukuyu Rural Development Initiative - Uganda
 Tsutsu Women Tree Planting Group
 Tubana Youth Group
 Uganda Change Agent Association
 Uganda Coffee Farmers Association
 Uganda Women Concern Ministry
 Umjoa Evangelical Church
 United Tree Planting Assoc.
 Vision for development
 Wamatuba John
 Watenga Child Care Centre
 Wildlife Clubs of Uganda
 Women in Rural Development Project - WORDP
 World Muslim League

Mbarara

Ankore Young Agricultural Professionals Association
 Church of Uganda
 District Agriculture dep.
 District Forestry Office Mbarara

Heifer Project International
 Integrated Rural Development Initiative
 Kyera Demo. Farm
 Living Earth Uganda
 NARO
 SAGRICON
 SECODE
 Subcounty development grants
 Tukore farmers association ltd
 Uganda Neem Movement
 ULAMP
 Wildlife Clubs of Uganda
 World Muslim League
 Mpigi
 Agali Awamu Group
 Buwama
 Buwama JEEP group
 Buyaya Group
 Central Buganda Diocese
 Environment Alert - EA
 Hortucultural Exporters Association of Uganda
 Joint Energy and Environmental Projects
 Kalongero JEEP Group
 Kibibi Womens Association
 Kigasa Akilaba JEEP Kafumumpa
 Kitesi Farmers Non Governmental Organization (KIFANGO)
 Kwegatta Bulaamu Womens Group
 Mawokota North Environment Conservation Unit - MANEC
 Mbizzinya Group
 Mpigi Argricultural Development Centre
 Mpigi Forest Department
 Tweekembe Group
 Uganda Coffee Farmers Association
 United Tree Planting Assoc.
 Wildlife Clubs of Uganda
 World Muslim League
 Mukono
 Biyinzika Group
 buddugala fosem group
 Buikwe west poverty reduction initiative
 Butonde Bwansi and Environment Projects
 Caritas - Lugazi Catholic Diocese
 Famuka clonal coffe farmer's group
 Heifer Project International
 Hortucultural Exporters Association of Uganda
 Integrated Centre for Development
 Katosi Women Fishing & Development Association
 Katosi women's devlopment association
 Katwe Kisoko
 Kibazo Tukolere Wamu

Kibiba youth development association
 Kiringo young farmers
 Living Earth Uganda
 Lugazi farmer's scheme
 Mabira Forest Integrated Community Org. - MAFICO
 Mukono District Farmers Association - MADFA
 Najjembe market tourist project
 Nyenje Group
 Pat the Child Agroforestry Project
 Rural community development association
 Seeta Child Development Centre
 Ttabo Foundation for Rural Education
 Tweziswe group kigombya
 Twimuka development
 Uganda Coffee Farmers Association
 Uganda Environment Association
 Uganda Environment Education Foundation
 Uganda Neem Movement
 Uganda Social Economic Project Initiative
 United Tree Planting Assoc.
 Wabiduuku Women's Group
 Wildlife Clubs of Uganda
 World Muslim League
 Youth environment project
 Ziba Integrated Development Initiatives (ZIDI)
 Ntungamo
 Adventist Development and Relief Agency
 AFRICARE
 Ankore Young Agricultural Professionals Association
 Bshamba Twimukye bika oguze group
 Bwongyere active women's group
 FORRI/NARO
 Heifer Project International
 ICRAF/AFRENA
 Kakukuru women group
 Kantaama Environmemt Group
 Ntungamo District Farmers Association
 Ntungamo Integrated Community Services
 Nyakawungo Womens Group
 PMA
 Ruhaama W.C.A.
 Ruhaame Tweheireyo group
 Ruhara Literacy & Environment Campaaign Association
 Uganda Coffee Farmers Association
 Wildlife Clubs of Uganda
 World Muslim League
 Young Womens Christian Association Ruhama-YWCA
 Rukungiri
 AFRICARE
 Ahabweera Mothers Club/Ihambiro
 Bikongozo Womens Group
 Bugangiri Bakyara Twekambe Group
 Buyanja Integrated Community Development Association
 Heifer Project International
 Kacence Womens Group
 Kareire Bakyara Tukore Group
 Karuhembe Womens Group
 Kashayo Womens Group
 Kebisoni Environmental Protection & home improved org
 Kekizyo Byakara Tukwatanise
 Kigaaga Twetunguree Group
 Kigezi Rainbow Actors
 Kitimba Women in Development
 Matembe Tweuyanbe Group
 Nyabubare Womens Farmers Asociation - NYAWOFA
 Nyakibale Catholic Widows Association - NACAWIDA
 Nyakiju Mutahunga Tutungukye Group
 Nyeibingo Environment Protection & Home Improvement Association
 Rubabo Development Group
 Rubanga Bakyara Tukorehamwe
 Rukindo Kinombe Womens Group
 Rukungiri District Farmers Association
 Rukungiri district Local Government
 Rwemiringa Bakyara Tukore
 Rwenkuba Hills Conservation Association
 Rwentuha Women Development Association
 Ryengyerere Tutwerane Group
 Uganda Coffee Farmers Association
 Wildlife Clubs of Uganda
 Women Literacy Training Mabanga C.O. U.
 World Muslim League
 Sironko
 Bukhalu Youth Development Association
 Bukhulo Organic Farmers Association
 Bukiise Multi-Development Group
 Bulumera Youth Association
 Bumalimba Kadongo Kamu Group
 Bumasifwa Community Development Foundation
 Bumasobo Progressive Women Group
 Bumugoya Farmers Association - BUFA
 Bunambozo Kasale Women Group
 Busiita Elderly Association
 Busulani subcounty Active Youth Association
 Butandiga Coffee Farmers Association
 Bwikhonge Sangaalo Womens Group
 Gibugi Yeda Association - GYA
 Heifer Project International
 Kayongwe Rural Development Association
 Kilombe Women Farmers Association

Kyisali Rural Farmers Association
 Makyaburwa United Youth Association
 Malimbe United Association
 Masubi Women Farmers Group
 Mbassta Credit Association
 Mutufu Dubana Community Group
 Muyembe Youth Development Association
 Muyende Development Foundation Association
 Nambalenze Young Farmers Group
 Nambulu Kuyedana Womens Group
 Namonye Farmers Association
 Nandago Joint Farmers Group
 Sasire Gibumbuni Women Group
 Sironko Ambana Association
 Sironko Multipurpose Women group
 Suguta Farmers Association
 Tabakonyi Women Group
 Tubana Women Group
 Uganda Coffee Farmers Association
 Vegetable/Livestock Producing Association
 Wildlife Clubs of Uganda
 World Muslim League
 Yiwayo Youth Association
 Zesui Yiyunga Multipurpose Group

Tororo

Abwanget Environment Improvement Program
 ACCOFAB It.
 Africa 2000 Network
 Amagoro Womens Group
 Amogoro Tree planting project
 Apokor parish development committee
 Association of Professional women in Agriculture and Environ-
 ment
 Awanya farmers fields school
 Bakuseka majja group
 Be just women's group
 Bendo Makimakek Community Tree Planting Project
 Bunyola forum for development
 Bunyole Womens Association - BWA
 Busolwe Women Group
 Buwesa youth club
 Cash Farm
 CYODA
 Envirnoment and sanitation EA
 FORRI/NARO
 Genirok Ber orphan care and family support
 Integrated community rehabilitation and development
 Joint Energy and Environmental Projects
 Kabosa farmers field school

Kachonga orphan care ass.
 Kalabana Women Group
 Kalait women environmental development organisation
 Kepa Kayoro environment protection ass.
 Kisoko Mixed Group
 Kulika Trust - Gwaragwara
 Lions Club of Tororo
 Luyo womens group
 Lwala fores project
 Lwenyigl chandi group
 Mahanga Environment Management Organization
 Mahanga Environment mangulu org.
 Mari Pawere farmers fields school
 Mere pesa youth group
 Molo parish development ass.
 Moringa Herbal Plant Project
 Mucujju mixed Group
 Mudodo women supprot ass.
 Mudodo Womens Group
 Mukujju Women Agroforestry Project
 Mulagi Tree Planting Group
 Nagongera Agroforestry and Environment programme
 Njoleresa Womens Group
 Nwasu Tree planting Group
 Nyongole "B" youth tree planting project
 Oriwa development group
 Par anguay womens group
 Peita youth development org.
 Plan International
 Police Savings Association
 Riemo kech group
 SASAKAWA GLOBAL 2000
 SCRI - Eastern Division
 Theke-Theke Youth and Women organization
 Tororo county development initiative
 Tororo District Farmers Association - TODIFA
 Tororo Rotary Club
 Tulata tree planting project
 Uganda Trypanosomiasis&Livestock Research Institute
 Uganda Wildlife Society
 Uganda Women Efforts to Save Orphans - UWESO
 Wachaki farmers fields school
 Wildlife Clubs of Uganda
 Women Tree Planting Movement
 World Muslim League
 Youth development programme

Wakiso

Adventist Development and Relief Agency
 Agalyawamu

Ahaitongo Moverfs assc.
 Bibo primary school
 Bright future primary school
 Butela COV
 Bwavu mpologoma mixed group
 Entebbe district wildlife assoication
 Green valley primary school
 Gwosussa Emwanyi Womens Association
 Heifer Project International
 High quality secondary school
 Integrated Rural Development Initiative
 Joint Energy and Environmental Projects
 Joseph Kakooza & co.
 Kabonge primary school
 Kasongobe-Mpunga
 Katale farmers
 Kaziveja womens
 Kiiti high school
 Kitukutwe primary school
 Kyankima women group
 Kyosimba Onalya United Group
 Living Earth Uganda
 Lubugumu Chuch of Uganda
 Masooli COV
 Nabiliti primary school
 Nabinnene primary school
 Nabitale Primary school
 Nagabo B
 Nalongo Nakimwero & co
 Nalyachristian fellowship
 Namilongo COV
 Nangabo A
 Nasulita devlopment foundation
 Negulomye primary school
 Our lady of good counsil gayaza school
 Sekalala enterprise
 Ssehuku Farmers
 St John Gayaza primary school
 St. Balikudembe secondary school
 St. Nuwa COV
 Tropical Environment Foundation - TEFO
 Tukole wamu kyanlaine youth
 Tusibukirawamu Women's Group
 Uganda Coffee Farmers Association
 Wildlife Clubs of Uganda
 World Muslim League
 Zibula Attudde Women's group

Appendix IV.

Interview schedule for semi structured interviews

Name of NGO

Address of NGO

Name of Interviewer

Date of Interview (Day, Month, Year)

Name of Respondent

Status in NGO of Respondent

Development objective of NGO

Main activities (area of focus) of NGO

Geographical scope (Districts/Counties where NGO have/support activities)

Target beneficiaries (types and numbers)

Criteria for species selection including their intended end-uses

Seed sourcing and distribution (for each species)

Species

Purchase (who)

Collect (who & where)

Whom do you give/sell or exchange

Amounts (Kg seed/number of seedlings)

Seed costs

Amounts - Pricing (sale?)/ profit (y/n) ?

How do you control the quality of the seed/seedlings in terms of genetic

quality and in terms of physiological quality? (i) Seed Sources; (ii) Seed

and fruit collection and seed handling between collection and processing; (iii)

Seed processing; (iv) Seed testing; (v) Seed storage and distribution)

8A Bottlenecks in tree seed procurement (listed after importance) :

8B Bottlenecks in tree seed disbursements (listed after importance) :



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|--------------|--|
| No. 1 • 2005 | Seed sources of agroforestry trees in a farmland context - a guide to tree seed source establishment in Nepal |
| No. 2 • 2005 | The map of potential vegetation of Nepal - a forestry/agro-ecological/biodiversity classification system |
| No. 3 • 2006 | Conservation of valuable and endangered tree species in Cambodia, 2001-2006 - a case study |
| No. 4 • 2007 | Learning about neighbour trees in cocoa growing systems |
| No. 5 • 2007 | Tree seedling growers in Malawi - who, why and how? |
| No. 6 • 2007 | Use of vegetation maps to infer on the ecological suitability of species Part I: Description of potential natural vegetation types for central and western Kenya |
| No. 7 • 2007 | Use of vegetation maps to infer on the ecological suitability of species Part II: Tree species lists for potential natural vegetation types |
| No. 8 • 2007 | Do organisations provide quality seed to small holders? - a study on tree planting in Uganda, by NGOs and CBOs |

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