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

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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 Kisera, 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.

Pedersen, A.P. and Chirwa, P.W. 2005.
Tree seed in Malawi. Organisational survey. Forest & Landscape Working Papers no. 8-2005.

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 species[1].

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 parastatals[2] (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 organisations[3] 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 operandii* 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 de veloped 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 were 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.

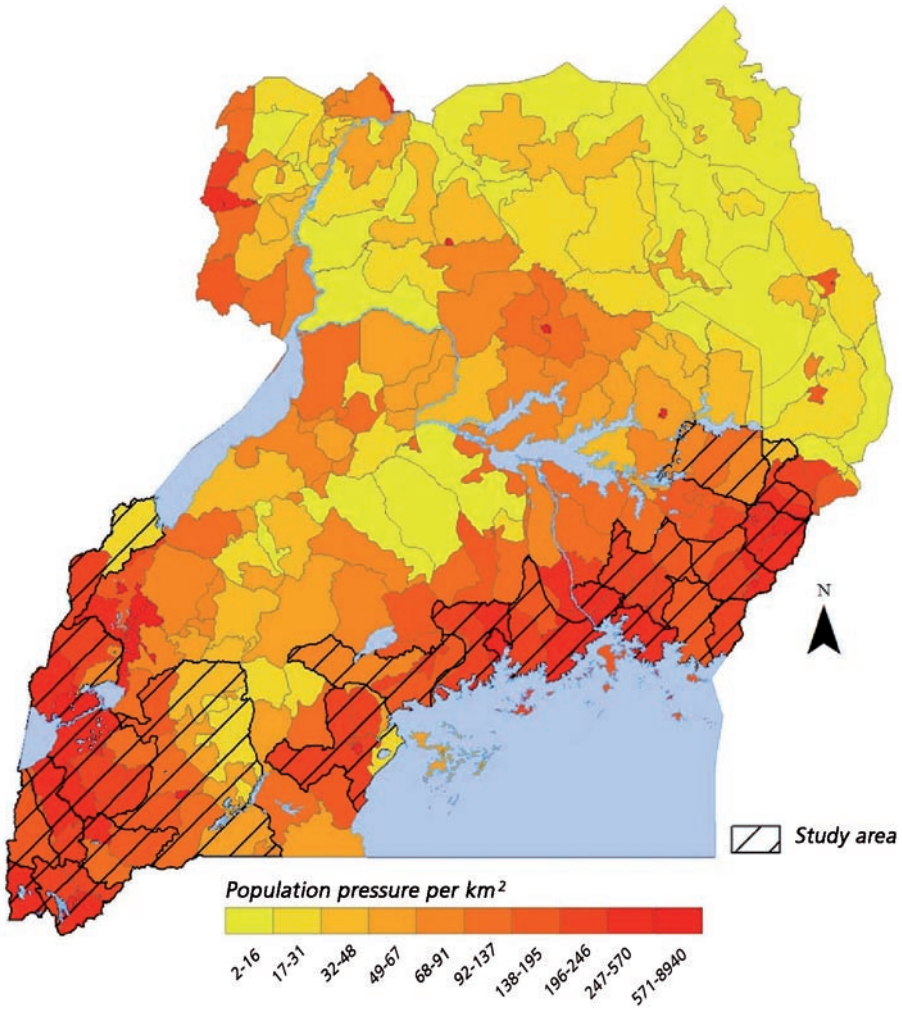

Figure 1. Target districts of the exploratory survey and population density (Source: Compiled by ICRAF GIS Unit in 2004 from Uganda Sub-county administrative layer from National Biomass Study data of 1997, Forest Department and National Human Population Census of 1991 from Uganda Bureau of Statistic,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

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

[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

a small survey was carried out to investigate this. A total number of 70 small and large NGOs[4], 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	-		-	-	-	-

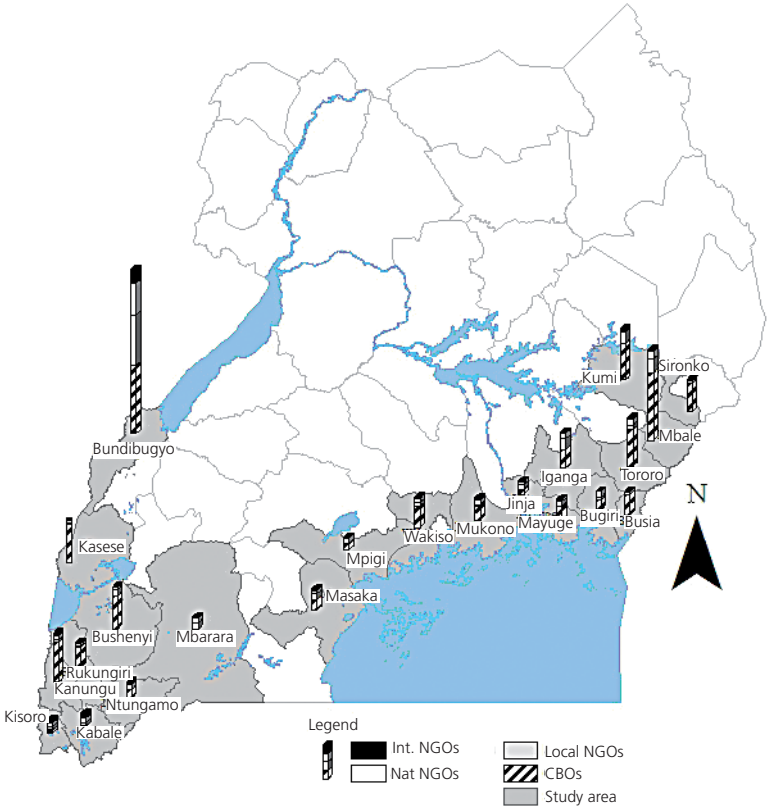

Figure 2. Spatial distribution of identified organisations within surveyed districts (Source: Compiled by ICRAF GIS Unit in 2004 from Uganda Sub-county administrative layer from National Biomass Study data of 1997, Forest Department).

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 sample[5] 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 inc luded 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 was 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 rual 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 statuary body that was set up to develop the coffee sector in the Uganda economy. In response to the coffee wilt decease 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 cunnunghamii*, 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 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, with 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 Uganda[6], 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 southwest 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
Entreprenour 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 abrod							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.

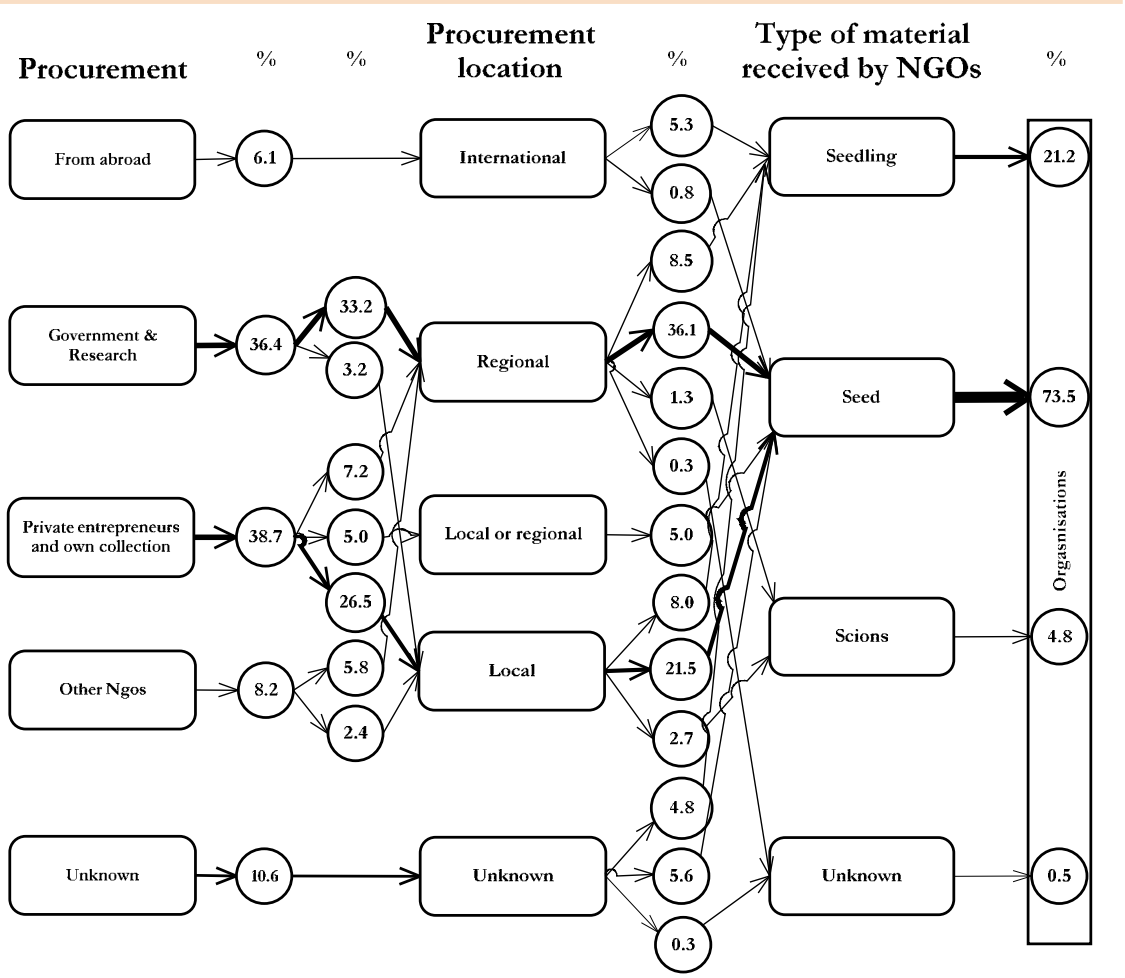

Figure 3. Procurement model for NGOs. Numbers represent the percentage a given »route« has been used for species irrespective of NGOs. The pathways of the flow from left to right illustrate from whom (procurement) and where (procurement location) and in what form (type of material) the organisations (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 species[7].

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

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

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.

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].

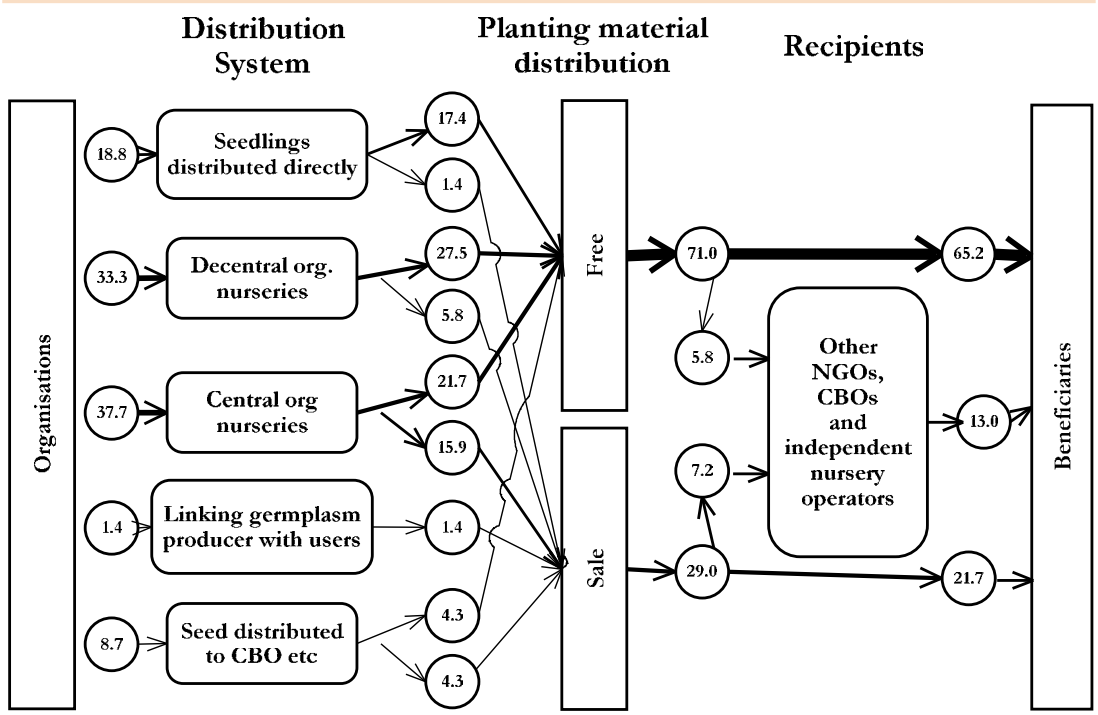

Figure 4. Distribution model for NGOs. Numbers represent percentages of times channels are used out of the total number of channels (some NGOs use multiple channels). The pathways of the flow from left to right illustrate what type of actors are involved in distribution (distribution system), if the 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)
Calliandra calothyrsus	Exotic fodder/soil fertility
Citrus species	Exotic fruit trees
Eucalyptus species	Exotic timber
Grevillea robusta	Exotic timber
Maesopsis eminii	Indigenous timber / medicinal /Fodder / soil improvement / fruit
Mangifera indica	Exotic fruit trees
Moringa oleifera	Exotic medicinal
Passiflora edulis	Exotic fruit trees
Persea Americana	Exotic fruit trees
Sesbania sesban	Indigenous timber / medicinal /Fodder/ soil improvement / fruit

continued overleaf

[9] ICRAF distribute a large number of species and cultivars

From 11 to 16 most used species	
Azadirachta indica	Exotic medicinal, timber
Coffea Arabica	Exotic fruit trees
Leucaena diversifolia	Exotic fodder/soil fertility
Markhamia lutea	Indigenous timber/medicinal/Fodder/ soil improvement / fruit
Pinus species	Exotic timber
Prunus africana	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 NGOs[10], 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.

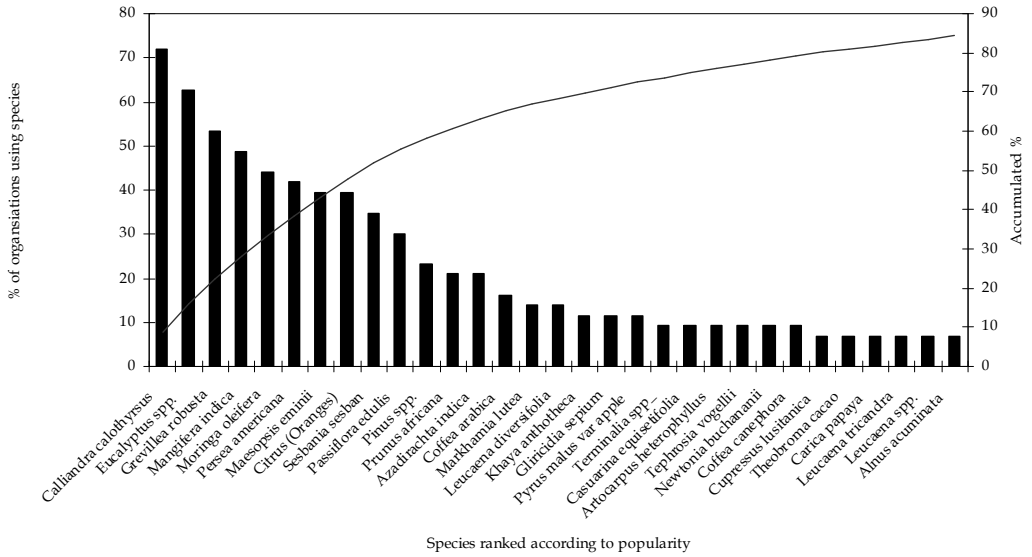

Figure 5. Species sorted according to the accumulated percentage of cases of species distributed by NGOs.

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 calothyrsu*s 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 (*mutual support scheme*)	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 government[12] 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 activityt 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.

finical 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. One 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 species[13].

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.

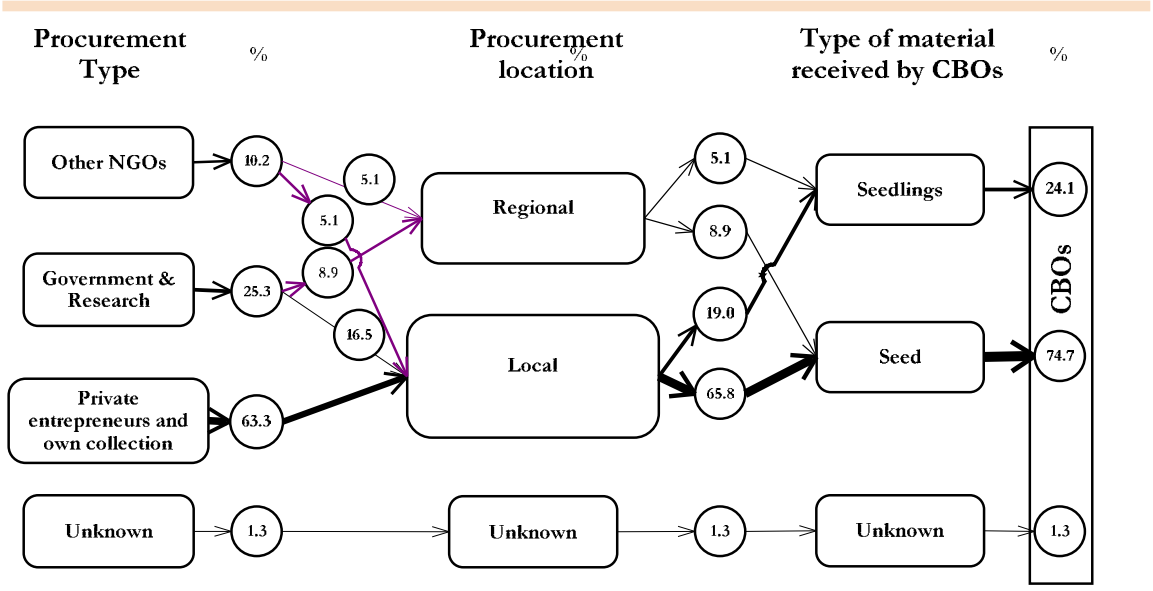

Figure 6. Procurement flows for CBOs. Numbers represent the percentage a given »route« has been used for species irrespective of NGOs

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.

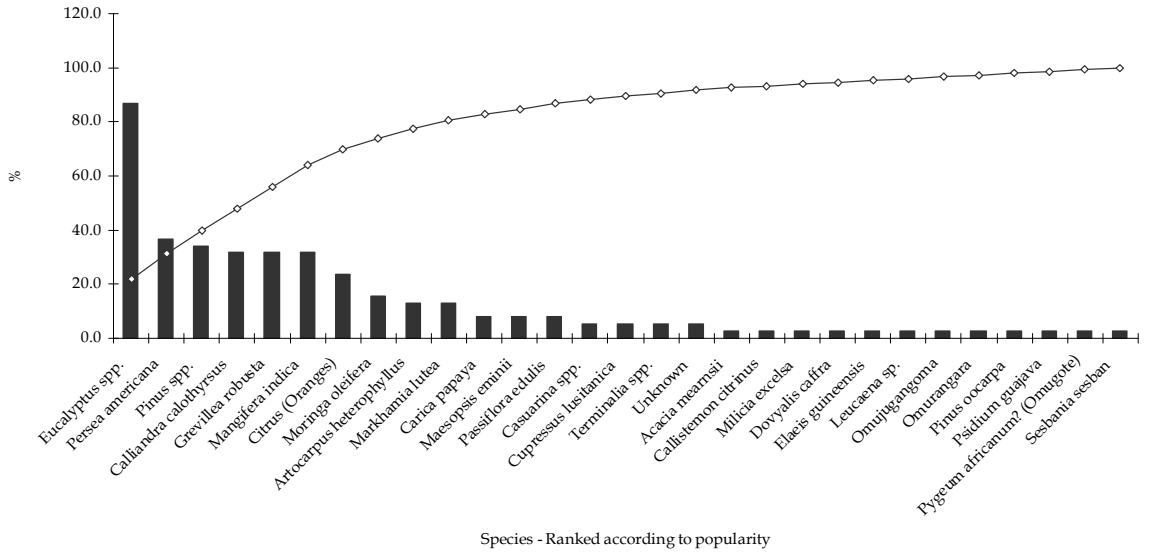

Figure 7. Species popularity (CBOs) and accumulated percentage of all plantings attributed to each species.

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

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

continued overleaf

	Ntungamo		Kanungu		Both districts	
Species	**N**	**Rank**	**N**	**Rank**	**N**	**Rank**
Citrus spp. (Oranges)	4	6	5	7	9	7
Markhamia lutea	-	-	6	5	6	8
Moringa oleifera	4	6	2	10	6	8
Artocarpus heterophyllus	1	11	4	9	5	10
Carica papaya	1	11	2	10	3	11
Maesopsis eminii	1	11	2	10	3	11
Passiflora edulis	2	9	1	13	3	11
Cupressus lusitanica	1	11	1	13	2	14
Terminalia spp.	1	11	1	13	2	14
Unknown	1	11	1	13	2	14
Casuarina spp.	2	9	-	-	2	14
Elaeis guineensis	-	-	1	13	1	18
Leucaena sp.	-	-	1	13	1	18
Omujugangoma	-	-	1	13	1	18
Omurangara	-	-	1	13	1	18
Psidium guajava	-	-	1	13	1	18
Pygeum africanum	-	-	1	13	1	18
Sesbania sesban	-	-	1	13	1	18
Acacia mearnsii	1	11	-	-	1	18
Callistemon citrinus	1	11	-	-	1	18
Chlorophora excelsa	1	11	-	-	1	18
Dovyalis caffra	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 intercropped. 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 fur 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 Murrami	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 Batuuka	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 Mugyenyi	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 Asiimwe	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 Muziimbwe	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 orphand Children
Human rural development scheme
Integrated Network for Farmers & Business Dev't- INFABUD
Isagaza Community Devlopment 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 Kighunanu 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 Twekulhaye 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
Kikyo 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 Widlife and Drama club
Kitembe Womens Development
KOBI
KYADA Credit and Saving Society
Kyagaju Development Association

Kyagaju Twimukye Cooperative Society
Kyangyenyi 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 Asociation
Poverty Alleviation Focused Multiproject Scheme
RUASSA
Rubare Development Womens Group
Ruhinda Aids Community Initiatives
Rukorarwe Patnership 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 devlopment association
Bukoda association
Bulumbi Environment Group
Busia District Youth Association
Busia youth farmers association
Busime rural devleopment association
Butakome self
Catchment Afforestation Program -LVEMP
Daaki Choti
Dabani Commuity Development Program
Emboongo environmetal 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 devlopment 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 Assocation
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 organsation
Jinja district wildife 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 (TWAN)
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
Kihihi 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
Burandga 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
Kamirihi 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 Farners 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 Iniative
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
Hortucultural 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
Nakyenyi 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 Assocaition
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
Nanjje 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
Kitsi Farmers Non Governmental Organization (KIFANGO)
Kwegatta Bulaamu Womens Group
Mawokota North Environment Conservation Unit - MANEC
Mbizzinya Group
Mpigi Argricultural Development Centre
Mpigi Forest Department
Twekembe 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 assoication
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 lt.
Africa 2000 Network
Amagoro Womens Group
Amogoro Tree planting project
Apokor parish devlopment committee
Association of Professional women in Agriculture and Environment
Awanya farmers fields school
Bakuseka majja group
Be just women's group
Bendo Makimakek Community Tree Planting Project
Bunyola forum for devlopment
Bunyole Womens Association - BWA
Busolwe Women Group
Buwesa youth club
Cash Farm
CYODA
Envirnoment and sanitation EA
FORRI/NARO
Genirok Ber orphane 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 devlopment 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 devlopment 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 devlelopment 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 devlopment 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 wildife 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
Nabitalo 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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