



Proceedings of a workshop on agroforestry tree seeds for farmers

Lillesø, Jens-Peter Barnekow

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Proceedings of a workshop on agroforestry tree seeds for farmers

Jens-Peter Barnekow Lillesø (ed.)

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Abbreviations

ADDs	Agricultural Development Divisions
ADMARC	Agricultural Development and Marketing Corporation
ARET	Agricultural Research and Extension Trust
CBOs	Community based organisations
CURE	Co-ordination Unit for the Rehabilitation of the Environment
DARS	Department of Agricultural Research Services
DDF	District Development Fund
DFO	District Forest Officer
DFSC	Danida Forest Seed Centre
EPA	Extension Planning Area
FD	Forest Department
FLD	<i>Forest & Landscape Denmark</i>
FRIM	Forestry Research Institute of Malawi
ICRAF	World Agroforestry Centre
IFDC	International Centre for Soil fertility and Agricultural Development
LRC	Land Resource Centre
MAFE	Malawi Agroforestry Extension Project
MEET	Malawi Environment Endowment Trust
MNTSC	Malawi National Tree Seed Centre
MSC	Mkwinda Seed Centre
NASC	National Agroforestry Steering Committee
NASFAM	National Smallholder Farmers Association of Malawi
NGOs	Non-Governmental Organisations
NTSC	National Tree Seed Centre
NPWL	Network for Presbyterian Women in Leadership
RFO(N)	Regional Forest Office in the North
SACC	South African Council of Churches
SEED-CO	SEED-CO Malawi, Crop Seed Company
SMEs	Small and Medium Size Enterprises
TLC	Total Land Care (NGO)
USAID	United States AID
VFA	Village Forest Area

1. Introduction to the workshop on agroforestry tree seeds for farmers

Forest & Landscape Denmark (previously DFSC¹), ICRAF and National Tree Seed Centres in three African countries implement an innovative twinning project. The project seeks to identify the major constraints and opportunities for improving seed/seedling production and distribution to small-scale tree-planting farmers in Sub-Saharan Africa. The project analyses existing production and distribution systems in three countries (Malawi, Uganda and Burkina Faso) and will test innovations on seed systems in pilot projects. A situation analysis of the Malawi tree seed sub sector carried out by this project has been prepared.

Successful dissemination of agroforestry technology needs to tackle various hurdles that currently limit larger scale impact. The lack of tree seed, seedlings and other planting material is repeatedly identified as one of the most important constraints to the greater adoption of agroforestry innovations. Successful scaling-up needs to be based on sustainable production of germplasm of high genetic and physiological quality for a wide range of agroforestry species that can meet the needs and priorities of small-scale farmers, and thus contribute to poverty alleviation. Adequate institutional and organisational mechanisms may be one of the key factors for scaling up.

There are many potential options for organising seed/seedling production and distribution by different actors and stakeholders (including individual farmers, private businesses, governmental organizations, NGOs, CBOs, and research organizations). Some of the major questions are (i) what kinds of public-private collaboration are efficient and sustainable; (ii) which aspects of centralisation versus decentralisation are relevant; and (iii) how to maintain quality and diversity in different production and distribution chains.

The workshop was held in Lilongwe from 28/9-30/9-2004. The workshop was sponsored by *Forest & Landscape Denmark* and Forest Research Institute of Malawi (FRIM) with conceptual assistance from ICRAF. About 30 researchers, academics and government officials with expertise in different aspects of tree seed and seedling production and distribution in Malawi participated in the workshop. The details of the participants are provided in Appendix II.

This report presents the findings from the workshop. It provides information on workshop presentations and discussions as well as findings by working groups.

¹ In 2004 Danida Forest Seed Centre was merged into the Danish Centre for Forest, Landscape and Planning, KU.

1.1 Objectives

The objectives of the workshop were to bring stakeholders together to discuss options and elements for strategies for strengthening seed production and distribution chains for agroforestry tree seed and seedlings in Malawi. Ideally, the workshop would come up with suggestions for strategies that encompass good quality, diversity and sustainability of seed and seedling production. It was hoped for that the workshop would also assist in fostering good relations in Malawi between organisations involved in seed production or supporting activities such as training. The information from the workshop (along with information from similar workshops in Uganda and Burkina Faso) will be used to provide input to development of proposals for seed system projects.

1.2 Structure and process

An overview of the workshop programme is provided in Annex 1. The list of participants is given in Annex 2. The workshop was structured into two sessions:

Session 1: Workshop introduction and current status of seed sector in Malawi. The intention with this part of the workshop was to introduce viewpoints on the seed sector from different types of actors and to present findings from relevant surveys and case studies that could highlight crucial issues.

Session 2: Working groups on strategies for seed production and distribution in Malawi. The intention with this part of the workshop was to have the working groups identify the important issues in the production-procurement-distribution chains and information networks as well as presenting these issues in a holistic overview of the seed sector.

2. Session 1. Workshop Introduction and current status of seed sector in Malawi

Registration, welcome remarks and workshop objectives, opening address. The invited organisations presented brief presentations of their work. Longer presentations were made by invited speakers.

2.1 Introductory presentations by organisations

The organisations gave brief (5 minutes) presentations with respect to tree seed and seedlings:

- (i) main development goal of the organisation,
- (ii) main development goal(s) for tree seed and seedling activities (including supporting activities such as information, training, and funding),
- (iii) any problems on tree seed and seedling activities (including supporting activities such as information, training, and funding),
- (iv) any potential solutions for problems listed above in (iii).

Six organisations presented:

ARET (Agricultural Research and Extension Trust), Cure (Co-ordination Unit for the Rehabilitation of the Environment), Department of Forestry of Ministry of Mines, Environment and Natural Resources, Forest Department of Mzuzu University, Wildlife and environmental Society of Malawi, and Malawi Endowment Trust.

Summary of main problems identified by organisations (divided into three main areas)

Production Issues	Availability and quality	Organisational problems
<ul style="list-style-type: none"> • Lack of adequate funds for establishment of seed orchards • Lack of skills in seed harvesting and seedling management • Lack of protection of seed trees • Lack of awareness of sources in communities • Existing seed stands and orchards in poor condition • No seed zonation in the country for providing advice on species-site matching 	<ul style="list-style-type: none"> • Unavailability of some species (exotic and indigenous), including medicinal herbs • Inadequate funds for extension services to purchase seed • Inadequate provision of required amount of seed by FRIM • Not timely delivery to users • No regulations on quality issues, scarcity of germplasm of proven quality • Seed viability a concern 	<ul style="list-style-type: none"> • Community access to organisations difficult • Dwindling donor support for seed/seedling sector • Inadequate extension services • No overview of farmer seed producers • Perception that benefits from tree planting only long term • Seed producing institutions inadequate • Tree seedling management not looked at as economic activities

Summary of main solutions identified by organisations

Production Issues and training

- Collaborative identification of superior mother trees for seed harvesting
- Communities adjacent to seed sources should be trained to do seed collection
- Include tree seed to crop seed curriculum on agricultural university
- Encourage farmers to do local seed collection on other species than eucalyptus
- Establish seed orchards by FRIM, NGOs, communities
- External funding from donor agencies to help finance the seed multiplication and nursery management
- Facilitate smallholder training in agroforestry seed harvesting, nursery establishment and management
- Increasing collection levels (seed stands, local collection areas)
- Forest areas and single trees should be protected to ensure areas for seed collection

Availability and quality

- Enhance NASC activities to control seed quality and seed supply
- Set up standards for seed quality control and to put in place a seed quality monitoring system to ensure that only good quality seed and seedlings are produced and distributed to the farmers and other stakeholders
- Procure seed from FRIM and sell them at the buying price
- Supply of seed at no costs to poor users

Organisational solutions, policy, regulations and training

- Need for Seed Policy - big confusion on who can do what
- Decentralise enforcement of regulations
- Make seed zonation species specific. Identify which agroforestry species do well in which agro ecological zones to make sure that seed for the suitable species is available in the different agro ecological zones

Outreach

- Enhance extension services
- Enhance linkages of CBOs/VNRMs to funding institutions
- Enhancing outreach of seed producing institutions

Organisational

- Establish tree seed association with mandate outside FRIM
- FRIM and other organisations should decentralise seed supply, at least to each district.
- Link tree seed and seedling activities to other economic activities
- Improve services of specialised institutions

Training

- Facilitate more in-service training and exposure to seed harvesting and seedling management
- Seed satellites should be established - ● Users prefer certified seeds, e.g. from satellite outlets
- Train extension workers from other tobacco industries on forestry issues and also students at Mwumba farm institute who undergo one year training on tobacco production
- Train farmers on nursery establishment and tree management

2.2 Summaries of longer presentations

2.2.1 ISSAAC Report on institutional survey of tree seed production and distribution in Malawi. Presented by Dr P.W. Chirwa (Consultant)

Main findings

The report deals with the outcome of the ISSAAC organisational survey in Malawi. The survey has shown that FRIM, LRC and ICRAF are the main seed suppliers and NGOs the main seed buyers. The role of individual farmers seems to be overlooked by the main seed suppliers despite the fact that most of the suppliers get their seed from local collectors collecting seed from farmland and on public land.

The main bottleneck in tree seed supply is inadequate production and supply. The two main seed centres, FRIM and LRC have heavily centralised structures supplying seed from Zomba and Lilongwe, respectively. There is a genuine need for decentralising seed production and supply. There is a higher seed demand, mainly from NGOs, than the three main seed suppliers are able to supply. This has encouraged competition between the seed suppliers as they basically collect from the same areas. Further to this, NGOs have in occasionally resorted to their own local collection that has, in some instances, compromised on seed quality.

Recommendations for improving the situation

- (i) Establishment of new seed stands and identification of new seed sources;
- (ii) Training of local collectors in seed collection, handling and processing;
- (iii) Sharing of responsibilities by the main seed suppliers.

The market is imperfect and strongly influenced by a few, relatively economically strong and influential majors, strongly supported by their customers, which typically are short to medium term projects. Despite the fluctuations of individual projects, overall demand may be consistent. The authors estimate that - for most species and under the present fairly high seed demand - seed production and supply is a commercially viable enterprise. Full document (Working Paper No.8) is available at: <http://en.sl.life.ku.dk/publikationer.aspx>.

2.2.2 ISSAAC Report: »A survey of seed and seedlings in nurseries in Malawi«. Presented by Dr Peter Mvula (Consultant)*

Main findings

The report deals with the outcome of the ISSAAC survey of 300 nurseries in 6 districts in Malawi and a series of 42 case studies of a subset of the nurseries. The survey shows that in most districts the majority of nurseries are owned by groups, but that in five out of six districts private nurseries constitute 35 to 60 percent of nurseries (most of the private nurseries are owned by men). Most of the nurseries are not too far from the homesteads of the owners and they were set up using personal capital. Many nurseries also received start-up support from different organisations and the external assistance for establishment clearly favoured group nurseries. Most nurseries produced seedling for own use, but in all districts (varying from 15 to 52% of the nurseries) the seedlings were also produced with the intent of sale. In all districts practically all nurseries had private customers and Forestry Department was an important customer in several districts.

Our study indicates that NGOs promote group nurseries rather than individual nurseries. Tree seedlings were produced primarily for own use and not for sale. However, a third of the nurseries have intentions of selling seedlings and seed to private buyers and various organisations.

The species that are mostly used by nurseries indicate that the sourcing and marketing of species has some limitations in Malawi and that input-markets are not well developed.

Our survey indicates that there is a potential for supporting these small scale nursery entrepreneurs by enabling and supporting the development of a market for tree seed and seedlings. The current support from organisations to nurseries in Malawi consists of technical advice and supply of inputs. There is very little support to marketing and distribution.

*The Working Documents (Working Paper No.20) will be available at <http://en.sl.life.ku.dk/Publikationer.aspx>.

The case studies show that in most cases there is hardly any consideration of the genetic quality of the seed in collecting local seed. In many cases, nurseries collected seed from one mother tree. Most nurseries indicated that the seed collected from one mother tree is often enough for their scale of produc-

tion. In choosing the mother trees, farmers reported considering proximity as well as ownership of the trees. Many nurseries cut down mother trees in order to collect seed. However, the danger with this tendency is that it promotes inbreeding and thus provides low quality seed for the users.

2.2.3 »Crop seed systems in Malawi« by Ms. L.N. Mtambo; Seed Services Unit. Department of Agricultural Research, Ministry of Agriculture Irrigation and Food Security

Objective

To make sure that good quality seed is produced and made available to the farming community.

Activities

Field inspections, seed testing, post control plots, training and monitoring, formal and informal seed programs.

Seed supply

Formal seed supply: organised public and private enterprise.

Informal Seed supply: farmers produce seed for themselves and neighbours.

Both systems complement each other. The formal supplier produces releases and distributes new varieties. The informal supplier benefits by accessing seed from the formal suppliers and provides land races for conservation.

Formal seed systems

Program is complex with several essential components that are interrelated. Variety breeding, evaluation and release.

New improved varieties developed and tested before release.

Seed production, processing and storage.

Seed certification and quality control ensures that seed sold or distributed to the farmers is: of the specified variety, pure, good germination capacity and disease free. This is achieved through rigorous field inspections, seed inspection, seed sampling and testing using prescribed standards.

Advantages: increased yields, uniform stands, marketable products, quality seed, knowledge about seed, improve yield of traditional varieties etc.

Disadvantages: suitable for higher potential areas, high cost of inputs, transport and communication makes it difficult to have efficient seed supply, the price of seed is very costly.

Informal seed systems

This is not organised as in formal seed systems. Farmers plant seed, harvest and keep some for further production. The other seed is consumed, exchanged for other types, sold to neighbours or given free to relatives and friends. Source of seed is usually their own in case of scarcity they buy.

They select their own and save.

Advantages: cheap seed, low inputs, activities are timely, plant seed of their choice suitable for their environment.

Disadvantages: poor quality seed, low yields, lack of uniformity, lack of information and access to technical know how, difficult to identify reliable seed.

2.2.4 Case study I

Farmers' knowledge and experiences in tree seed handling and their future role in tree seed supply - a case of Golomoti and Sharpe valley extension planning area in Dedza and Ntcheu district. By Teddie Kamoto, Department of Forestry

Main findings

This paper highlights the findings of a study on the knowledge and experiences in tree seed handling (collection, extraction, storage) by farmers in Sharpe valley and Golomoti EPAs. It also includes results of seed quality tests of seed collected by farmers from the two EPAs.

Main species collected in both sites were *Senna siamea*, *Senna spectabilis*, *Albizia lebecke*, *Albizia versicolor* and *Faidherbia albida*. The most common used methods of seed collection is from the ground. Trained farmers from Sharpe valley also collected their seeds through climbing. About half of the farmers in the two areas owned the trees from which seed was collected. In Golomoti seed was also collected from forest reserve and from other people's fields. In Sharpe valley seed is also collected from customary land, village forest areas (VFA) and other peoples' fields. The farmers used various methods for manual extraction of seed depending on the type of seed. Several of the methods are the same as used for agricultural seed. More women than men are involved in tree seed collection. Farmers used local materials for storage of seed and local methods for maintaining seed in storage.

Seed collected by the two communities were compared with seed collected by FRIM and MAFE. For *Faidherbia albida*, the germination percentage of community collected seed was lower than seed collected by MAFE and FRIM while moisture content were roughly similar. A major reason for the difference may be maturity of seed at the time of collection.

The involvement of farmers in tree seed collection may be a viable option in increasing tree seed supply in the country. However, care and precautions need to be continuously observed in checking that farmers adhere to all the necessary guiding principles of tree seed handling.

MAFE is the dominant buyer of seed in the two communities (in particular Golomoti), whereas FRIM only purchases very little. The prices at which seed organisations in general purchase seed from farmers are very low as compared to the price they later on sell the seed to other stakeholders. The prices do not take into consideration the nature of work involved and the risks attached. Farmers are simply regarded as price takers and have no say in price determination.

2.2.5 Case study II

Seed collection by community based seed centres: the case of Mkwinda local seed centre. Stella Gama, MSc. Forestry Extension Services Division. Forestry Department

Main findings

Mkwinda Local Seed Centre (MSC) was instituted in 2000 as one of five seed centres under the Lilongwe Forestry Project (funded by the African Development Bank). The seed centres were established to increase seed supply in the project area and to provide income generating opportunities for seed centre members. The members of Mkwinda Local Seed Centre are poor farmers who otherwise depend on subsistence agriculture and manual labour.

MSC collects seed such as *Senna spectabilis*, *Senna siamea*, *Acacia polyacantha*, *Khaya anthotheca*, *Jacaranda mimoseifolia*, *Tephrosia vogelli* from Bunda Forest Reserve, Kamuzu Dam II buffer zone, Dzalanyama Forest Reserve and gardens. The members were trained in collection by the Lilongwe Forestry Project and also received equipment to assist with local seed collection.

MSC collected around 150kg. of seed from seven species in the 2002/3 season. About half of the revenue and of collected kilogrammes were from *Tephrosia vogellii*. In the 2003/4 season the amounts collected and in particular the prices received per kilogramme were increased. At household level members were able to supplement their income needs for agricultural production inputs, school fees and daily food requirements.

The main customer for seed is the Lilongwe District Forest Office (DFO), which also attempts to reduce transaction costs for the centre by finding customers through the DFO network. However, many NGOs will purchase seed only at very low prices (below production costs) and this may be due to the lack of bargaining power of the MSC. Transport costs prevent the MSC from exploring markets beyond their reach.

Seed collection and supply provides an opportunity for rural communities to generate income and would reduce costs incurred by NGO and government tree seed centres. The success of community based seed collection enterprise depends on informed business strategies. To achieve growth, acquisition of skills, access to capital or credit for the seed centre enterprise is vital for the development of this opportunity to generate income. Support to training of members in seed collection, business management and marketing is required. Supporting research could be to study the income realized community based seed centres, factors affecting the sustainability of community based seed centres and to test the viability of seed coming from these seed collectors as compared to that from FRIM and Land Resources Centre.

2.2.6 Status of agroforestry tree seeds in world vision programs. By Daniel Kanyerere – World Vision

Background

Organisation goal: to promote the well-being of all people – especially children in targeted communities. Undertakes both relief and development activities.

Focus areas

- (i) food security:
 - production related technologies & food aid
 - income generation
 - health, nutrition, water and sanitation
 - investment from income
- (ii) health and nutrition
- (iii) education
- (iv) cross cutting: gender, hiv/aids, capacity building, environment
- (v) coverage: currently in 28 geographical areas across the country plus 3 grant funded projects.

The organisation's tree seed and seedling activities

Development goal for the activities:

to restore environmental productivity for food and income for the communities.

Some of the Activities:

- (i) Soil fertility improvement
- (ii) Woodlots
- (iii) Boundary and homestead planting
- (iv) Fruit tree growing.

Problems on Tree seed and seedling activities:

- (i) Not a priority in some communities unless probed
- (ii) Long-term benefits vs. community's attention to meet immediate needs
- (iii) Centralised seed supply vs. distant rural communities
- (iv) Community level seed quality testing and control
- (v) Scarcity of some seeds e.g. *Gliricidia*
- (vi) Funding for some of the activities
- (vii) Sustainability of some of the tree and seedling activities.

Possible solutions to some of the problems

Continued awareness and/sensitization on environmental degradation.

Make provision for packages that help farmers meet immediate needs while working on longer-term interventions.

Consider/explore possibility of establishing decentralised seed outlets systems to be near farmers reach.

Explore feasibility and establishment of organised groupings of interested participants as is the case in other sectors, e.g. agriculture.

Information sharing: establish regular publications on best/promising practices, supply of seed/seedlings. TOT all levels – technicians and community level.

Some of the Agroforestry technologies

Fodder – *Leucaena*.

Fruit – Masuku (*Uapaca kirkiana*), mango, oranges, paw paw.

Soil fertility: *Tephrosia*, *Gliricidia*, Mthethe (*Acacia polyacantha*), *F. albida*.

Poles: Blue gum (*Eucalyptus spp.*), *Senna siamea*, *Khaya nyasica*.

Timber: *Khaya nyasica*, Blue gum.

Others: Msambafumu (*Azizelia quanzensis*)

2.2.7 Land Resource Centre's activities within seed procurement and distribution in Malawi. Dr Henry Phombeya

Main findings

The Land Resource Centre's mission is to enhance the livelihoods and economic self-sufficiency of rural households by improving the management and conservation of natural resources with sustainable increases in farm productivity. The overall aim of the LRC is to address the needs of rural communities through the development, testing and extension of new and improved practices focused on tree planting, agroforestry, soil and water conservation, and small scale irrigation. The strategy to achieve this aim is to support outreach efforts among government agencies, non-governmental organizations (NGOs) and the private sector through the timely provision of quality inputs and services related to these practices.

Practices promoted by the LRC include tree nurseries: build community capacity to raise tree seedlings in well-managed nurseries.

Choice of goods and services depends on the specific needs of the client. For each subject area listed above, services include: technical advice and training; nursery and irrigation materials in the form of seed, fertilizer, planting pots, equipment, tools, and other supplies; and extension and training materials. In addition, training is offered on simple methods to monitor and evaluate progress and impacts. Prices charged for these services reflect a cost-recovery system to ensure expansion and sustainability to meet increasing client demands in the face of limited financial resources. A summary of services provided by the LRC to a wide variety of clients in the 2002–03 seasons is shown in the table.

During the 2002–03 season The Land Resource Centre provided around 10 metric tonnes of general purpose species, 1.7 metric tonnes of *Faidherbia albida*, and 1.7 metric tonnes of *Tephrosia vogelii* – to Government agencies, donor funded projects, NGOs/CBOs, and private sector

Quality tree seed should be distributed together with extension and training materials. Capacity building of partners is important. Seed policy should be reviewed and policies should correspond to good practice. Privatisation should correspond to full payment of services and service delivery should be

improved. Seed collection should be done by experts (people who could be trained).

2.2.8 Agroforestry Tree Seed Procurement and Distribution: ICRAF experience in Malawi. Mr T. Chilanga/ Dr. Festus Akinnifesi

Main findings

For AF to make an impact, seed and other planting material should be made available at all times. A range of AF options developed, tested and being adopted by small scale poor farmers:

- (i) Soil fertility improvement: (a) Improved fallows (*Sesbania*, *Tephrosia*, Pigeon pea); (b) Relay fallow cropping (*Sesbania*, *Tephrosia*, Pigeon pea); (c) Gliricidia/maize intercropping (*Gliricidia sepium*); (d) Biomass transfer (*Tithonia*, *Gliricidia*)
- (ii) High value trees (IFTs, Medicinal, Timber): (a) Domestication of IFTs (fruit production, tree improvement and cultivation); (b) Post harvest handling and value adding (Processing, packaging, marketing)
- (iii) Fodder Banks for livestock
- (iv) Fuel wood.

Tree Domestication and Germplasm supply systems:

Efficient and responsive seed supply systems in place (formal and informal).

Approaches:

- (a) Seed campaign, sourcing and procurement
- (b) Seed processing, grading, packaging into small sachets
- (c) Seed distribution to farmers through partners
- (d) Seed orchard establishment
- (e) Farmer orchards
- (f) Contract farmer orchards
- (g) Training of farmers in seed handling.

Lessons and emerging issues:

- (i) Substantial amounts of seeds have been utilized in scaling up AF in Malawi
- (ii) Although the demand for *Gliricidia* is high, germplasm remains a major bottleneck to its scaling up; use of stem cuttings is a plausible option on-farm
- (iii) Farmer seed stands have the greatest potential for seed supply but the challenge of seed quality and storage needs to be addressed
- (iv) Seed supply of *Tephrosia*, Pigeon pea and *Sesbania* in large quantities is feasible in Malawi. This is due to their high seed prolificacy
- (v) Although *Gliricidia* is widely demanded by farmers, and fetches in come for farmers, it remains the most difficult to produce in the short and medium term.

Challenges:

- (i) Farmer to farmer seed exchange-affects seed quality
- (ii) Uncoordinated efforts-different players buying seed from farmers
- (iii) Farmers are the main sources of tree seed-quality remains a challenge
- (iv) Demand satisfaction with quality seed.

Way forward

For AF to make an impact in Malawi, seed and other planting materials should be made available. Farmers and various organizations should join forces to produce good quality seeds. Seed from farmers should be certified to ensure quality. farmers to be sensitized on tree seed production as a viable business to ensure adequate supply.

2.2.9 A brief on the national tree seed centre's experiences and future activities in the procurement sector by Mr Tembo Chanyenga, National Tree Seed Centre, FRIM

Main findings

FRIM through the MNTSC is committed to achieving excellence in:

- (i) Increasing seed production
- (ii) Quality control
- (iii) Seed science
- (iv) Technology transfer, research outreach and extension discussion.

However, a number of organizations have joined seed procurement and distribution in Malawi.

Procurement:

- (i) Procurement involves seed collection, processing, testing and storage
- (ii) Soon after independence FRIM used to procure most pine seeds for timber plantation establishment. Species included *Pinus patula*, *Pinus taeda*, *Pinus elliottii*, *Pinus oocarpa* etc
- (iii) Over the years demand for pine declined due to none replanting of harvested area by the FD
- (iv) The wood energy project era brought in a new dimension of tree seed demand.
- (v) Emphasis was on establishment of eucalyptus species and FRIM responded by establishing a number of seed production areas for eucalyptus species
- (vi) Species included *E. camaldulensis*, *tereticornis*, *pellita* and *grandis*
- (vii) Generally, demand for eucalyptus trees seed had been on the decline and reasons for the decline were: (a) belief that eucalyptus species consume a lot of water once out planted; (b) biologically these species readily coppice
- (viii) Current trends indicate that demand for eucalyptus is on the increase again
- (ix) Demand for agroforestry species has increased recently . This has created a generally increasing tree seed demand pattern
- (x) Establishment of more seed sources, e.g. 21 ha. of pines will be established on the Viphyra starting this planting

- (xi) Enhancing seed science and testing activities
- (xii) Lobby for more funding to increase its seed collection expeditions
- (xiii) Distribution: FRIM used to stock unwanted seed. For instance 1.03 metric tons were boarded-off in 1986 largely *Gmelina arborea*.

Distribution:

- (i) FRIM is operating on passive distribution system
- (ii) Sachets were tried through the starter pack program and PTC centres
- (iii) *E. camaldulensis* and *tereticornis* were mostly distributed countrywide (where the species were in greatest demand)
- (iv) Starter pack strategy failed because this exercise is normally carried out towards the rainy seasons a time when farmers are growing food crops

Way forward:

- (i) MNTSC would like to transform its marketing strategy from passive to active marketing system
- (ii) Promote seed centre activities through brochures, leaflets radio programs and field days
- (iii) FRIM should act as a control authority once the tree seed policy is in place.

2.2.10 Field Tour (Mkwinda Seed Centre; Bunda)

The seed centre is one of three seed centres established by Lilongwe Forest Project. The main objective was for these centres to collect seed that was later distributed without charge to farmers in the project area. The Seed Centre consisted of 15 members at first, but now there are 10 members. Some of the first members have died and others have moved to other areas. The team is planning to replace the departed members. The 15 members were trained by FRIM in seed collection, processing and temporary storage. In 2002 – 2003 the seed centre sold 150 kgs at K 11,400. In 2002-2003 they sold 198 kg at K 25,950.

Problems

- (i) Lilongwe Forest Project is now closed and therefore there is no market for seed
- (ii) It is doubtful whether the Seed Centre will continue without the support of Lilongwe Forest Project
- (iii) The seed centre does not have reliable seed sources.

Conclusion

People are motivated to collect seed because it is an alternative source of income. But the group does not have their own seed sources. Hence, they collect from Bunda Forest, Mitundu Secondary School and private owned trees. There are many people who would act as middlemen in seed supply. The problem reported was that most of these other tree seed buyers offer very low prices, which means that the seed centres sell their seed to Lilongwe Forest Project.

3. Session 2: Working groups on strategies for seed production and distribution in Malawi

3.1 A tool for working groups: Sector analysis and production-distribution chains by J.P. B. Lillesø, ICRAF.

Organisations participating at this workshop probably represent the main actors in the agroforestry tree seed system in Malawi (on the supply side). We have heard presentations describing seed production, procurement and distribution from different viewpoints. The tools presented here should be seen as a way of looking at and analysing the seed systems and to prepare strategies for individual actors and the tree seed sector (system) as a whole. There are many ways to organise a seed/seedling system, but in a development context, seed/seedling systems should be judged by their ability to satisfy customer demand even when customers are poor farmers in remote areas.

The major elements of the commodity chain for seed/seedlings are:

- (i) Seed sources
- (ii) Seed procurement methodology and
- (iii) Seed distribution/sale methodology.

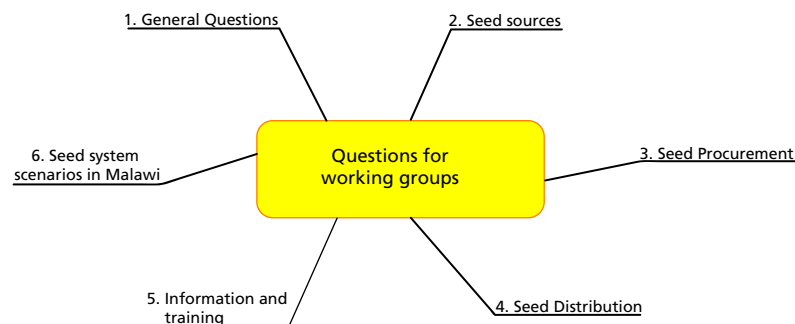
The types of ownership and control of the links in the chain are important characteristics and will to a large extent determine how cost efficient the chains are how far they reach to the customers. Information flows within the chains and between sellers and the ultimate customers become increasingly important the more decentralised the chains are. The most common chains for agroforestry are characterised by a very high degree of centralisation and most knowledge and information is retained in donor projects, NGOs and Government institutions. This means - in combination with distribution of free seed - that development of local capacity for production, procurement and distribution rarely takes place.

The traditional starting point for organisations that wish to support farmers with productive trees can be stated as: »Can we increase the efficiency of National Tree Seed Centres, Research organisations and NGOs to produce and distribute seed centrally?« whereas an alternative starting point would be »How and to what extent can National Tree Seed Centres, Research Organisations and NGOs support development of a market for seeds and seedlings?«

Some recommendations for improvement (from agricultural crop seed systems):

- (i) Increasing effective demand for improved varieties among smallholders:
 - (a) Develop and disseminate varieties targeted to specific agro ecological zones and the needs of different groups of farmers,
 - (b) Strengthen extension programs - farmer knowledge & information about farmer preferences,
- (ii) Decreasing the cost of seed production and distribution:
 - (a) Promote the production of different seed commodities by seed suppliers likely to have a comparative advantage in producing them,
 - (b) Train new seed producers,
- (iii) Improving infrastructure, rules and regulations:
 - (a) Lower the risks and transactions costs of doing business in the seed sector, especially for smaller firms and farmer groups
 - (b) Revise seed regulations in a way that facilitates the development of a heterogeneous, competitive group of seed producers while protecting the rights of all producers and consumers.

3.2 Presentation of agenda for working groups on seed systems (roles and responsibilities of actors) by Dr. A.P. Pedersen (*Forest & Landscape Denmark*)



The purpose of the working groups was to assess different kinds of tree seed systems and to define possible roles of responsibilities for the various actors in Malawi. Consensus was not required in the group and different opinions could be reported. Chairman and rapporteur were selected. Suggested discussion points in groups:

1. General issues

- (i) Distribution of tree seed
- (ii) Legislation for efficient tree seed systems
- (iii) Collaboration within the seed sector to improve efficiency and extension to farmers? Please suggest specific solutions
- (iv) Commercial enterprises in seed and seedling systems in Malawi

2. Seed Sources

- (i) Actors owning/managing seed sources of different species
Seed source certification

3. Seed Procurement

- (i) Actors procuring seed
- ii) Licensing of tree seed producers/collectors. (Seed procurement includes all activities related to seed collection, transport, processing, cleaning, testing and storage).

4. Seed Distribution

- (i) Actors distributing seeds
- (ii) Licensing of tree seed dealers
- (iii) Combined with other input supply system for farmers

5. Information

- (i) Actors serving producers and customers of seed with information and training
- (ii) Are the present information systems sufficient?

6. Seed system scenarios in Malawi

- (i) Overview of the roles of the different actors (NTSC, NARS, NGOs, CBOs, private enterprises, farmers) and the relationship between actors.

3.3 Working groups' reports

3.3.1 Working group 1

1. General issues

A model is suggested for efficient agroforestry tree seed supply systems for resource poor smallholder farmers, which can help raise both increased adoption of AF technologies and at the same time ensure sustainability of the system. The model would involve:

- (a) Short term - free seed distribution, to raise the profile of agroforestry technologies among small farmers;
- (b) Medium to long term - farmers should be trained to collect own good quality agroforestry tree seed for sustainability of the system;
- (c) All stakeholders involved in AF tree seed supply should put farmer training in own seed collection and handling as a priority area with FRIM taking the leading role.

2. Seed Sources

- (i) Very restrictive certification will strangle the whole agroforestry tree seed production and supply system
- (ii) We need supportive control whereby guidelines for seed production and supply are developed for specific species and all stakeholders abide by the guidelines with FRIM taking the lead in monitoring and control efforts

- (iii) Untrained/unskilled people should not be allowed to collect and supply agroforestry tree seeds to prevent low quality seed being distributed
- (iv) Some documentation should accompany seed being distributed:
 - (a) Source of seed;
 - (b) When was the seed collected;
 - (c) Provenance information
 - (d) Seed germination percentages, and
 - (e) issues of genetic quality
- (v) Import and export of agroforestry tree seed need to be properly controlled to prevent risks of introduction of new pests and diseases. FRIM and DARS should produce inspectors that can be empowered to perform this exercise.

Seed sources – major responsibilities		
Present	Future	Species Availability
ICRAF	DARS	In general seed supply is insufficient for all the players. Communities should be empowered to manage seed sources with initial financing from projects, NGOs Govt. Some seed sources will still be owned by major players like ICRAF, FRIM, DARS, LRC etc
FRIM	CBOs	
LRC	FRIM	
Farmers	Farmers	

3. Seed Procurement

- (i) Collaboration will be beneficial in the following areas:
 - (a) Seed quality control systems whereby all stakeholders will make an effort to ensure that guidelines for seed quality control of different species are properly adhered to,
 - (b) Training of smallholder farmers in good quality agroforestry tree seed collection and seed handling,
 - (c) Networking and information sharing between and among stakeholders.
- (ii) Having model sites in collaboration, where all the collaborating partners can be able to learn and discover how seed supply systems with farmers work efficiently. These can also serve as pilot sites for seed production and distribution projects.
- (iii) Farmers are the main producers of seed and there is a need to promote collaboration among all stakeholders to provide training to the farmers on issues such as AF seed orchard establishment and management, seed quality control, seed harvesting and handling, seed processing and marketing as well as sharing of market information.

The current procurers of seed are ICRAF, NASFAM, LRC, TLC, FRIM, DARS, Forest Department, NGOs, Projects, and Farmers. Future actors in seed procurement should be commercial entrepreneurs. To ensure quality seed production:

- (a) Guidelines should be put in place for use by all players in seed collection/production and also for training. Seed producers must always have access to high quality seed, and
- (b) Seed centres need to be certified. Seed testing for physiological qual-

ity, characteristics of seed need to be made mandatory. All seed being distributed should have information on basic quality characteristics, e.g. viability/germination which can be done at local level with minimum training. Quality control should be done by FRIM to check on quality of seed and issues of seed certification. This will be based on the minimum standards in the guidelines.

4. Seed Distribution

Present Distributors are ICRAF, Forestry Department, Projects, TLC, NGOS, LRC. Future Distributors should be Commercial entrepreneurs.

- (i) Commercial enterprises will be much more important in dealing with species for which the demand cannot be met using the informal seed sector supply only. This includes agroforestry tree species like *Gliricidia sepium*. For species that are much easier to produce, such as *Tephrosia vogelii*, small-scale entrepreneurs can be encouraged to be producing as IGAs,
- (ii) Small-scale entrepreneurs (agro-dealers) will need to be trained in AF tree seed quality control as well as handling to ensure that good quality tree seed is being produce and distributed,
- (iii) In the commercialization model there will be large entrepreneurs like LRC (dealing mainly with high value species), medium entrepreneurs (agro-dealers) and the local smallholder seed collectors. To ensure an efficient system adequate training will be needed for all these actors in the seed market and good guidelines put in place for quality control. Guidelines for seed handling /storage need to be put in place:
 - (a) A monitoring mechanism be put in place to ensure good quality-FRIM to do the monitoring,
 - (b) Certification of seed dealers to make sure that only those with facilities and proper training deal in seed distribution.

5. Information/training issues in agroforestry.

Major present actors are LRC, ICRAF, DARS, FRIM, Forestry Department, Bunda, Mzuzu University, Land Resource Conservation Department. Future players: CBOs, Farmer to farmer extension. Deliberate inclusion of agroforestry in school teaching. Information systems for reaching out to farmers with AF through field days, agriculture campaigns, farmer exchange visits to model sites. Production and use of leaflets, brochures, mass media.

6. Seed system scenarios. Suggested roles and responsibilities of main actors in seed supply and distribution in Malawi

Organisation	Roles	Responsibilities
FRIM	Research in tree seed improvement. Seed procurement and distribution Managing and improvement of seed sources Training and advisory services to stakeholders Deals with issues of disease control of trees and tree seeds.	Quality control/regulation of tree seed Seed certification Seed importation and exportation regulation Development of guidelines/policy of AF tree seed production in Malawi. Promote best bet AF technologies in Malawi.

Organisation	Roles	Responsibilities
Land Resource Centre	Seed procurement and distribution Training/ dissemination of information to stakeholders in AF. Provision of farm inputs apart from AF tree seed.	Promote best AF technologies in Malawi Ensure sufficient seed multiplication of AF tree species. Ensure that only good quality seed is being distributed.
ICRAF	Seed procurement and distribution Managing of seed stands. Research in AF technologies. Training and advisory services to stakeholders.	Seed multiplication. Promote the adoption of best bet AF technologies among smallholder farmers. Ensure that quality standards are met as regards AF tree seed being procured and distributed.
Department of Agricultural Research services (DARS) and National Agroforestry Steering Committee (NASC).	Procurement and distribution of seed Research in AF technologies. Managing improved tree seed sources Training / advisory services	Coordination of all AF activities by all stakeholders in AF Malawi. Development of best bet AF technologies for smallholder farmers in Malawi Promotion of adoption of AF technologies among the smallholder farmers in Malawi. Help in regulation of import and export of AF tree seed in Malawi.
NGOs	Seed procurement and distribution Farmer training Facilitating and financing seed production among smallholder farmers	Ensure that standards of good quality seed are adhered to. Promote the adoption of AF technologies among smallholder farmers. Help on issues of review of policies related to AF technologies.
CBOs	Seed procurement and management of seed sources.	Promote adoption of AG technologies among smallholder farmers. Ensure seed quality standards are adhered to among smallholder farmers.
VNRMCs	Coordinate the works/ activities of CBOs	Ensure that seed quality standards are adhered to by the communities. Ensure sustainable use of natural resources by the CBOs.
Private business	Seed distribution Input provision related to seed production.	Make sure that seed quality standards are adhered to.
Estates	Own and manage seed sources. Seed procurement.	Make sure that standards of seed quality are adhered to.
Farmers	Seed procurement and distribution Manage seed sources. Adoption of best bet AF technologies Seed distribution to other farmers.	Make sure that they meet the standards of good quality AF tree seed supply when producing seed
Extensionists	Training and advisory services.	Ensuring that good quality standards are followed by farmers and other stakeholders.
Training Institutions (These include Bunda College, Mzuzu University, Natural Resources College and Malawi College of Forestry and Wildlife).	Training. Advisory services Research	Produce competent professionals in AF. Development of seed science technologies and seed improvement.

3.3.2 Working group 2

1. General

Governance (benefit sharing), Seed policy, HIV/AIDS and health, gender. Roles and responsibilities: governance and seed policy (central government (FD)); Gender, HIV/AIDS and health (district assemblies, NGOs)

2. Seed sources

Limited seed sources, limited availability of seed, limited resources (finances and human), species diversity (available species), seed quality (genetic and physiological), seed pests and diseases, seed multiplication. Roles & responsibilities: establishment and multiplication of seed sources could be by CBOs/individuals, FRIM, and private sector. Certification could be by FRIM, or by independent sector. Financing by NGOs, government, development partners/donors

3. Seed procurement

Phenology, limited physical resources, seed quality (genetic and physiological), human capacity. Seed collection, transport, processing, cleaning, testing and storage could be by CBOs/individuals, NTSC, private sector, NGOs

4. Distribution

Seed supply – centralization, seed marketing, free seed distribution, Documentation. *Roles and responsibilities:* Decentralization of seed supply to District Assemblies, NGOs, Private sector. Seed Marketing could be by NTSC, OS, Private sector

5. Research, training and outreach:

Inadequate human capacity both by numbers and quality.

Roles and responsibilities: Could be by Universities (Bunda & Mzuzu), FRIM, ICRAF, MCF&W, NGOs

3.3.3 Working group 3

Group 3 compiled all their information into one table from which the following interpretation can be extracted:

Seed Sources should be certified by FRIM.

All types of organisations can finance and establish seed sources.

The diversity of species is insufficient.

Seed Procurement.

All types of organisations can procure seed. All seed should be tested by FRIM.

Seed distribution:

All types of organisations can distribute seed.

All seed should be tested by FRIM

Information.

All organisations should ensure that information flow reaches the customers.

Media has a role in information flow about seed

Seed system scenario (Working group 3)

ACTORS	Seed Sources			Seed Procurement				Seed Distribution			Information
	Present Actors	Future Actors	Sufficiency of Spp	Financing Agent	Quality Assurance	Present Actors	Future Actors	Seed Testing	Present Actors	Future Actors	Quality Assurance
FRIM & NTSC	Yes	Yes	No	Yes	MCF	Yes	Yes	MCF	Yes	Yes	MCF
ICRAF	Yes	Yes	No	Yes	MCF	Yes	Yes	MCF	Yes	Yes	MCF
Land Res. Centre	Yes	Yes	No	Yes	MCF	Yes	Yes	MCF	Yes	Yes	MCF
NARS	Yes	Yes	No	Yes	MCF	Yes	Yes	MCF	Yes	Yes	MCF
NGOs	Yes	Yes	No	Yes	MCF	Yes	Yes	MCF	Yes	Yes	MCF
CBOs	Yes	Yes	No	Yes	MCF	Yes	Yes	MCF	Yes	Yes	MCF
Total Land Care	Yes	Yes	No	Yes	MCF	Yes	Yes	MCF	Yes	Yes	MCF
Faith Organisations	No	-	No	-	MCF	Yes	Yes	MCF	Yes	Yes	MCF
Private Sector	Yes	Yes	No	Yes	MCF	Yes	Yes	MCF	Yes	Yes	MCF
ADMARC	-	-	No	Yes	MCF	Yes	Yes	MCF	Yes	Yes	MCF
Donors	-	-	No	Yes	MCF	Yes	Yes	MCF	Yes	Yes	MCF
National Herbarium	Yes	Yes	No	Yes	MCF	Yes	Yes	MCF	Yes	Yes	MCF
Forestry Dept	-	-	No	Yes	MCF	Yes	Yes	MCF	Yes	Yes	MCF
Media	-	-	No			Yes	Yes	MCF	Yes	Yes	-

*MCF= Mandatory certification by FRIM

Present Actors same as Future Actors

3.3.4 Working group 4

1 General issues

Free seed will not hamper development of AF systems if farmers are sensitised properly on importance of AF. However free seed will hamper the development of commercialised AF seed system.

Where certification is imposed, strict and rigid to work against, it will not support the development of AF tree seed systems. If certification systems are delegated and made more accessible to actors it will be supportive to the efficient tree systems development.

Identify and categorise stakeholders/actors. Link them up so that the actors can share info, identify and address common challenges.

General suggestion for development of commercial enterprises:

1. Provide incentives - open up the trading of AF seed,
2. put the right infrastructure in place,
3. promote registration and capacity development of the actors,
4. make follow ups and support to these players.

2 Seed Sources

Many types of organisations are currently seed suppliers (FRIM, Communities (clubs), NGOs, individuals, church organizations, LRC, ICRAF, ADDs, DFOs, private estates. In the future there will also be a high diversity of seed suppliers.

There are only a few sources available.

Seed sources should be approved.

National AF seed production guidelines should be produced and be given to those who qualify/are eligible.

A working group (task force) from different stakeholders should set the guidelines.

Guidelines will define regulator, inspector, producer etc.

3 Procurement

Major present actors: FRIM, NGOs, Estates, Communities, International organisations.

Quality seed can be ensured by proper identification, registration and categorisation.

Seed procurers should be organized into associations or groups and trained in key aspects(business skills, seed handling etc).

A code of conduct should be developed and seed procurers should be monitored for compliance.

Procurers could be provided with initial support(facilities and materials for processing, storage and testing).

Seed testing be mandatory and comply with international standards (ISTA).

Collectors should carry out basic tests and provide information on viability and purity. They should be supported with simple field lab (testing equipment).

Seed should be certified before being packed and marketed. Those marketing the seed should have the certificate.

4 Seed distribution

Major present distributors:

Govt (FD, NPWL, Agric, ENV Affairs, District Assemblies) NGOs, Projects, Private sector (NASFAM, private estates, individual entrepreneurs). Future actors: AGRO Dealers (IFDC, SMEs), Commercial seed companies (e.g. SEED-CO, Monsanto). Major retailers/chain stores.

These distributors should be provided with guidelines for seed handling requirements.

To ensure quality seed, seed dealers should be identified, registered and categorised. They should be organised into associations or groups and trained in key aspects (business skills, seed handling etc).

Dealers should be provided with initial support (facilities and materials for processing, storage and testing). A code of conduct should be developed and monitored for compliance.

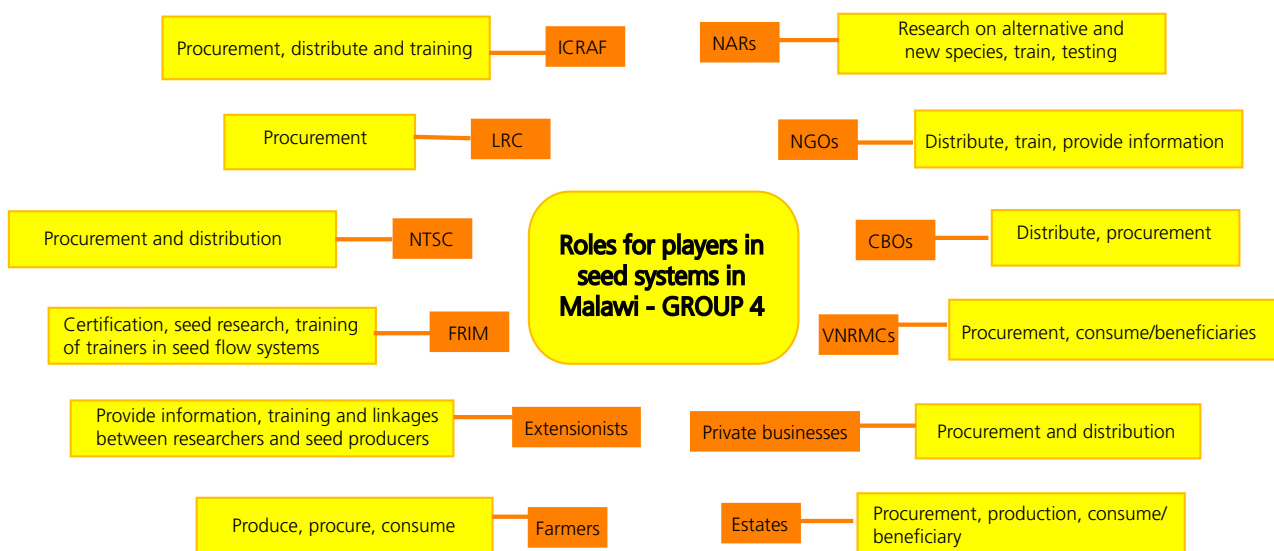
5 Information

Present actors involved in information flow: FRIM, projects, government departments, international development and research organisations (ICRAF). Future actors involved in information flow: Print and electronic media, education system (introduce AF curriculum in primary and secondary education); agro-dealers, associations(promoting AF).

Types of information systems:

On-farm research, farmer to farmer exchange visits, field days, networking among seed dealers and all producer associations, set up agroforestry demonstration sites along the main roads, expand content of af in newsletters.

6 Seed System Scenario



3.4 Reflections on the working groups' results and suggestions for further development of seed systems by Jens Peter Barnekow Lillesø, ICRAF

The results of the four working groups points to the complexity of analyzing the existing tree seed and seedling systems. The many possible ways that seed systems could be organized in Malawi are well illustrated in the number of suggested functions of the many different actors. Although it was not possible during the workshops to reach a consensus on solutions to all the issues raised, the diversity of problems could perhaps be condensed into a number of issues.

One issue is the commercial versus free distribution of seed and seedlings. In Malawi (as in many other countries) most seed and in particular seedlings are handed out as free gifts by organizations involved in agroforestry. As long as seed and seedlings are handed out as free gifts, there will be little incentive for private business to take up seed and seedlings as a business.

A second issue is the scale of the potential individual businesses. In Malawi there are three major seed producers (see Pedersen and Chirwa, 2005, *Forest & Landscape Denmark Working Paper No.8*), namely National Tree Seed Centre of FRIM, Land Resources Centre, formerly a USAID project under the Extension Department within the Ministry of Agriculture Irrigation and Food Security, but now aiming at becoming an independent business, and World Agroforestry Centre, an international research centre, collaborating with National Agricultural Research in Malawi. All three organizations are characterized by operating centralized distribution systems and will not be able to reach the hundred thousands of farmers with seed and seedlings at reasonable costs. This is a conclusion that can be reached by looking at the situation for crop seed in Malawi and elsewhere in Africa.

A third issue is that none of the working groups looked at the potential of small-scale nurseries to develop into small-scale businesses for seed production, procurement and distribution of tree seed as tree seedlings. Already there are thousands of nurseries operating in Malawi at a much decentralized level. Many of these nurseries are trying to make the nurseries into an income generating business, but are not helped in any substantial way by the government and NGOs, who mainly see them as clients for their projects.

Would it be possible for the supporting organizations to work towards turning these new enterprises into a vibrant business community to the benefit of the smallholders in Malawi?

Appendix I

Workshop on agroforestry tree seeds for farmers in Malawi 28-30 September 2004

Programme		Person responsible
Tuesday 28 September 2004		
Session 1: Workshop Introduction and Current status of seed sector in Malawi		
Registration		FRIM
Welcome remarks and workshop objectives		Department of Forestry
Opening Address		Ministry of Mines, Environment and Natural Resources
Group Photograph and Tea break		
9:00	Introductions and Workshop practicalities	FLD
9:30	Tree seed procurement and distribution practices and strategies in Malawi: presentations of organizations on the questionnaire. Response to key questions from participants (5 min per organization)	Participating organizations
12:00 Lunch		
13:00	Summary on presentations of organizations and further discussion	Mr J.-P. B. Lillesø (ICRAF)
13:30	Report on institutional survey of tree seed production and distribution in Malawi (presentation and discussion)	Dr Paxie W. Chirwa (Consultant)
14 :00	Report on nursery survey – seedling production and sources (presentation and discussion)	Dr Peter Mvula (Consultant)
14:30	Crop seed systems in Malawi (presentation and discussion)	L.N. Mtambo (Ms) Seed Services unit
15:00	Seed procurement from village perspective	Mr. Teddie Kamoto (FD)
15:30 Tea/coffee break		
15:40	Seed procurement from a CBO's perspective	Ms Stella Gramma (Extension, FD)
16:00	Seed procurement and sales from a private seed dealers perspective	Mr George Ngwira (Entrepreneur, Mzuzu)
16:20	Seed procurement from a farmer perspective	Mr Daniel E.Kanyerere (World Vision International)
16:40	Discussion and Conclusions for the day	Plenum facilitator
17:00	Announcements	Dr C. Chilima
18:30 Dinner arranged		

Wednesday 29 September 2004		
Session 1 cont'd: Workshop introduction and Current status of seed sector Malawi Chair: Dr Alex Saka Facilitator: Rapporteurs: Dr Clement Chilima and Mr Gerald Meke		
9:00	A brief history of LRC's past and future activities within seed procurement and distribution in Malawi	Dr Henry Phombeya
9:30	A brief history of ICRAF's past and future activities within seed procurement and distribution in Malawi	Dr Festus Akinnifesi/ Mr T. Chilanga
10:00	Tea break	
10:30	A brief history of FRIM's past and future activities within seed procurement and distribution in Malawi	Mr Tembo Chanyenga
11:00	Discussion	Plenum
12:00	Lunch	
Session 2: Working groups on strategies for seed production and distribution in Malawi Chair: Dr Alex Saka; Rapporteurs: Dr Clement Chilima and Mr Gerald Meke		
13:00	A tool for working groups: Sector analysis and production-distribution chains	J.-P.B Lillesø
13:45	Presentation of agenda for working groups on seed systems (roles and responsibilities of actors)	A.P. Pedersen
14:00	Group discussion	
15:30	Tea/coffee break	
16:00	Group discussion	
17:00	End of day's programme	
Thursday 30 September 2004		
Session 2 cont'd: Working groups on strategies for seed production and distribution in Malawi Chair: Mr Wellings Simwela (SACC, Seed and tree Improvement, FD) Rapporteurs: Dr P. Chirwa and A. P. Pedersen		
9:00	Group discussion	
10:00	Short presentations by working groups and plenary discussions (20 min per group)	Group rapporteurs
10:30	Tea/coffee break	
10:45	Short presentations by working groups and plenary discussions (20 min per group)	Group rapporteurs
12:00	Lunch	
13:00	Summary of group presentations	J.-P.B. Lillesø/C. Chilima
13:30	Plenum discussion	Plenum
14:30	Summing up and follow-up	FRIM
15:00	Official closing	

Appendix II

Organisations at the workshop

Organisation	Type of organisation
ARET (Agricultural Research and Extension Trust)	Implementing NGO
Cure	Facilitating NGO, Information and advocacy
Department of Forestry	Government, Responsible for forest related issues
Forest Department, Mzuzu University	training and research
Wildlife and environmental Society of Malawi	Implementing NGO, Supporting small entrepreneurs and communities in agroforestry input supply
Malawi Endowment Trust	Implementing NGO, Donor for agroforestry small projects
Department of agricultural research	Government Agency, Adoption of AF commodities on farm
Land Resources Centre	Implementing NGO, Provide for agroforestry seeds
World Vision	Implementing NGO, Relief and Development activities
Forest Research Institute, Malawi	Government Agency, Research and seed provision
ICRAF	International Research Organisation, Research on AF and seed provision

Appendix III

List of participants

Resource Persons	
Dr. Clement Chilima	National Coordinator
Dr P. Chirwa	Consultant/Coordinator
Dr P. Mvula	Consultant
Dr Anders Pedersen	Consultant
Mr J. P. B.Lillesø	Regional Coordinator
Invited Presenters and Participants	
Guest of Honour	
Akinifesi F/T. Chilanga	ICRAF
Chadza W.	Wild life and environmental Society
Chanyenga T.	NTSC
Chilimba	NASC
Chitedze D.	Greenline Movement
Gama S.	Lilongwe Forest Project
Sadyalunda	Forestry Manager, RYPLY
Jere, Z.	Total Land Care
	ARET
Kamoto T.	Department of Forestry
Kanyerere D.	World Vision International
Kayambazinthu D.	DDF (research)
Munthali C.R.Y	Forest Department, Mzuzu University
Mwalweni J.	Sustainable Forest Project (Mzuzu)
Mwambene C.	CURE
Nedi	Press Agriculture
Ngwira G.	Seed and Nursery Operator (Mzuzu)
Phombeya H	Land Resources Centre
Representative	Department of Agriculture Research
Representative	Farmer Group Representative
Simwela W.	SACC (Seed and Tree Improvement)
Ngalande J	Deputy Director of Forestry
Chipezaani	MEET
	Action Aid
Msiska, V	RFO(N)
Support staff	
Drivers	
Secretary	

Forest & Landscape Working Papers

- No. 1 • 2004 Experiences with web-based teaching in forestry
- No. 2 • 2004 Distribution of tree seed and seedlings
- No. 3 • 2004 Identifying forest-livelihood research priorities in Mozambique
- No. 4 • 2004 Breeding for die-back resistant *Dalbergia sissoo* in Nepal
- No. 5 • 2005 Farmers' planting practices in Burkina Faso
- No. 6 • 2005 Cocoa agroforests in West Africa
- No. 7 • 2005 Observations on timing and abundance of flowering and fruiting of woody plants
- No. 8 • 2005 Tree seed in Malawi
- No. 9 • 2005 Commercial distribution of tree seed in small bags
- No. 10 • 2005 Using Soft Systems Methodology to Develop a Mangrove Forest Management and Planning. Decision Support System in a Buffer Zone – The Case of Dam Doi Forest Enterprise, Vietnam
- No. 11 • 2005 Integration of Urban Woodland Policies
- No. 12 • 2005 Substitute or Complements? – How tropical and non-tropical wood products compete
- No. 13 • 2005 Landscape values of rural inhabitants in the Sound region
- No. 14 • 2005 Business Clusters in Spatial Planning
- No. 15 • 2006 Timing and abundance of flowering and fruiting of woody plants in the Hørsholm Arboretum
- No. 16 • 2006 Medicinal plant markets and trade in Maputo, Mozambique
- No. 17 • 2006 Carbon-Nitrogen Interactions in Forest Ecosystems – Final Report
- No. 18 • 2006 A review of forest economics research in Bolivia
- No. 19 • 2007 Proceedings of a workshop on agroforestry tree seeds for farmers