

REVIEW OF SOCIAL FORESTRY

TRAINING PROJECT

PHASE II EXTENSION APPROACHES

- Compiled date:** March, 1999
- Compiled by:** Mr. Lucas Rateng
- Comments by:** Extension Methods and Information
Section Team Members
- Distributed for:** SOFEM Members
- Distributed by:** Social Forestry Extension Model
Development Project for Semi-arid
areas in Kenya (SOFEM)



Social Forestry Extension Model Development Project

SOFEM



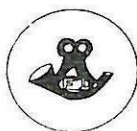
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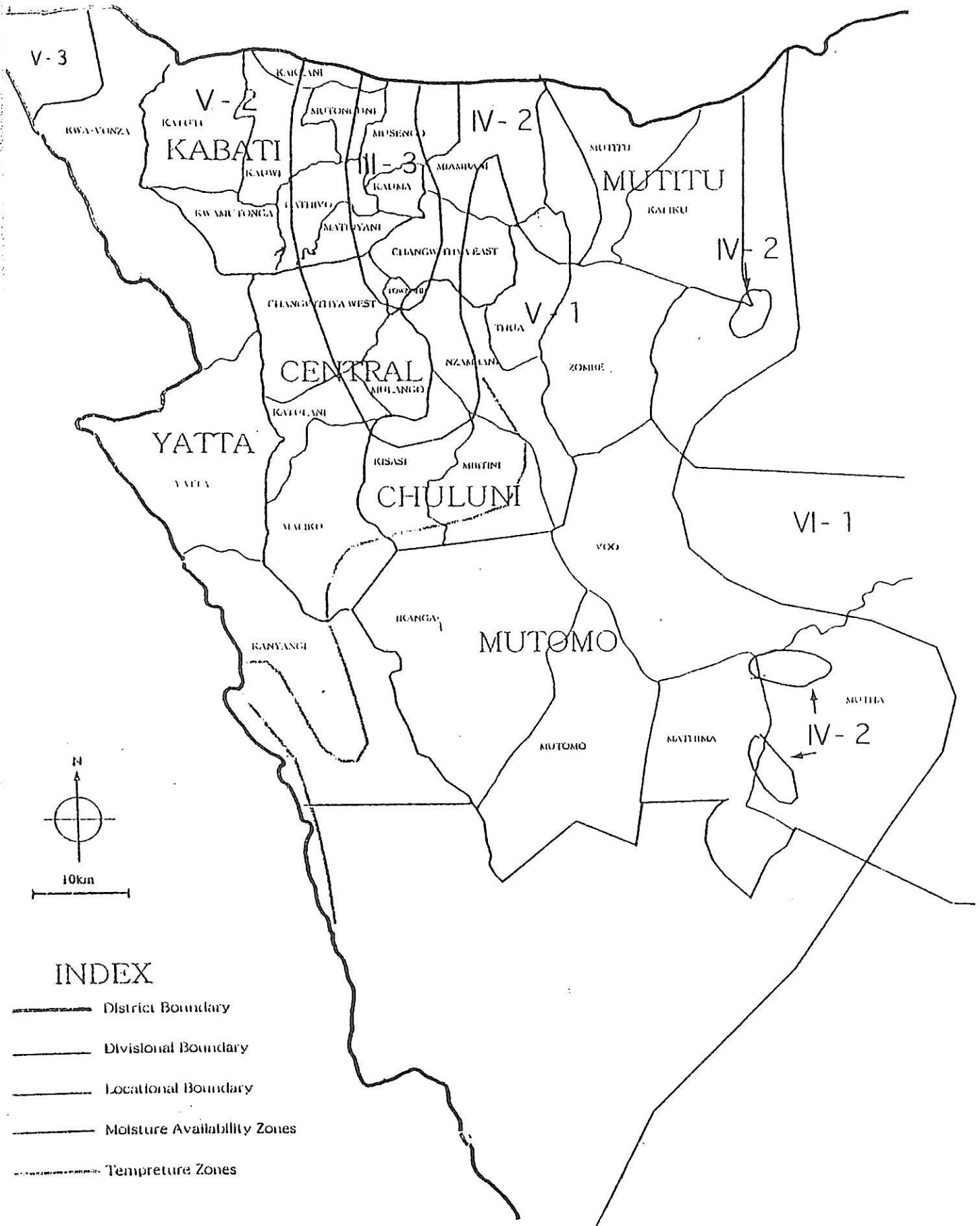


Social Forestry Extension Model Development Project

SOFEM



Map of Kitui District Administrative Boundaries



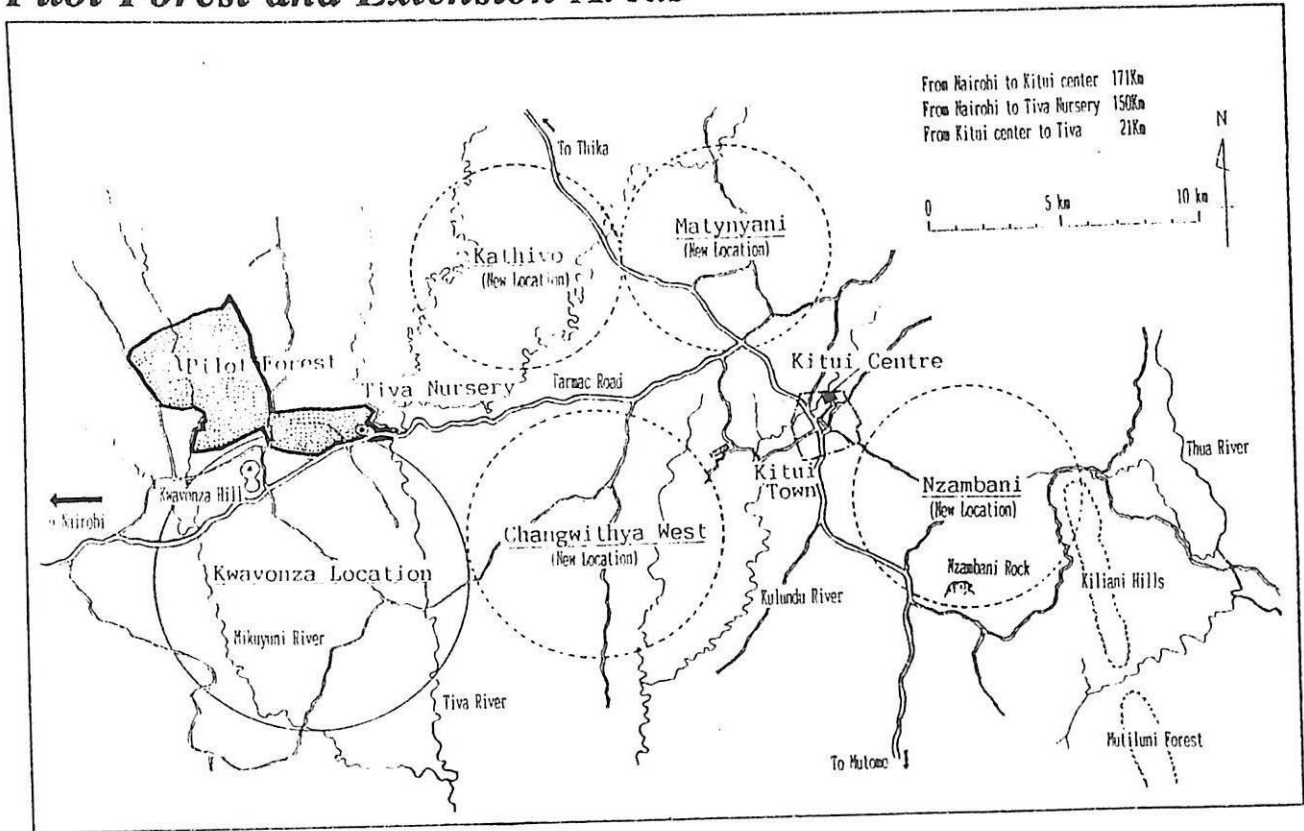
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- District Boundary
- Divisional Boundary
- Locational Boundary
- Moisture Availability Zones
- Temperature Zones

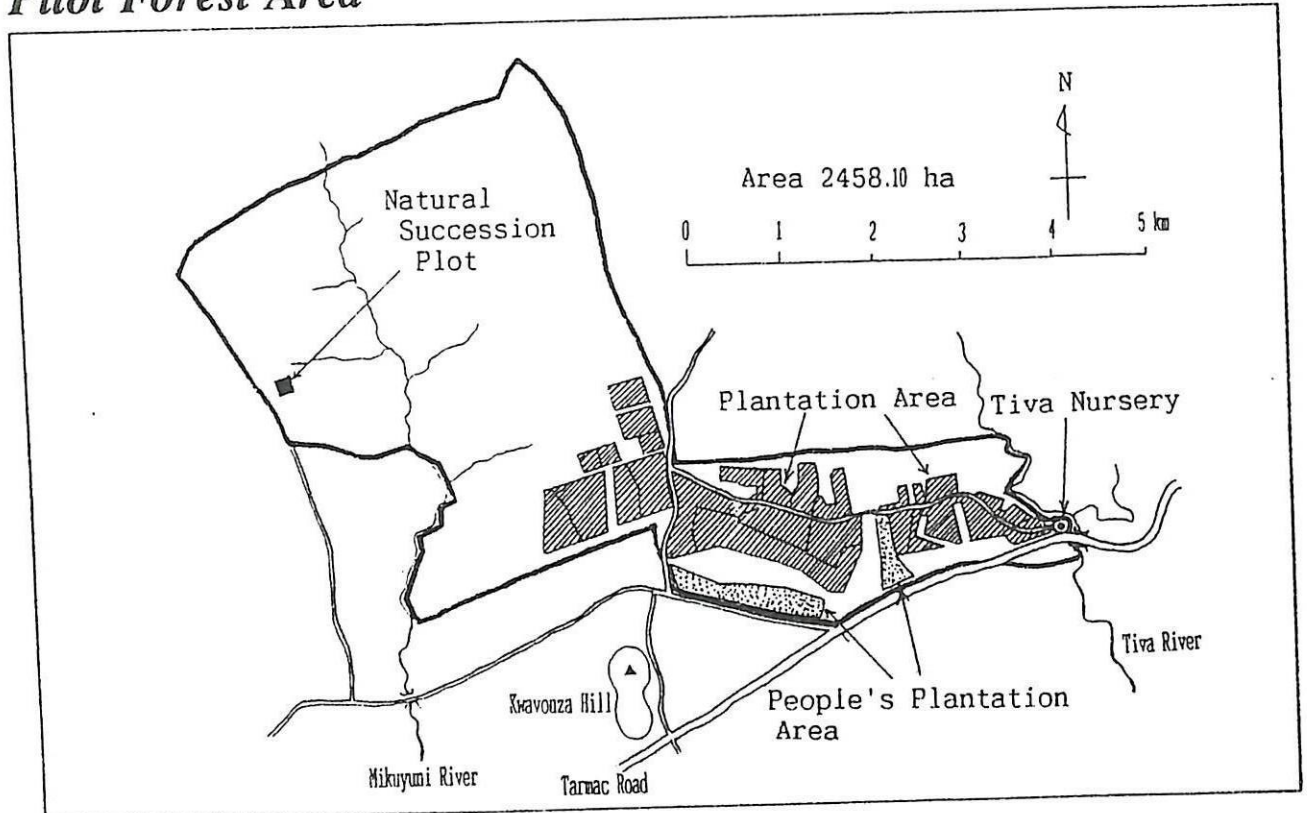
Source: District Development Office-Kitui (28.5.97)

KITUI PROJECT SITE

Pilot Forest and Extension Areas



Pilot Forest Area



Map of PF activities

Source; Miti ni Mali SFTP II Activities.

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Introduction

The Kenya/Japan Social Forestry Training Project Phase II herein after referred to as “SFTP II or Project” was started in November, 1992 immediately after the phase I completion. SFTP II consisted of two sub-projects, one was Social Forestry Training Sub-project and another was Pilot Forest sub-project. The extension section was one of the components of pilot forest sub-project located at Tiva in Kitui district.

The activities of the extension section covered five locations namely Kwavonza, Kyangwithya West, Matinyani, Nzambani and Kathivo in Central, Yatta, Kabati and Chuluni division of Kitui district. The main extension approaches tested from 1992 - 1997 period were as follows:-

- Model farmers approach
- Small scale nursery approach
- The peoples’ plantation approach
- Private plantation approach
- Field days and seedling distribution

The main objective of the above approach was to transfer suitable tree planting and tending technologies in semi-arid areas to target groups and individuals. The mission of the extension section was to develop extension methods of social forestry through the above approaches.

Social forestry extension model development project (herein after referred to as “SOFEM”) was commenced in November 1997 taking over the social forestry for semi-arid areas in Kenya through farm forest establishment. Experiences of extension activities in the project can be useful for establishment of farm forests in SOFEM.

This report is written to compile useful information for farm forest establishment accumulated through experiences of extension activities in the project period.

1. Model Farmers Approach

1.1 Objective

Model farmers were meant to demonstrate successful tree planted farms by individual, and enlighten the surrounding farmers on tree planting activities. The model farmers were also expected to play roles as extension agents in the areas covered by the project.

1.2 Numbers of Targeted Farmers and Surrounding Environment

Prior to 1993, there were 6 model farmers in Kwa-vonza location. This number was increased to 22 by additional 16 farmers selected from the new locations namely: Changwithya West, Kathivo, Matinyani and Nzambani. These locations falls within ecological zone III to V with an annual rainfall ranging from 450 - 1100mm. The temperature of these areas ranges between 15 degrees Centigrade to 34 degrees Centigrade about 25 degrees Centigrade.

The main land use system in all the five locations is cropping and grazing. The farmers produce both food and cash crops. The grazing of livestock is mainly on individual lands, except in Nzambani location where there are communal grazing lands known as Kiongwe hills. In these location many of the useful tree and shrub species have been over exploited due to human pressure on land in form of cropping, scattered shrubs and selective tree cutting for charcoal burning and grazing.

1.2.1 Selection Criteria of Locations

The project activities were mainly concentrated in Kwa-vonza location during the SFTP Phase I hence there was need to expand the project activities to the new neighbouring locations for development of appropriate technology and method in the wide variety of conditions.

The following information were put into consideration:-

- Size of the location and population
- Availability of water
- Existing tree nurseries
- Land use
- Possibilities for establishment of small-scale nurseries and model farms
- Road conditions
- Other existing activities by other projects
- Fodder and fuelwood availability
- Farming activities and possibilities of social forestry activities.

1.2.2 Selection Criteria of Model Farmers

The main criteria of selecting model farmers during SFTP Phase II were:

- Interest in tree planting activities
- Experiences in tree planting
- Innovative and participatory attitude for any kind of social forestry activities
- Distinctive feature of his/her agro-forestry species and methodology.
- The accessibility to farm plots etc.

The profile of model farmers are shown in table “characteristics of model farmers” attached. See Annex 1.

1.3 Inputs

1.3.1 Technical Assistance

The project provided techniques through training, visiting and giving technical advice to the model farmers on various methodologies used in tree establishment including tree species selection and planting techniques.

1.3.1.1 Techniques Provided

On tree planting and tending techniques different techniques were offered depending on each farmers demonstration plot area and the suitability of the methodology within the area. The planting techniques applied were as follows; trench catchment, V or W shaped micro-catchment, pit planting, patch planting and pit planting.

All the above techniques were applied at the same time by the different model farmers. The other techniques like bottle feeding watering, clear weeding and water catchment were also applied.

1.3.1.2 Method of Technical Assistance

1.3.1.2.1 Technical Advice and Visits

The farmers were also given technical advice by the project front-line extension staff once a week on tree planting and tending techniques, and also nursery techniques.

1.3.1.2.2 Group Training

The project offered training opportunities at the Kitui Social Forestry Training Centre, two weeks course at a frequency of twice a year for 5 years including model farmers have been held for farmers and women farmers. Specific course have also been held in the initial stage of SFTP (II) for targets in new locations.

1.3.2 Material support

The materials in form of tools and seedlings have been given to the model farmers in order to facilitate their participation on tree planting activities.

1.3.2.2 Seedlings

The project distributed tree and fruit species seedlings to the model farmers. The following species listed below were given to the model farmers due to their preference for fast growth, utility and adaptability for dry areas,

Jacaranda mimosifolia
Acacia polyacantha
Azadirachta indica
Senna siamea
Senna spectabilis
Croton megalocarpus
Eucalyptus camaldulensis
Eucalyptus tereticornis
Grevillea robusta
Terminalia mentalis
Delonix regia
Tamarindus indica
Carica papaya
Terminalia brownii
Sesbania sesban
Prosopis juliflora

The number of tree and fruit species planted on each farm were decided upon by the farmers needs and the size of the demonstration plot to be utilised as tabulated on Annex 3.

1.4 Achievements

1.4.1 Technical Aspects

Due to the trainings provided by the project and visits by the project extension staffs most of the model farmers gained skills on tree planting and management, and some own tree nurseries using locally available materials although it did not mean necessarily that farmers put such skills into practice as mentioned later.

The result of the survey conducted in 1997 also showed that the model farmers gained such techniques. According to the survey model farmers were willing to continue tree planting activities even if the project withdrew the support. About 40% of them indicated their willingness to continue tree planting using the already acquired knowledge and around 60% of them wanted to start their own tree nurseries.

1.4.1.1 Planting Method

The trench planting and micro-catchment techniques for water harvesting showed highest survival rate while patch planting showed lowest survival rate.

1.4.1.2 Appropriate Number of Seedlings for Handling

Initially the model farmers planted more seedlings that they could not apply proper method of planting and tending, because of labour shortage and this contributed to low survival rate, but due to decreased number of seedlings distributed to each model farmer during SFTP Phase II the survival rate of trees planted increased to overall 35% in 1997 as compared to the assessment survival of 22.3% in 1992.

1.4.1.3 Model Farmers Acceptance and Performance

Some of the model farmers were able to establish their own small-scale nurseries of tree, fruit and flower seedlings production for their own use and sale to other people for planting, so as to obtain some income to sustain their activities in the farm.

1.4.1.4 Impact To Other Farmers

From the field observation, it appeared that some farmers in the neighbourhood of target farmers learned from the model farmers in Kwa-vonza, Matinyani, Kathivo, Kyangwithya West and Nzambani locations. Currently, quite a good number of farmers have their own

woodlots. These had been achieved to some experts through individual or group visits by farmers to the neighbouring model farmers and field tours organized by the project during the training courses of farmers and womens'.

1.5 Constraints

There was poor management of planted trees by some model farmers. This was mainly due to some of them staying away from home for a long time and leaving nobody behind to tend the planted trees on their plots.

Some of the model farmers did not want to adopt intensive techniques requiring much work due to shortage of labour at home, hence being unable to undertake tending techniques, such as clear weeding and also make micro-catchments so as to improve the planted trees survival rate.

1.6 Evaluation

1.6.1 Performance

Some of the model farmers showed good example of tree planting, however the final survival rate was low inspite of much input.

Most model farmers attributed the low survival rates to drought and termite attack which affected the planted trees. In addition the other reason of low survival rates was that some farmers did not carry out proper tending techniques.

1.6.2 Sustainability

The model farmers are benefiting from their demonstration plots in terms of fruits/fodder, fuelwood, construction poles, timber, windbreak and other amenities e.g shade, beauty, medicinal etc.

However, the high inputs seemed to make farmers to rely on the project. It is assured that without these inputs very little could have been achieved. According to the available annual reports on extension section most of farmers have influenced others on tree planting activities, no specific data have shown.

1.7 Gender Aspect

Although women practically contributed to tree planting activities much in the model farmer approach, there was gender imbalance

during the nomination of model farmers because only 2 women were selected out of 22 model farmers.

1.8 Lessons Learnt for Farm Forest Establishment

1.8.1 The Selection of Target Farmers

There are differences in performance and willingness by farmers' socio-economic status. Especially a target farmers' residential status whether permanent, temporary, or the availability of labour to undertake farm forest establishment should be considered.

WID-GAD aspect should also be considered when selecting the target, since women play a very important role in tree planting activities to overcome fuelwood shortage, fodder, fruits, medicine etc.

1.8.2 Technical Assistance

The project should put more emphasize on culturally accepted tree species and biologically sound utility species e.g *Tamarindus indica*, *Acacia polyacantha*, *Melia volkensii*, *Dalbergia melanoxylon*, *Senna siamea*, *Terminalia brownii*. The species distributed to the model farmers were also based on farmer's preference.

1.8.3 Material Support

Although the material support was considered as an incentive to the model farmers, but this should not have been the case. The working tools were issued just to facilitate the work in the demonstration plots. During the establishment of farm forests incentives should not be issued to target farmers, instead those target farmers selected should provide their own tools to facilitate the establishment of farm forests.

1.8.4 Impact Survey

In SFTP Phase II there were no clear indication as to how many other farmers learned from the model farmers, and adopted the practice or technology. Therefore an evaluation exercise should have been done in order to assess whether the impact was felt in some areas.

1.8.5 Security of Planted Trees

The target farmers should involve the surrounding communities on tree planting activities in order to overcome future encroachment by the local community on their demonstration plots for construction poles, fruits, firewood etc.

2. Small-Scale Nurseries Approach

2.1 Objective

To assist the groups, schools and farmers using simple local and adaptable nursery establishment and management techniques to ensure self-sufficiency in seedling production.

2.2 Target

In order to realise the above objectives, the project involved Mwethya groups and primary schools to raise enough seedlings of their own choice and supply the same to the local communities, and for their own planting. The target area covered included Kwa-vonza location and the new locations mentioned earlier. The project collaborated with 70 groups and 18 schools.

2.2.1 Criteria of Selection

2.2.1.1 Schools

The following were the criteria used:-

- Should be a willing one and ready to take up the activity.
- Either a primary or secondary school.
- A school which has shown some interest in the past on tree planting activities should be considered.
- The school can either be a young growing one or big one.
- The school should be near water point or having a water tank as the trees need water.

2.2.1.2 Groups for Nursery Work

- The group should be non-political.
- Have a good number of working members.
- Should be interested in tree planting.
- Located near a water source.
- Should be active group not dormant.
- Be situated in an accessible place.
- If possible the group should be registered and possess a certificate of registration.
- We would also like to have men's group already organised as opposed to women groups only.

2.3 Inputs

2.3.1 Technical Assistance

2.3.1.1 Techniques

The targets chosen were given advisory service. The advisory support given by front-line extension staff were on technical know-how in local seed collection, seed storage, seed pre-treatment, sowing, potting, transplanting and general nursery techniques and management to enable the targets to establish their own small-scale nurseries.

The project front-line extension agents visited the targets once in a week to provide assistance that may be needed.

2.3.1.2 Training

The Social Forestry Training Project conducted courses for the targets i.e women group leaders of the Mwethya and teachers. The courses were held for 2 weeks and the objective was to train participants on practical knowledge and techniques on nursery establishment, tree planting and associated activities. In the new locations the project ensured that the primary school teachers and Mwethya groups officials are given some required basic trainings on tree nursery establishment, management, management and tending techniques.

2.3.2 Materials Support

2.3.2.1 Tools

The tools provided by the project towards the establishment of small-scale nurseries were jembes, shovels, sieves, wheelbarrows, drums, water cans and seeds of different tree/fruit species suitable for semi-arid lands.

2.3.2.2 Tubes

The project provided the polythene tubes to the groups and schools according to their seedling production targets which was ranging from 1,500-2,000 and 3,000-4,000 polythene tubes respectively.

2.3.2.3 Seedlings

The small-scale nurseries were given targets of seedlings as tabulated below:-

Target Production

	YEAR				
	1993	1994	1995	1996	1997
Schools	3000	4000	4000	4000	3000
Groups	1500	2000	2000	2000	1500

2.3.2.4 Tree Species

In Kwa-vonza location the groups and schools raised the following tree/fruit seedlings species:

No.	Name of Species	Schools	Groups
1.	<i>Acacia polyacantha</i>	100	100
2.	<i>Azadirachta indica</i>	200	100
3.	<i>Carica papaya</i>	200	100
4.	<i>Senna siamea</i>	200	100
5.	<i>Senna spectabilis</i>	100	-
6.	<i>Casuarina equisetifolia</i>	100	100
7.	<i>Croton megalocarpus</i>	100	100
8.	<i>Dalbergia melanoxylon</i>	200	100
9.	<i>Delonix regia</i>	100	100
10.	<i>Dovyalis caffra</i>	200	100
11.	<i>Eucalyptus camaldulensis</i>	100	100
12.	<i>Grevillea robusta</i>	200	100
13.	<i>Jacaranda mimosifolia</i>	100	-
14.	<i>Leucaena leucocephala</i>	200	-
15.	<i>Melia volkensii</i>	100	-
16.	<i>Passion fruit</i>	200	100
17.	<i>Psidium guajava</i>	200	100
18.	<i>Sesbania sesban</i>	100	100
19.	<i>Terminalia brownii</i>	100	-
20.	<i>Terminalia mentalis</i>	200	100
	Total	3000	1500

2.4 Achievements

2.4.1 Number of Women's Groups and Schools

The operation started initially in 1988 during Social Forestry Training Project Phase 1 with 10 women groups and 4 schools in Kwa-vonza location. The number of women's groups and schools small-scale nurseries had increased to 70 women's groups and 18 schools, since SFTP II commenced. The total production of seedlings increased from 66,971 in 1993 to 204,145 in 1996.

All the groups and schools exceeded their targets, reflecting improved nursery management skills and motivation. The evaluation results of small-scale nurseries in 1994 and 1996 attached shows the performance of the groups and schools, see Annex 3. The project encouraged the groups to support themselves through use of local materials in nursery seedlings production such as local seeds, milk packets, plastic tins for potting.

2.4.2 Seedlings Disposal

In the baseline survey and impact assessment done in April, 1997 it was found that the current annual seedlings production was about 2191 seedlings per group, of which 79% of the seedlings were distributed among group members, 10% were given to non members, 6% were sold while 5% were sometimes left as carry over stock in the nursery.

About 45% of the groups managed to obtain markets for their seedlings. The percentage sold corresponds to about 138 seedlings per group, although the percentage sold is minimal, this monetary orientation is a good incentive to the group members.

2.4.3 Techniques

The groups have acquired the knowledge and skills needed in nursery establishment and management. This can be evidenced by the quality and number of seedlings produced in the nurseries. In 1989 a total of 19,000 seedlings were potted and only 45% reached plantable size, while in 1996 a total of 2928 seedlings were potted 83% attained plantable size (Ongweya et al. 1990). The nurseries were fenced using locally available materials such as dead fence and live fence to protect seedlings from animal damage (browsers).

2.5 Constraints

The major constraints observed included water scarcity, because most of water sources are seasonal rivers, therefore some of the nurseries were issued with water drums. The group members use donkeys to transport water from rivers. The other constraints is termite attack, and lack of tools. Efforts have been made to solve the problem of termites by use of wood ash or extracts of some tree species. Water salinity was also a problem to groups located along Mwita Syano river in Kwa-vonza location.

2.6 Evaluation

2.6.1 Performance

The project achieved targeted number of groups and schools, which continued their activities. The progress have been observed that targets exceeded planned seedlings number by improvement of techniques indicated with plantable size seedlings and commercialised quality. The project encouraged the groups to support themselves for production cost reduction through use of local materials available for nursery seedlings production such as local seeds, milk packets, plastic tubes for potting.

2.6.2 Sustainability

According to the impact assessment survey conducted in 1997 by the project for the small-scale nurseries, it was established that 80% of the groups are involved in the use of these locally available materials in their nurseries.

About 45% of groups have managed not only for self-sufficient, but for commercial purpose, and some groups generated income from the sale of seedlings to individuals and other institutions and in return they were able to purchase other materials required for their nurseries like polythene tubes, watering cans etc.

Judging from these facts, some portion of groups are assumed to reach sustainable level in techniques and management.

Lastly these shows that the groups might be able to continue their small-scale nurseries by themselves even after the project withdraw although they might reduce the number of their seedlings production. Besides, some women groups started transferring knowledge and skills on nursery establishment to other groups or farmers according to the impact assessment survey.

2.6.3 Gender Aspect

It was observed that women group members have participated in this activity than men. Roughly, 80% of the group members were women, thus women played main role in small-scale nursery activities. The small-scale nurseries gave them monetary benefit, since women could use income generated from sales of seedlings without consulting with their husbands.

2.7 Lessons for Farm Forest Establishment

2.7.1 The Selection of Nurseries for SOFEM

The SOFEM Project should identify successful group nurseries as contacts for production of high quality seedlings supply source for tree/fruit planting activities within the SOFEM area.

Criteria for selection could be:-

- High targeted seedlings attained plantable size.
- Quality of seedlings.
- Local quality seeds collection.
- Use of locally available pots.
- Quality of fencing materials.

Also there is need for the establishment of seedlings information Centres to facilitate marketing of seedlings from the groups. These information will help farmers who want to establish farm forests with procurement of seedlings.

2.7.2 Women's Groups As An Entry Point

It seems to be worth trying to use women's groups as an entry point in case of farm forest establishment as well as in case of small-scale nurseries, which worked successfully involving women's groups. It showed that women's groups had advantages that they transferred techniques quickly within the group members and encouraged the proper implementation by each member. While approaching women's groups, the following points should be taken into consideration i.e. the benefits generated through activities are distributed equally. In small-scale nurseries, seedlings produced or money generated through activities are distributed to each member equally. It was pointed out, on the other hand, that unclear view of distribution of benefits of trees planted was one of the reasons why approach to women's groups did not succeed well in other approaches such as peoples plantation.

Therefore, considering this point, women's groups can be said to have possibility of being an appropriate entry point for farm forest establishment.

2.7.3 Further Technical Advice

Many farmers obtained techniques in nursery establishment and management through small-scale nurseries. The SOFEM should give further technical advices on budding and grafting techniques to improve their tree/fruit seedlings as long as its resource is available. These seedlings might generate income, which will ensure sustainability of their nursery activities.

3. Demonstration Plot

3.1 Objective

The aim of this approach was to demonstrate an ideal farmer with small-scale nurseries, tree planting, soil conservation, and besides these, the demonstration plot worked to introduce techniques on nursery establishment/management and tree planting/tending developed by SFTP (II). The method used is that of result demonstration, which is intended to stimulate interest in the practices on display, and therefore encourage technology adoption by change of attitudes.

3.2 Target

The local communities, trainees of the training courses provided by SFTP and other visitors.

3.3 Inputs

3.3.1 Land (Plots)

In order to promote tree planting by the demonstration of various appropriate techniques of tree establishment, protection, tending and fruit/fruit seedling production, the social forestry training project established two plots measuring 2.0 hectares and 0.52 hectares respectively.

3.3.2 Labour

The project engaged 6 casual workers in demonstration plot 1 and 2. There were 3 people attached per plot.

3.3.3 Site Preparation

The implementation of the Demo II was carried out first by clearing the place using a bull-dozer. This plot was also served with both the road network for easy communication and water piping to facilitate bottle feeding and watering the traditional nursery. The road network also joined the two plots together Demo I and Demo II plot.

The project also provided the working tools, construction of the model farm house, roof gutters for water harvesting, the demo plot layout steel signpost, chicken wire for agroforestry plot protection and lastly purchase of crop seeds for agroforestry demonstration including grafted citrus fruits.

3.4 Contents of Demonstration Plot Activities

3.4.1 Small-Scale Nursery Model

This was one of the main demonstration activities in Demo I and the traditional agroforestry demonstration nursery in Demo II plot, and emphasizes on the use of locally available materials for example the use of milk tetra packs and tins as containers, the use of live fences as hedges and use of locally collected seeds. On the termite control both in the nursery and field, the demonstration stresses on the use of ash, chicken droplets, used diesel engine oil.

3.4.1.1 Seedlings Production

The production of seedlings was one of the main demonstration activities in Demo I plot. The following tree seedlings were raised:-

Acacia polyacantha
Casuarina equisetifolia
Delonix regia
Eucalyptus camaldulensis
Proposis juliflora
Azadirachta indica
Senna spectabilis
Terminalia mentalis
Grevillea robusta
Dovyalis caffra

The above species were recommended by SFTP (II), because they are fast growing resistant to drought and useful for fuel, poles, timber and fence etc.

The preparation of sunken beds reduced the evapo-transpiration. Also highlighted is the proper watering and shading intensities to ensure better germination and survival of seedlings.

3.4.2 Individual Seedlings Protection

This type of demonstration was therefore set up with an aim of showing a simpler way a farmer can protect trees using dry twigs, thorny branches to keep off animals. The use of the twigs and branches ensures less wastages as that is an economic use of it. Such measures are only temporary as they are important during the/seedlings establishment phase.

3.4.3 Orchard Demonstration

This was established with an aim of exposing the local farmers to various fruit varieties, their methods of establishment, maintenance and protection. The citrus fruit trees planted in the trenches were maintained and the embankments stabilized with grass. The trenches have higher moisture accumulation which the survival and growth of citrus trees.

3.4.4 Live Fence Demonstration

This was set up with an objective of introducing the alternative fence species which can form good hedges as most of the *Euphorbia tirucali* and *Cupressus lusitanica* that farmers use had shown a lot of side effects i.e. it deteriorated soil conditions, association with the green snake which is poisonous. The *Cupres* had been affected by the aphids and the twigs or branches have been constantly destroyed by the termites.

The live fence species that were tried and showed good performance included *Caesalpinea decapitalata*, *Prosopis juliflora*, *Thevetia peruviana*, *Parkinsonia aculeata*, *Dovyalis caffra*, *Acacia mellifera*.

3.4.5 Agroforestry Demonstration

The technology emphasizes on the most appropriate agroforestry practices. The tree species that were inter-cropped with maize and beans included *Grevillea robusta* and *Moringa oleifera*. Soil and water conservation measures were undertaken by the construction of "Fanya juu" and "Fanya Chini" structures. The citrus fruits were planted within the trenches where the moisture accumulated.

3.4.6 Land Rehabilitation Demonstration

This activity included the establishment of woodlot with the following tree species *Eucalyptus camaldulensis*, *Melia azadirach* and *Croton megalocarpus*. Also introduced was agroforestry and grazing land demonstration plots and were planted with *Grevillea robusta*, *Moringa oleifera* and *Casuarina equisetifolia* respectively.

3.4.7 Water Catchment Demonstration

This was introduced in the demo plot so as to increase the tree survival rate and to demonstrate water harvesting methods applicable to semi-arid areas for effective tree growth.

3.4.7.1 The Turkana Method

This was established to demonstrate water harvesting techniques for enhancing the survival and growth of trees. The water collecting surface of 5m x 5m constructed as a collection ditch next to the ridge where the tree is planted. The accumulated water is utilised by planted seedlings for growth and survival.

3.4.7.2 Shallow Trenches

V-shaped trenches are dug to conduct the rain water to the planting holes.

3.4.7.3 Divisions of the Ground

This method is used where the rainfall is very scarce. Ground is divided by ridges and all the rain water is conducted to the plants.

3.5 Achievements

3.5.1 Visitors

Approximately over 3,000 KEFRI/JICA trainees from the National Social Forestry Training Centre, Muguga and Kitui Regional Centre have had an opportunity to visit the plot on training sessions or study tours. There are also several individuals and groups from within and outside districts, other parts of the world who have had an opportunity to visit the demonstration plots. While visiting the demonstration plot the visitors learnt about establishment of small-scale nurseries, agroforestry, planting and tending techniques, soil and water conservation and land rehabilitation.

3.6 Constraints

The only major constraint is that few farmers from the district have visited the plot due to lack of publicity. There are also damages caused by the termites and wild animals on the plots.

3.7 Evaluation

3.7.1 Performance

The demonstration plot served its purpose, since many visitors conducted to the plot were very impressed with the activities that were undertaken by the project on the demonstration plot. The activities shown on the demonstration plot i.e. land rehabilitation, soil and water conservation, agroforestry practices, establishment of small-scale nurseries were activities that other farmers could easily be undertaken at their own homes/plots.

3.8 Lessons for Farm Forest Establishment

The SOFEM project should continue with the activities of the demonstration plot because many farmers easily learn about the various technologies on tree planting and nursery management. Also the practices being displayed on the demonstration plot might contribute towards improving food security in semi-arid lands.

Lastly there is need to introduce a record book for visitors to the demonstration plot area to manifest the number of visitors and to have comments and recommendations.

4. **Peoples' Plantation**

4.0 Outline of the Approach

The land belonged to the project, and the target women groups were allowed to plant trees in their plots. The groups signed memorandum of understanding with the project on yearly basis to continue working in collaboration with the project. The participating groups were allowed to fetch fuelwood, grass for thatching from the pilot forest.

4.1 Objective

This involved the women's groups in tree planting in a section set aside for them in the pilot forest to enhance transfer of developed tree planting technologies such as land preparation, water harvesting and tending techniques to the local community efficiently.

4.2 Target

The project involved interested women groups in this activity. The total land covered by the peoples' plantation was 70.37 hectares.

4.2.1 Selection Criteria

The 18 groups were selected through the help of the locational leaders, and the following several considerations were made:-

- The group should be active
- The group must have interest in tree planting
- The group must have a reasonable number of working members
- The group to be within walkable distance to the pilot forest site.
- The group to be non-political
- The group to voluntarily agree to take up tree planting at the project site

After the 18 women groups were selected, the project organized a meeting for signing of the memorandum of understanding by the officials of the groups participating in peoples' plantation.

4.3 Inputs

4.3.1 Technical Assistance

The approach was meant to improve the skills of the women groups in tree planting activities by involving them in tree planting activities with the support of the project staff in the pilot forest. The techniques taught earlier by the project for conventional methods were changed to intensive method developed the later part of SFTP II so that the tree survival rate can be improved.

The operations undertaken by the women groups involved site preparation by strip clearing, fencing, staking, pitting, soil re-filling, making of microcatchments, and the actual planting. The strip width was 3.3m, and planting holes of 45cm. (width and

depth) are then prepared in stripped area at spacement of 3m. by 3m.

4.3.2 Tools

The tools the project provided to the group members for use in these activities included pangas, jembes, shovels, mattocks and slashers.

4.3.3.1 Seedlings

The project provided the following tree species to the groups for planting in the peoples'plantation, but the number issued per group varied as per the annex attached, *Acacia gerrardii*, *Acacia polyacantha*, *Azadirachta indica*, *Senna siamea*, *Terminalia brownii*, *Croton megalocarpus*, *Grevillea robusta*, *Melia volkansii*, *Prosopis juliflora*.

4.3.4 Prize Days

The participating groups in the peoples plantation carried out the activities on competition basis. The criteria of the prizes was as follows:-

- Proper land preparation
- Proper planting hole sizes
- Proper protection by fencing
- Proper tending by slashing, spot weeding etc.
- Number of seedlings planted per group and per working member
- Survival percentages of the planted seedlings
- Number of seedlings replanted

The prizes and conditions given to the participating groups were as follows:-

- Prize 1 - a plough
- Prize 2 - a wheelbarrow
- Prize 3 - a sufuria size 36'
- Prize 4 - a bag of maize (90Kg.)
- Prize 5 - 2 bundles of maize flour
- Prize 6 - 1 budle of maize flour

While the participating prizes were as follows:-

- No participation with or without tending - no prize
- Tending plus 1 - 4 trees planted per working member - mug cups (size 7cm.)
- Tending plus 5 - 14 trees planted per working member - mug cups (size 9cm)
- Tending plus over 15 trees planted per person per group - sufuria medium size.

In order to boost up the morale of the members, the project offered incentives to the participating groups, such as provision of tools and ceramic stoves. It made them rely on the project too much. This has been very effective as demonstrated by the competitive approach to afforestation, as in photo below.

4.4 Achievements

Tree planting activities were implemented on the people's plantation. A total of 87,198 seedlings of 11 different tree species listed below were planted:

Acacia polyacantha
Senna siamea
Terminalia brownii
Croton megalocarpus
Dalbergia melonoxylon
Grevillea robusta
Senna spectabilis
Prosopis juliflora
Tamarindus indica
Acacia gerrardii
Azadirachta indica

The 18 women groups, which decreased to 11 later, did a commendable work and gained techniques on tree planting and tending, through their participation in people's plantation activities, although the planted trees survival was low. The ratio of attendance for work of each group was averagely 31.5% as per attached annex 4.

4.5 Constraints

The problems that have been identified to be affecting the performance of people's plantation activities includes;

4.5.1 Impracticable of Agroforestry Component

Initially agroforestry practices was recommended to be carried out within their plots at the plantation sites. This proved impossible because of the presence of wild animals such as dick-dick, monkeys and baboons which destroy the crops and trees.

4.5.2 Shortage of Labour

The members of the groups spend a lot of time doing other activities to earn a living, reducing the time which they could locate for tree planting activities. Especially during the rainy seasons, the farmers priority is to prepare their farms and plant agricultural crops.

4.5.3 Soil Factors

The soils are very poor and have murrum pan which has contributed to high seedlings mortality.

4.6 Evaluation

In addition to low survival rate, lack of transportation prevented them from continuing the activities. SOFEM did not provide transport anymore after the termination of SFTP II. Besides instability of land ownership discouraged them to continue tree planting.

4.6 1 Sustainability

Although the approach brought 18 women groups together to be involved in the tree planting activities, it could not last long, due to low survival rate, as evidenced after SFTP II only 3 women groups continued participating on peoples' plantation activities.

4.6.2 WID

On the WID - gender the women groups participated on voluntary basis and there were no effects made by the project to involve men in this activity. The WID - gender could have been considered, so that the other members of the community does not look at the approach as for women groups only, but for the whole community-

as mentioned above, shortage of labour was a constraints of people's plantation.

It means that the situation of overload for women should be addressed to enable them to allocate time for tree planting activities.

4.7 Lessons for Farm Forest Establishment

Tree planting site should be set within easy access for farmers who implemented the activities to keep them tending. It is not easy for farmers to get transportation and to spend time for travelling. An approach to groups is efficient to transfer techniques to many farmers at once. However, sometimes it happens that group members don't assume responsibility to implement tending work in some groups. In addition, it is critical to make it clear how to distribute benefits from trees planted in case of tree planting on communal land. Basically farm forests are supposed to established on individual land. From this aspect, this idea should be supported to make things simple.

5. Private Plantation

5.1 Objective

The approach focused on establishing woodlots for fuelwood in Matinyani location where there was serious condition of collecting fuelwood.

5.2 Outline of the Approach

The project started this approach in 1994 and 1995 with eight farmers and 2 women groups in Matinyani locations. The project supported the targets to establish private plantation and introduce intensive tending techniques. The average size of the plantations was 0.25ha. and the average number of seedlings planted for 2 years 1995 and 1996 respectively was 49 seedlings as tabulated below:-

No.	Name	1995	1996	Total
1	Mutinda Kilonzi	72	20	92
2	Mangale Mutia	32	15	47
3	Willy Mwalili	35	10	45
4	Kivindyo Munuve	47	10	57

5	Muiindu Ngui	18	10	28
6	Daniel Malombe	30	10	40
7	Kelly Kilinga	25	24	49
8	Benard M. Mutua	20	20	40
	Total	279	119	398

The survival rate was higher inspite of less input from the project than those of other approaches. Although the private plantation focussed on establishing woodlots for fuelwood, the farmers expected other benefits such as soil conservation, shade and ornamental.

5.3 Target

The project started this activity in 1994 with 8 farmers and 3 women's groups to start their own private or individual farms.

5.4 Inputs

5.4.1 Technical Assistance

The major tending method is clear weeding by spot weeding the trees together with agricultural crops. The project extension agents visit the private plantation twice a week to assess the farmers work performance and any other problems that farmers are facing.

5.4.2 Training

The farmers attended training courses organized by the project. The aim of the courses was to equip the farmers with the appropriate dryland forestry technologies in order to enhance better tree selection for survival of planted trees and greater growth achievements.

5.4.3 Material Support

5.4.3.1 Working Tools

The project provided some tools to farmers to enable them start their private plantations.

5.4.3.2 Labour Support

The project also assisted in land preparation - ploughing using a tractor. The project assisted tree planting only in the initial stage.

5.4.3.3 Seedlings

The following species were provided by the project for the private plantations: *Senna siamea*, *spathodea nilotica*, *white supporter*, *Jacaranda mimosifolia*, *Terminalia brownii* and *Senna spectabilis*.

5.5 Achievements

The average survival rates and growth rates have been very encouraging and observation indicate that farmers had greater motivation to tend their trees as compared to community plantations.

The farmers practised mixed cropping where trees are planted together with other crops such as maize and beans. This as twin objective of increasing soil fertility and soil conservation while at the same time the piece of land can be used to serve more than one purpose.

The farmers are now able to obtain benefits from the planted trees and fruits in terms of firewood, soil conservation, shade and ornamental.

The average survival rates were 85% for the groups and 61% for the individual farmers in 1997 and this was after 3 years from the commencement of planting.

5.6 Constraints

- Termites, drought and browsing by animals.
- Lack of labour and tools due to low income from the farms.
- Poor tending practices by some farmers have led to survival rates and growth performance which reflects the attitudes of farmers towards tree planting.

5.7 Evaluation

The reasons of the higher survival rate were thought as below:-

- The project recommended that each group plant a small number of around 30 seedlings, which enable the groups to tend them sufficiently without heavy burden.
- The project delivered technical advises by use of the extension agents to groups on the same day as their group activities day for

small-scale nursery. It helped them to work on their private plantations conveniently and intensively.

- Intensive tending techniques seemed to contribute to the high survival rates although they required substantial preparation work such as cultivating or making water catchment at initial stage and daily work like weeding.

The high survival rate of trees itself became an incentive for farmers to continue planting and tending seedlings.

Besides, as mentioned above, input from the project was a little. Therefore this approach may be evaluated to be economical, effective and sustainable.

6. **Seedling Distribution**

6.1 Objective

The aim of the approach was to make seedlings for planting available to interested farmers and schools in areas outside target area.

6.2 Target

It covered 10 locations in Central division which have since been sub-divided into Chuluni, Kabati and Yatta divisions. This activity gave chance for farmers who were not in a position to come to the project nurseries to collect seedlings to plant. This approach was applied during the rain seasons from chiefs offices in the respective locations.

6.3 Calendar of Distribution

The days of seedling distribution were drawn by the project staff and respective chiefs of the locations concerned, and then posted to market centres, government offices, churches and schools to enable as many farmers to be aware of the distribution day in their area. The seedlings were ferried in a lorry to these centres. Demonstration of planting techniques by staff are done and pamphlets on planting methods issued before giving out of the seedlings. The records of farmers collecting the seedlings by name, location and villages was done to facilitate follow-up survey.

6.4 Achievements

Between 1993 and 1996 a total of 135,257 seedlings were distributed through 16 centres in 4 divisions. The project activities has spread beyond the target area to benefit more farmers.

6.5 Evaluation

The approach is expensive and hence unsustainable as compared to small-scale nursery approach.

It discourages seedlings production by farmers through competition. The element of nursery technology transfer is lacking and tend to encourage dependency by the recipients.

6.6 Lessons for Farm Forest Establishment

The focus should be women group small-scale nurseries or individual as source for seedlings production. Hence the project should purchase seedlings from the above nurseries for establishment of farm forests.

7. Conclusion

As reviewed the six approaches conducted during SFTP II above, each approach had advantages and disadvantages compared to each other. When SOFEM try to develop an extension model , we need to consider these features. Through the six approaches, it can be concluded as below:-

(1) Approaches to individuals and approaches to groups

As for social forestry extension, approaches to individuals and approaches to groups have different advantages and disadvantages. Approaches to individuals like model farmer approach make benefits from trees planted or incentives clear to farmers. Another advantage of individual approaches is that farmers do not need to worry about land security where to plant trees. They can choose and plant trees on land where land tenure is secure. Farmers can implement nursery or tree planting activities depending on their resources and preferences. One of disadvantages of approaches to individuals is that practising tending techniques is sometimes difficult because of shortage of labours. Technology transfer to individuals can be done surely, though it may be slow.

Approaches to groups may have a problem of uncertain benefit sharing. Sometimes it happens that they cannot get any benefits from trees because trees die, even though they spend their time and labour as the people's plantation showed. It discourages group members to continue tree planting activities. Aims of tree planting of groups can not help getting general to meet common needs of the members. The most certain advantage of group approaches is that technology transfer can be one to many peoples at once. The other advantage is to make it easier to implement tree tending techniques because they can help each other.

(2) Approaches to Schools in Contrast to Approaches to Farmers

Approaches to schools like small scale nursery by schools have different advantages compared to approaches to farmers or groups. First of all, schools are good places for demonstration where many people come and see. Secondary, it is important to start environmental education from childhood. Another advantage is that knowledge and techniques on nursery or tree planting spread widely and quickly from teachers to pupils and then to their parents. However, implementation of activities depends on capability of teachers in charge. In case teachers are eager to tree planting, approaches to schools work well since pupils obey the teachers.

(3) Material Support

Material support like supply of seedlings, tools or tubes should be considered carefully. Material support motivates farmers to start nursery or tree planting, and it helps to draw farmers interesting in the project as well. The project also gave some prizes like jembes or cups to the targets according to their performance, which could be said a kind of material support, and they gave farmers an incentive to continue their activities. However, offering materials encourages farmer's dependence on the project and as a result of this their activities did not have sustainability. Even if farmers are not given material support from the project, they continued with nursery or tree planting activities as long as they recognised the importance of tree planting and its benefits. As an illustration, private plantation approach, there was not much material support, contrary to other approaches such as model farmers and small scale nursery. However, farmers targeted of private plantation tended trees well and achieved higher survival rate than that of other approaches. Therefore material support should be minimised as possible.

(4) Number of Trees Planted

Number of trees planted at once seemed to be a critical factors in implementation of tending techniques properly. Generally speaking, farmers planted so many trees that they could not tend them properly, although appropriate number of trees to plant depends on resources the farmers have. To give an example, private plantation whose targets planted around 30 trees at once attained higher survival rate than that of model farmers whose targets planted more than 100 trees at once.

The number of trees to plant has relevance to material support mentioned above. If the project supplies seedlings to farmers for free, farmers want to plant seedlings as many as possible. However, after planting, farmers cannot tend trees well and as a result most trees die. Therefore the project should advise farmers an appropriate number of trees to plant considering their resources for implementation of tending techniques.

(5) Sense of Purpose

It is important to make farmers have a clear sense of purpose on tree planting. Purposes of tree planting vary depending on farmers needs. One of the reasons that private plantation attained a great achievement was considered that the farmers had a clear sense of purpose on tree planting. In addition to this, it is important to respect farmer's voluntaries and preference on tree planting. The project must not impose its purposes, plans, and techniques on tree planting to farmers. After planting trees, their survival rates are a key for farmers to continue tending trees. Technical assistance offered by the project is expected to support high survival rate.

CHARACTERISTICS OF MODEL FARMERS
NAMES OF FARMERS

ITEMS	Mr. A. Nguli	Mr. J. Ngwiko	Mr. M. Muliya	Mr. M. Mutara	Mr. B. Mankie	Mr. F. Mwezi	Mr. Manase Kasina
LOCATION	Kwa-vonza	Kwa-vonza	Kwa-vonza	Kwa-vonza	Kwa-vonza	Kwa-vonza	Kyazwiyithya
AGE OF FARMER	60	54	75	48	62	64	49
SEX OF FARMER	Female	Male	Male	Male	Male	Male	Male
OCCUPATION OF FARMER	Farmer	Farmer/Employee JICA Project	Farmer	Farmer/Employee JICA Project	Farmer/Bilan	Farmer	Farmer
EDUCATIONAL LEVEL	Primary level	Form 2	Standard 3	No. school	Standard 5	Standard 8	Form 4, College level
OFFICIAL		Church leader	Church leader				
FAMILY EXCEPT FOR THE FARMER		6 (9) wife 1, Mother 1, Children 1	(9) wife 1, children 3, grand children 4	(15) male 8, female 5	(5) Male 4, Female 1	wife 2, children 10	(10) Male 5, female 5
ANNUAL INCOME KSHS.	16000	60000	4500	70000	Confidential	40000	20000
ANIMAL OWNED							
CATTLE	4	2	5	2	10	10	5
GOATS	5	10	17	6	40	50	0
SHEEP	0	2	2	0	15	0	0
DONKERS	1	2	1	3	1	2	3
LAND-OWNED	9 acres	30 acres	26 acres	13 acres	40	4	36.5 acres
SHAWBA	5	35	10	2	14	3	14.5
GRAZING	4	26	10	10	25	4	21.5
INWEITHA GROUP	Manyanzani	Muli	Kirira Kirwe	Kyeni	Ikhalu'ya	Mwende	
PARTICIPATION PEOPLES PLANT	0	0	0	X	0	0	0
PARTICIPATION S.S. NURSERIES	0	0	0	0	0	X	0
TREE PLANTING ACTIVITIES NOTES BY FARMERS SO FAR	home compound Woodlot	home compound woodlot	home compound Woodlot nursery	Home compound Woodlot Nursery	Home compound Fruit Orchard	Home Compound Boundary planting Farmland planting	Home compound
SUPPORT BY THE PROJECT TENTATIVE PLAN							
ITEMS	P. KIULU	MUTKA MITAU	MUSYOKA SWI	MUNDE MASAI	IUSTUS MUSYOKA	PETER NZAI	ROBERT KITAMBI
LOCATION	Kyazwiyithya	Kyazwiyithya	Kyazwiyithya	Kyazwiyithya	Madiyani	Madiyani	Madiyani
AGE OF FARMER	47	62	60	62	48	35	65
SEX OF FARMER	Male	Male	Male	Male	Male	Male	

OCCUPATION OF FARMER	Driver	Businessman (force)	Farmer	Farmer	Businessman	Farmer	
EDUCATIONAL LEVEL	Primary level	Secondary school	Primary level	Primary level	Primary level	Primary level	Primary level
OFFICIAL					Group Secretary	Group Treasurer	Chairman School board
FAMILY (EXCEPT FOR THE FARMER)	(8) Female 4, male 4	(12) male 7, female 5	(9) Male 6, female 3	(12) Male 7, female 5	(12) male 1, female 1	(7) male 2, female 5	(7) Male 3, Female 4
ANNUAL INCOME KSHS.	60000	12000	47000	60000	10000	19000	
ANIMAL OWNED							
CATTLE	2	15	11	0	1	0	6
GOATS	7	30	8	10	10	2	3
SHEEP	0	0	0	0	0	0	0
DONKEYS	2	3	0	0	2	1	1
LAND OWNED	13.5 acres	10 acres	10 acres	25 acres	11.5 acres	3	15
SHAMBA	8	4	2.5	2.5	15	10.5	3
GRAZING	5	5.5	6.75	9.5		2	10.75
MWEIHYA GROUP	Kiondo		Ilina			Kaunda	Kihanga
PARTICIPATION PEOPLES PLANTATION	0	0	0	0	0	0	0
PARTICIPATION S. S. NURSERIES	X		0 X		0	0 X	X
TREE PLANTING ACTIVITY, ROLE BY FARMERS SO FAR	Compound planting	Compound	Compound	Compound planting	Compound	Compound	Compound planting
	Live fence	Farmland planting		Woodlot	Farmland		Farmland planting
	Boundary						

NAMES OF FARMERS

ITEMS	Mwaka Muli	Malozza Nzoka	Dominic Mulu	Malubi Kithica	David K. Ngonde	Mrs. Mutinda	John Warbur	Munyoro Mwaru
LOCATION	Kathivo	Kathivo	Kathivo	Nzambani	Nzambani	Nzambani	Nzambani	Makinyani
AGE OF FARMER	40	Above 30	45	31	65	26	49	54
SEX OF FARMER	Female	Female	Female	Male	Male	Female	Male	Male
OCCUPATION OF FARMER	Farmer	Farmer	Teacher	Farmer	Farmer	Farmer	Farmer	Farmer
EDUCATIONAL LEVEL	No. Education	No. Education	Secondary level	Secondary level	Primary level	Primary level	College level	Village elder
OFFICIAL	School committee member		Secretary Church group					Primary level
FAMILY (EXCEPT FOR THE FARMER)	(11) male 1, female 10	(5) male 4, female 1	(7) male 5, female 2	(4) male 3, female 1	(7) male 4, female 3	(8) male 2, female 6	(6) male 3, female 3	(9) male 5, female 4
ANNUAL INCOME KSHS.	200000	20000	70000	55000	100000	13000	70000	20000
ANIMAL OWNED								
CATTLE	9	3	10	1	2	3	2	8

GOATS	6	42	7	2	2	0	2	40
SHEEP	0	0	0	0	0	0	0	0
DONKEYS	1	4	2	1	1	0	0	4
LAND OWNED	11 acres	21	13	8	96	6	535 acres	
SHAMBA	9	10	10	3	60	3	35	21
GRAZING	0.5	10	2	34	35	1.5	12	2.5
NYETHYA GROUP MEMBER	Mombuni		Kavulha	C.P.K. Wendo				Nyethya
PARTICIPATION PEOPLES PLANTATION	0	0	0	0	0	0	0	0
PARTICIPATION S.S. NURSERIES	x	0	0	x		0	0	0
TREE PLANTING ACTIVITY. ROLE BY FARMERS SO FAR	Compound	Compound	Compound	Compound	Compound	Compound	Compound	Compound
	Farmhand	Boundary	Fruit	Shamba and	Boundary	Woodlot	Farmhand	
	Planting	Planting	Ochard	Boundary planting	planting		Planting	
SUPPORT BY THE PROJECT (TENTATIVE PLAN).								

The Number of Seedlings Planted on Model Farmers Farm 1993-1996.

Location	Name of Model Farmers	Number of Seedlings Planted			
		1993	1994	1995	1996
Kwa-vonza	Annah Nguli	202	65	350	100
	Munyalo Mutisya	280	65	116	100
	Boniface Maeke	595	165	300	100
	Jeremiah Nguniko	1078	90	70	100
	Francis Masesi	40	135	990	100
Changwithya West	Matheka Mutava	156	50	60	100
	Musyoka Sivi		62	80	100
	Muinde Masai		62	41	100
	Pythius Kiilu		62	50	100
	Manase Kasina		62	40	100
Matinyani	Mulwa Mitau		62	100	100
	Mulwa Nzau		25	36	100
	Robert Kitambi		96	42	100
	Munyao Mwatu		50	20	100
Kathivo	Julius M. Mitau		58	-	100
	Dominic Mulwa		50	42	100
	Mwaka Muli		68	81	100
Nzambani	Malonza Nzioka		68	40	100
	Richard K. Maliki		17	175	100
	Bernard Katee		75	257	100
	David K. Ngonde		90	125	100
	Mrs. Mutinda		22	41	100
		2351	1499	3056	2200
		9106			

SMALL SCALE NURSERIES EVALUATION RESULTS 1994

KWAVONZA CATEGORY 'A' (SCHOOLS)

NAME OF GROUP/ SCHOOL	NO. OF MEMBERS	TOTAL NO. OF SEEDLINGS RAISED	ATTAINED %	GRAND TOTAL %	RANK	NOTE
Tanganyinka	440	4.346	96.4	93.2	1	
Kwavonza	300	3.917	98.1	92.00	2	
Thome	114	3.167	98.4	88.9	3	
Usenyo	105	3.79	83.2	87.6	4	
Mikuyuni	38	1.998	72.1	65.8	5	
Ngamyone	188	2.267	76.3	63.8	6	
Masaani	255	2.28	56.1	58.6	7	
TOTAL	1.45	21.765	82.84	78.56		

KWAVONZA CATEGORY 'A' (SCHOOLS)

NAME OF GROUP/ SCHOOL	NO. OF MEMBERS	TOTAL NO. OF SEEDLINGS RAISED	ATTAINED %	GRAND TOTAL %	RANK	NOTE
Thome	15	2.044	100.00	99.0	1.0	
Mukilye	7	2.164	100.00	97.0	2.0	
Kavete	7	1.594	96.60	95.3	3.0	
Mukwa	7	1.855	97.40	95.3	4.0	
Kathome	7	2.558	98.70	94.3	5.0	
Kiliku VI	10	1.324	97.10	90.4	6.0	
Kataka	10	2.152	92.00	89.5	7.0	
Mitasyano	13	1.631	94.10	89.1	8.0	
Kavongoloka	18	1.873	91.20	88.5	9.0	
Muli	11	2.268	94.50	87.7	10.0	
Wiwano wa mikuyuni	16	1.534	95.90	87.0	11.0	
Mutethya	8	2.259	90.40	86.7	12.0	
Mutile	17	1.624	89.50	86.3	13.0	
Kyuwoni	30	2.400	77.40	85.2	14.0	
Kiliku V	11	1.467	88.90	85.2	15.0	
Maithya	16	1.915	82.60	83.3	16.0	
Ikungu	11	2.044	93.30	82.7	17.0	
Mutethya	10	1.486	87.40	82.4	18.0	
Mwende	17	1.312	82.50	81.0	19.0	
Isaalala	6	1.192	95.80	80.9	20.0	
Kanyanga	9	1.772	93.80	79.4	21.0	
Kithetheesyo	11	1.764	98.50	79.2	22.0	
Mutuva	11	1.465	91.60	77.8	23.0	
Kiima Kimwe	7	1.551	78.80	76.9	24.0	
Kaumoni	15	1.546	73.40	76.7	25.0	
Kasau kakya	10	1.212	83.90	74.1	26.0	
Kaliloni	6	1.369	80.50	73.4	27.0	
Ikinya cut off	3	1.374	90.70	71.5	28.0	
Wendo wawo	7	1.128	74.20	71.1	29.0	
Kuweta	11	925	76.60	66.7	30.0	
Mukilye V	7	1.155	79.10	66.3	31.0	
Ithoa Ngingo	10	1.106	62.30	63.1	32.0	
Kilulini	5	1.199	74.80	62.4	33.0	
Kyanduu	7	975	65.00	60.5	34.0	
Masola	8	1.034	68.90	58.4	35.0	
Wendo wa ikungu	5	892	59.50	52.7	36.0	
Top	6	851	56.70	51.6	37.0	
Kyeni	10	873	58.00	50.9	38.0	
Mikuyuni	3	456	44.50	44.2	39.0	
Kyaoni	1	-	-	11.0	40.0	
	399	59.943	81.40	75.87		

SMALL SCALE NURSERIES EVALUATION RESULTS 1994
NEW LOCATION CATEGORY 'A' (SCHOOLS)

NAMES OF GROUP/SCHOOL	NO. OF MEMBERS	TOTAL NO. OF SEEDLINGS RAISED	ATTAINED %	GRAND TOTAL%	RANK	NOTE
MATINYANI						
Kyambusya	465	2.892	85.30	84.20	2	
KATHIVO						
Kwamuno	356	1.546	97.80	72.10	5	
KYANGWITYA 'W'						
Kwa-ikolania	270	3.015	99.80	98.90	1	
Tiva-family	42	2.614	86.90	74.30	4	
NZAMBANI						
Inyuu	328	2.759	93.20	82.30	3	
Kamale	408	1.914	66.90	61.40	6	
	1.869	14.74	88.32	78.85		

NEW LOCATION CATEGORY 'B' (WOMENS GROUP)

NAMES OF GROUP/SCHOOL	NO. OF MEMBERS	TOTAL NO. OF SEEDLINGS RAISED	ATTAINED %	GRAND TOTAL%	RANK	NOTE
MATINYANI						
Muthinzi	36	2.51	100	97.5	5	
Syolei	18	2.879	99.9	96.95	7	
Kikanga	33	2.225	99.9	96.95	7	
Katheuni	20	2.225	97.9	91.96	14	
Manyoleni	22	1.821	79.3	72.1	22	
Kaunda	4	949	51.2	45.9	26	
KATHIVO						
Kongoni	26	2.236	83.1	89.6	14	
Kalindilo Adult class	32	1.789	99.4	89.2	15	
Kwamumo	16	2.029	92.2	85.1	17	
KYANGWITHYA						
Utethyo	39	3.685	99.97	98.5	1	
Kakano	19	9.499	99.8	98.4	2	
Ilima	32	2.84	99.96	97.98	3	
Kitondo	23	2.676	99.99	97.93	4	
Nindinguka	30	2.719	99.7	97.4	6	
Manyula	23	2.053	99.89	94.92	9	
Kyamwiu	29	2.643	94.4	94.2	10	
Kyeni	34	2.067	99.8	93.9	11	
Kyaasa	28	2.553	91.1	93.7	12	
tungu	14	2.121	98.1	93	13	
Nzambani						
Nzalwani	12	2.064	96.3	87.2	16	
Mumbuni	15	2.2	99.7	84.4	18	
Kyalele	14	2.122	88.2	80.1	19	
Kaualula	19	2.039	98.1	79.1	20	
Kyeni	14	1.1198	87.6	77.8	21	
Yanzi	32	1.206	74.2	68.6	23	
Kawendo	15	1.439	63.8	67	24	
Kilui	18	1.024	71.5	64.6	25	
	617	64.811	91.30	86.44		
NAMES OF GROUP/SCHOOL	MEMBERS	TOTAL NO. OF SEEDLINGS RAISED	ATTAINED %	GRAND TOTAL%	RANK	NOTE
CATEGORY 'A'	2.546	36.505	85.42	78.69		
CATEGORY 'B'	1.016	124.754	85.39	80.13		
G. TOTAL	3.562	161.259				

SCALE SCALE NUSERIES EVALUATION RESULTS 1994-KWAVONZA LOCATION

Names of groups/ schools	Ratio of seedlings/ pots	Targets	Healthy & maintenance		Local seed collection	Fencing quality	Rank	Grand Total
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Category 'A'

Thome Pri. Sch.	49.2	10.0	8.0	3.0	10.0	8.5	3rd	88.9
Usenyi Pri. Sch.	41.6	10.0	7.5	10.0	10.0	8.5	4th	87.6
Ngamyone Pr. Sch.	38.2	7.6	4.0	3.0	6.0	5.0	6th	63.8
Kwavonza Pr. Sch.	49.0	10.0	5.0	10.0	10.0	6.0	2nd	92
Mwaaru Pr. Sch.	28.0	7.6	5.0	6.0	6.0	6.0	7th	58.6
Mikuyuni Pri. Sch.	36.1	6.7	5.0	3.0	10.0	5.0	5th	65.8
Tanganyika Pr. Sch.	48.2	10.0	8.0	10.0	10.0	7.0	1st	93.2

Category "B"

Kasau kakya w/g	42.0	8.1	6.0	10.0	3.0	5.0	26th	74.1
Kyumoni w/g	38.7	10.0	8.0	10.0	10.0	8.5	14th	85.2
Thome w/g	50	10.0	9.5	10.0	10.0	9.5	1st	99
Kiliku V w/g	44.4	9.8	7.0	10.0	6.0	8.0	14th	85.2
Kavongoloka w/g	45.0	10.0	7.5	10.0	8.0	8.0	9th	88.5
Kithetheesyo w/g	49.2	10.0	6.0	3.0	4.0	7.0	22nd	79.2
Kiliku V w/g	48.6	8.8	5.0	10.0	10.0	8.0	6th	90.4
Kuweta w/g	38.5	6.2	8.0	3.0	6.0	5.0	30th	66.7
Mikuyuni w/g	22.2	3.0	3.0	10.0	4.0	5.0	39th	44.2
Mathuva w/g	46.0	9.8	7.0	3.0	6.0	6.0	23rd	77.8
Mutethya IV w/g	49.5	9.9	6.0	3.0	6.0	8.0	18th	82.4
Kyeni w/g	29.1	5.8	4.0	3.0	4.0	5.0	37th	50.9
Mutethya III w/g	45.2	10.0	8.0	6.0	1.0	7.5	11th	86.7
Maithya w/g	41.3	10.0	7.0	10.0	10.0	5.0	16th	83.3
Kataka w/g	46.0	10.0	8.0	10.0	10.0	5.5	7th	89.5
Ithoa Ngingo w/g	31.2	7.4	6.0	6.0	6.0	6.5	32nd	63.1
Kaumoni w/g	36.7	10.0	6.0	10.0	6.0	8.0	25th	76.7
Kyanduu w/g	32.5	6.5	5.0	3.0	6.0	7.5	34th	60.5
Wendo wawo w/g	37.1	7.5	6.0	3.0	10.0	7.5	29th	71.1
Mwende w/g	41.3	8.7	6.0	10.0	8.0	7.0	19th	81
Mutile w/g	44.8	10.0	6.0	10.0	8.0	7.5	13th	86.3
Mitasyano w/g	47.1	10.0	7.0	10.0	6.0	9.0	8th	89.1
Kavete w/g	48.3	10.0	9.0	10.0	8.0	10.0	3rd	95.3
Mukilye V w/g	39.6	7.7	6.0	3.0	4.0	6.0	31st	66.3
Wiwano wa mikuyuni w/g	48.0	10.0	6.0	10.0	8.0	5.0	11th	87
Kaliluni w/g	40.3	9.1	7.5	3.0	6.0	7.5	27th	73.4
Masola w/g	34.5	6.9	5.0	3.0	4.0	5.0	35th	58.4
Kilulini w/g	37.4	8.0	5.0	3.0	4.0	5.0	33rd	62.4
Kathome w/g	49.3	10.0	8.0	10.0	10.0	7.0	5th	94.3
Mukilye GKI	50.0	10.0	9.5	10.0	8.0	9.5	2nd	97
Top w/g	28.4	5.7	5.5	3.0	4.0	5.0	37th	51.6
Isaalala w/g	47.9	10.0	6.0	6.0	6.0	5.0	20th	80.6
Mukwa w/g	48.7	10.0	8.5	10.0	10.0	8.0	4th	95.2
Ikinya cut off w/g	45.3	9.2	5.0	3.0	4.0	5.0	28th	71.5
Kiima Kimwe w/g	39.4	10.0	7.5	10.0	4.0	6.0	24th	76.9
Kanyanga w/g	46.4	10.0	7.0	3.0	6.0	7.0	21st	79.4
Muli w/g	47.2	10.0	8.0	6.0	8.0	8.5	10th	87.7
Ikungu w/g	46.7	10.0	7.0	3.0	10.0	6.0	17th	82.7
Kyaoni w/g	-	-	-	6.0	-	5.0	40th	11
Wendo wawo w/g	29.8	5.9	5.0	3.0	4.0	5.0	36th	52.7

SMALL SCALE NURSERIES EVALUATION RESULTS 1996
KWAVONZA LOCATION CATEGORY 'A' SCHOOL

NAMES OF SCHOOL	NO. OF MEMBERS	TOTAL NO. OF SEEDLINGS RAISED	ATTAINED %	GRAND TOTAL %	RANK
Masaani Pri. Sch.	320	3689	90.4	79.5	1
Usenyo Pri. Sch.	154	4748	99.6	75.3	2
Thome Pri. Sch.	157	3619	99.6	67.9	3
Kwavonza Pr. Sch.	360	3053	82.5	54.6	4
Tanganyika Pr. Sch.	450	2781	89.9	44.6	5
Ngamyone Pr. Sch.	290	2258	72.6	41.8	6
Mikuyuni Pr. Sch.	75	1678	55.9	32.2	7
TOTAL	1806	21826	84.36	56.56	

SMALL SCALE NURSERIES EVALUATION RESULTS 1996
KWAVONZA LOCATION CATEGORY 'B' (WOMEN GROUP)

NAMES OF SCHOOL	NO. OF MEMBERS	TOTAL NO. OF SEEDLINGS RAISED	ATTAINED %	GRAND TOTAL%	RANK
Mukilye 1	8	2757	97.3	90.77	1
Mathuva	13	2360	94.4	90.33	2
Maithya	15	2220	79.3	83.94	3
Mutethya	15	2705	99.7	83.46	4
Kathome	10	2267	99.7	79.35	5
Metho	8	2942	99.1	76.35	6
Kataka	11	2592	95.0	75.33	7
Nzalukya	9	2188	94.3	74.08	8
Thome	14	2135	98.4	71.56	9
Mutile	16	2115	86.6	70.98	10
Mukwa	10	2027	98.1	70.16	11
Kanyanga	13	2102	94.9	68.17	12
Kaveta	14	2024	83.5	67.59	13
Kaweta	12	1831	87.6	66.98	14
Mitasyano	14	2300	93.6	66.64	15
Ithyooa Ngingo	14	2291	97.9	63.38	16
Kiima Kimwe	10	1864	86.5	62.25	17
Kyeni	8	2145	98.0	61.08	18
Kiliku V	14	2469	82.2	62.15	19
Kithetheesyo	10	1779	83.9	61.08	20
Ikungu	13	1797	78.5	58.2	21
Wendo II	12	2003	95.5	57.24	22
Wendano	7	1160	52.6	56.11	23
Kavongoloka	12	1503	72.4	53.0	24
Ikinya cut off	8	2091	91.9	52.48	25
Kiliku VI	12	1624	81.2	52.01	26
Kyuwoni	18	1567	66.0	51.64	27
Kaumoni	8	1593	73.8	51.64	28
Muli	16	1894	86.8	51.57	29

SMALL SCALE NURSERIES EVALUATION RESULTS 1996
KWAVONZA LOCATION CATEGORY 'A' (SCHOOLS)

NAMES OF SCHOOL	NO. OF MEMBERS	TOTAL NO. OF SEEDLINGS RAISED	ATTAINED %	GRAND TOTAL%	RANK
MATINYANI					
kwandongo pri.	364	1441	46.66	35.12	10
Kyambusya	450	3331	98.03	64.57	2
Kathuma	215	2648	91.75	47.48	6
7420					
KATHIVO					
Kathivo Pri.	349	1527	50.39	34.56	11
Ndiuni Pri.	320	2232	69.42	58.07	4
Kwarummo Pri.	168	1782	54.08	47.11	7
5541					
KYANGWITHYA WEST					
Kwa ikolania Pri.	360	1960	95.24	43.04	9
Kwakunuvwa Pri.	347	3227	90.98	82.73	1
Tiva Family Helper	20	2150	96.41	43.34	8
7337					
NZAMBANI					
Ngengi Pri.	267	2168	66.85	52.91	5
Kamande Pri.	464	3349	98.47	64.11	3
5517					
G. TOTAL	3324	25715	78.03	52.09	

SMALL SCALE NURSERIES EVALUATION RESULTS 1996
NEW LOCATION CATEGORY 'B' (WOMEN GROUPS)

NAMES OF GROUP/SCHOOL	NO. OF MEMBERS	TOTAL NO. OF SEEDLINGS RAISED	ATTAINED %	GRAND TOTAL%	RANK
MATINYANI					
Kaunda	33	1965	86.91	55.61	25
Kikanga	40	2421	96.84	77.23	14
Katheuni	20	1683	83.11	38.21	30
Kyeni	50	2316	94.92	68.66	16
Muthinzi	36	1731	79.08	47.14	29
Manyoleni	33	2372	93.61	62.81	20
Syolei	32	2424	97.74	84.7	7
KATHIVO		14912			
Kalindilo Adult class	32	2045	93.38	64.02	19
Kongoni	32	2412	91.39	65.45	18
Mouo wa Malatani	34	2265	88.48	56.64	24
Kwamumo	40	1699	78.19	50.36	27
KYANGWITHYA		8421			
Ilima	34	4528	100	89.91	1
Nindinguka	32	3906	97.87	87.13	5
Kyaasa	50	3594	100	79.55	12
Manyula	30	2581	93.04	81.72	10
Kasoka	40	3071	99.39	85.37	6
Utethyo	27	4141	98.9	87.55	3
Kyeni	18	2906	98.84	82.59	9
Kakano	20	3733	98	82.69	8
Kitondo	24	4605	99.8	88.26	2
Kyamwiu	16	3719	97.61	87.49	4
tungu	18	2577	95.44	71.55	15
Nzambani	33	39361			
Akandiwa	33	2412	87.07	80.31	11
Meko	17	2802	96.45	62.36	21
Kitui	28	2281	91.39	50.98	26
Nzalwani	17	2396	97.12	60	22
Mumbuni	45	2531	85.88	77.61	13
Kawendo	30	2259	95.76	56.75	23
Kavalula	25	2136	89.86	65.82	17
Kyalele	16	1896	84.19	48.53	28
	892	81407	93.01	69.9	

TAL NO.	NO. OF MEMBERS	TOTAL NO. OF SEEDLINGS RAISED	ATTAINED %	GRAND TOTAL %	RANK
CATEGORY 'A'	5130	47641	81.19		
CATEGORY 'B'	1369	156504	86.59		
		204145			

Peoples Plantation Final Judgment sheet 1993/94

Annex 4

RANKING	NAMES OF GROUPS (1993-94)	NO. OF TREES PLANTED	NO. OF WORKING MEMBERS	PARTICI-PATORY RATIO	NO. OF TREES SURVIVAL	SURVIVAL %	RATE OF MAINTENANCE	POINTS AWARDED OVER (50 PTS)						
								1	2	3	4	5	6	7
7th	Muli	1516	21	72.2	1061	69.9	Slashing & spot weeding	10	-	6.3	12	69.90%	50	33.28 pts
9th	Top	943	18	52.4	718	76.1	"	9.4	-	4.4	13	76.10%	5	32.1pts
13th	Ithyoa Ngingo	600	24	25	356	59.3	"	6	-	1.7	9.9	59.30%	5	22.58
14th	Kavongoloka	298	15	19.9	223	74.8	"	3	-	1	13	74.80%	5	22.07
10th	Kima Kimwe	792	23	34.4	709	89.5	"	7.9	-	2.6	16	89.50%	5	31.4
12th	Maithya	804	26	30.9	595	74	"	8	-	2.3	13	74%	5	28.31
11th	Masola	812	24	33.8	568	69.9	"	8.1	-	2.5	12	69.90%	5	27.64
2nd	Mukilye BKI	1307	13	100.5	905	69.2	"	10	-	10	12	69.20%	5	36.86
5th	Kaumoni	1910	21	91	1294	67.7	"	10	-	8.2	12	67.70%	5	34.8
6th	Mukilye BV	1006	20	50.3	873	86.7	"	10	-	4.2	15	86.70%	5	34.6
4th	Ikina cut off	1808	18	97.7	1322	73.1	"	10	-	8.8	13	73.10%	5	36.6
3rd	Manyanzaani	1758	22	82.2	1379	78.4	"	10	-	7.3	14	78.40%	5	36.03
8th	Isaalala	1386	18	77	906	65.3	"	10	-	6.7	11	65.30%	5	32.93
1st	Ikungu	1395	13	107.3	1022	73.2	"	10	-	10	13	73.20%	5	37.8
11th	Kamanze	722	12	60.2	548	75.9	"	7.2	-	5.2	13	75.90%	5	30.66
TOTAL		17057	288	59.2	12479	73.40%	Completed as required	-	-			73.40%	5	

PEOPLES PLANTATION FINAL JUDGEMENT SHEET 1995/96

RANK	NAMES OF GROUPS	NO. OF MEMBERS	NO. OF TREES PLANTED	NO. SURVIVING	SURVIVAL %	PARTICI-PATORY RATIO	TENDING	INNOVATION	POINTS AWARDED OVER (70 PTS)						
									2	4	5	6	7	7	TOTAL
1	Kamanze	36	2582	253	10	71.7	"	"	10	2	7.2	20	6	45.2	
2	Ikungu	25	1531	266	17	61.2	"	"	10	3.4	6.1	16	9.3	44.8	
3	Mukiye V	21	1234	110	9	58.8	"	"	10	1.8	5.9	16	5.3	39	
4	Top	20	1795	80	4.5	89.8	"	"	10	1	10	12	4	37	
5	Kiima kimwe	28	429	251	58.5	15.3	"	"	4	12	1.5	8	8	33.2	
6	Kavingo	29	388	190	48.9	13.4	"	"	3	9.8	1.3	12	6	32.1	
7	Isaalala	30	583	135	23	19.4	"	"	5	4.6	1.9	16	4	31.5	
8	Kavongoloka	32	1430	50	3.5	44.7	"	"	10	0.7	4.5	12	2	29.2	
9	Muli	21	1295	31	2.5	61.7	"	"	10	0.5	6.2	8	2	26.7	
10	Mwende	20	396	103	26	19.8	"	"	3	5.2	2	12	4	26.2	
11	Manyanzaani	16	300	75	25	18.8	"	"	3	5	1.9	12	4	25.9	
12	Kasau kakya	30	326	78	23.3	10.9	"	"	3	4.7	1.1	8	6	22.8	
13	Ithoa ngingo	31	684	55	8	22.1	"	"	6	1.6	2.2	8	2	19.8	
14	Masola	18	227	27	11.9	12.6	"	"	2	2.4	1.3	8	6	19.7	
15	Mukiye I	15	354	22	6	23.6	"	"	3	1.2	2.4	8	4	18.6	
16	Ikinya cut-off	24	329	58	17.6	13.7	"	"	3	3.5	1.4	4	6	17.9	
17	Maithya	31	194	41	21.1	6.3	"	"	1	4.2	0.6	8	4	17.8	
18	Kaumoni	24	76	8	10	3.2	"	"	0.7	2	0.3	8	4	15	

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