



**TRAINING ON TREE NURSERY ESTABLISHMENT AND MANAGEMENT AT  
ILOLO, CHAMWINO DISTRICT, DODOMA**

**Mathew Mpanda and Abdala Liingilie**

**23<sup>rd</sup> – 25<sup>th</sup> OCTOBER, 2014**



**Trans-SEC**

Innovating pro-poor Strategies to safeguard Food Security using Technology and Knowledge Transfer

## 1.0 Introduction

### *Background*

Iloilo village is one among two village involved in Trans SEC project (<http://project2.zalf.de/trans-sec/public/>) in Chamwino district. The village is located close to Mvumi mission, a township that provide ready market for farm produce. It is surrounded by deforested hills in almost all sides, and situated at the relatively wet valley.

Tree planting and retention on farm is very low except for mango tree and Palm sp. that are widespread in some parts of the village. Few exotic species can be found in selected areas such as schools, hospitals and roadsides. Recently, a group of 18 villagers (Mazengo group) involved in beekeeping activities resorted to engage in tree nursery activities. It has secured areas in the deforested hill for establishing apiary and further determined to undertake afforestation program.

### *UPS of tree planting in Iloilo village*

In Iloilo village, Trans SEC project has several UPS (upscaling strategies) on of which is the tree planting. Operationalizing this strategy required an entry point which was supply of tree germplasm for planting. Presence of Mazengo group offered a good entry point as already they were engaged in tree nursery activities. A previous visit by Gotz Uckert discussed with the group a need to invigorate the nursery activities with the help of the project.

Discussion was thereafter held by ICRAF Tanzania which forms part of project implementation team to intervene and assist in terms of capacity building to the Mazengo group to support the activity. This was followed by ICRAF field visit which identified several technical gaps that required support (Plate 1). These includes;

- i. Inadequate security of the nursery i.e. prone to human and livestock disturbance

- ii. Inadequate working equipment for nursery management
- iii. Inadequate knowledge on tree nursery management
- iv. Limited seed source and varieties
- v. Lack of group cohesion
- vi. Limited knowledge on markets and commercialization of tree products



**Plate 1:** Discussion with Mazengo group member on how to improve their tree nursery at Iloilo village, Chamino, Dodoma.

It was informed that ideal, a large nursery is as shown in Figure 1. This has all basic features such as landing site, working shade, office space, classroom, storage facility, seedbeds and ample space for other items. However, this is not regular nursery you can find everywhere, but only in central nurseries. Therefore, appropriate needs depending on status of a certain nursery were assessed and resolved to share the experience.

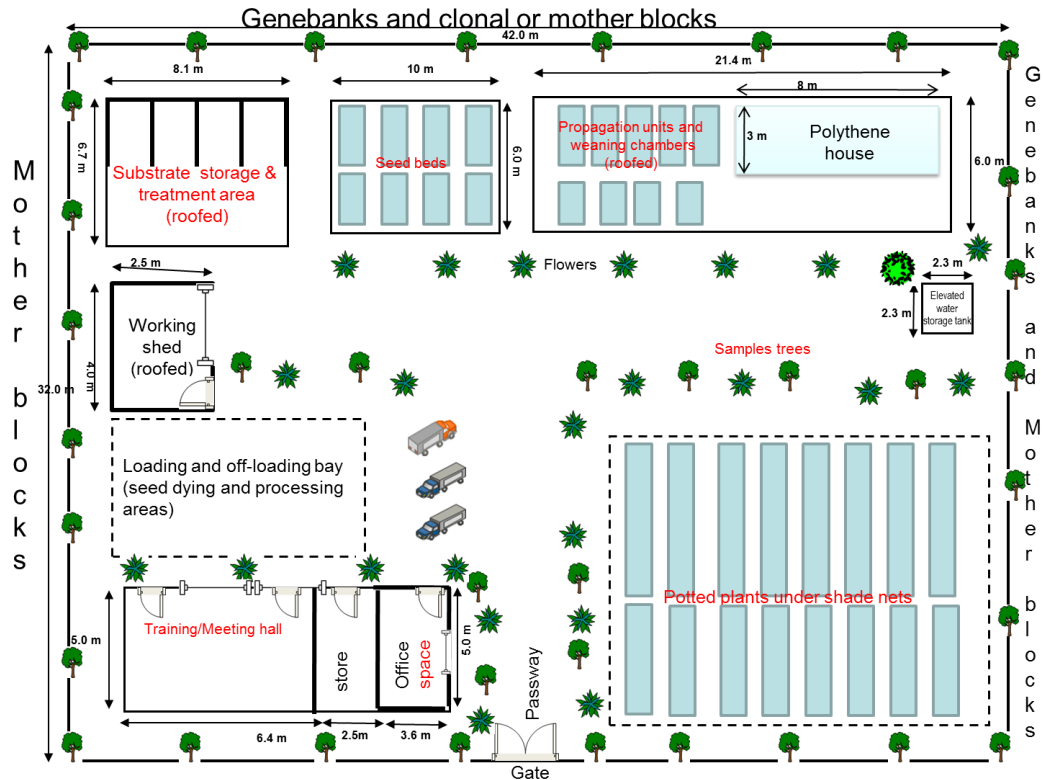


Figure 1: Ideal of large central nursery

## 2.0 Training activities

The objective of this training was to increase capacity building on establishment and management of tree nurseries under smallholder farmers. Training was conducted at Iloilo village for three days engaging important techniques and general nursery management.

### *Site selection*

Group members were trained on how to select good area for nursery establishment. The site has to consider some basic security and operational easiness, such as;

- ✓ Must be near the source of reliable water supply
- ✓ Must be on flat or gentle slope with good drainage to avoid water logging
- ✓ Must be well fenced to protect from strong winds and animals

The current site was lacking fence, hence it was done practically by erecting *Euphorbia tirucallii* as live fence as a temporary measure.

### ***Site preparation***

Key site preparation activities were trained including;

- ✓ Site cleaning
- ✓ Arrangement of the site according to use of space

It was noted that the site was very small, full of grasses and had no arrangement at all. Hence as part of practical training, group member cleaned the site (Plate 2), and arranged unorganized polybags into good format.



**Plate 2:** Mazengo group members undertaking site cleaning for nursery establishment

### ***Substrate mixing and filling the polybags***

Practical training was conducted on mixing of substrates i.e. soil, sand and cow manure in the proper mixture. The ratio used were soil: sand: manure at 2:0.5:1. Group members were shown how to identify if the ratio is good enough through 'touch and feel' technique.

Filling substrate into the polybags was further trained. This came after the group was shown on how to estimate and cut the size of the polybag sheets from a roller. The size normally depends on the species and time estimated for it to stay in the nursery. For short term staying species, the size of the polybags should be small and short, and for species staying longer in the nurseries, the polybags needs to be larger in size and longer. Furthermore, group members were informed the possibility of using other material in place of polybags because of availability.

### *Arrangement of seedling beds*

Group members were trained and practically engaged in arranging filled polybags into beds. Each bed was sized 1 m wide x 10 m length, and between on bed and another a space of 2 m were left. This enabled easier movement during tending to the nurseries. However, other beds were made more far apart due to presence of planting holes that were made before in the nursery site.

### *Direct sowing of seeds into polybags*

Group members were trained on handling and direct sowing of seeds in the polybags. This follows whether the seeds needed pre-treatment or not. For those which needed pre-treatment, information was given on how to go about depending on the species e.g. soaking in water overnight, soaking in hot water for some time etc.

Species specific information on pre-treatment was given to group members for easier reference on handling of the bulky of seeds that were left with them to continue with nursery operations. Species selected for raising in the Iloilo nursery are found in Table 1.

**Table 1:** Important species raised in the Ilolo nursery

Species name	Uses
<i>Tectona grandis</i>	Timber, poles, fuelwood
<i>Khaya anthotheca</i>	Timber, poles, building material
<i>Gliricidia sepium</i>	Soil fertility, fodder
<i>Azelia guanzensis</i>	Timber, poles, building material
<i>Terminalia mentaly</i>	Shade, ornamental
<i>Acacia nilotica</i>	Fuelwood, soil fertility, fodder
<i>Caesalpinia pulcherrima</i>	Live fence
<i>Albizia lebbek</i>	Poles, fuelwood
<i>Entandrophragma busse</i>	Timber

### ***Construction of roof shed***

Practical training was conducted on erection of roof shed. Roofs were set up in each of the seedling bed 1.8 - 2.0 m above the ground with poles and dry grasses / maize stover. This was done purposely to reduce the heat radiant that could have otherwise hit directly the young plants.



**Plate 3:** Simple roof shade in making for the Ilolo nursery

### *Watering regimes*

Group members were demonstrated on how to do watering by using water cans. Balancing water use was key lesson to avoid excess water uses or reduced water supply to plants. Key problems associated with it such as damping off and nutrient leaching were explained to group members. Therefore, to start with, the group members were encouraged to use watering cane instead of direct watering from water tape.

### *General nursery maintenance*

Once the nursery has been established and runs in a proper way, group members were informed on some routine activities, which included;

- ✓ Watering on regular basis
- ✓ Weeding
- ✓ Nursery cleanliness
- ✓ Pests and disease control
- ✓ Record keeping
- ✓ Safe keeping of nursery equipment, seeds and other facilities

Other facilities supplied to the group were 1 wheelbarrow, 1 matchete, 2 watering cans, 4 rolls of polythene bags, 1 rake and seeds of various tree species (Table 1).

### **3.0 Follow up activities**

It was agreed that after the training was over, the group will continue with nursery activities which includes;

- ✓ Expanding the nursery area to reach maximum of 0.25 acre
- ✓ Mobilize more substrate to continue with potting
- ✓ To target producing 15,000 seedlings of various species as indicated in Table 1



Seeds of some of desired species were not available at Tanzania Tree Seed Agency, hence it was promised to the group that these will be sought later.

It was further agreed that each of the Mazengo group members will set aside areas in their farms for tree planting during the rainy season. Each group member will ensure to have planted at least 100 seedlings.

#### **4.0 Conclusion**

Overall, the training was very successful with active participation from the group members. Diversity of species and their use were of much interest to the group members, such that most of them requested to have special clearance to acquire more seedlings during planting season.

However, more follow up is required to ensure the Mazengo group walks the talk, because in three days of training, it was observed that the group is not much coherent. Only less than eight members were found to be very firm, but the rest needed some push.

## Appendix 1

*List of Mazengo group members who attended the training*

S/N	Name	Position
1.	Jailosi Maswaga	Chairperson (0653197196
2.	Batrice Matonya	Member
3.	Samuel Lubeleje	Member
4.	Julius Secheme	General Secretary
5.	Sechelela Mbeho	Member
6.	Joseph Chilemu	Member
7.	Melin Jailosi	Member
8.	Meshack Maswaga	Member
9.	Nzuwa Joseph	Member
10.	Willison Chizingwa	Member
11.	Gladicy Meshack	Member
12.	Amos Samla	Member
13.	Janeth Wilson	Member
14.	Mwajuma Nyambuya	Member
15.	Jemima Chalula	Member
16.	Mikael Chihuwa	Member
17.	Samwel Msanjila	Treasurer

Note:

Contacts of other group members unspecified

0658 804437

0712 874552