

Cassava Nursery and Cassava Production Project Manual

Introduction

The Food and Agriculture Organization of the United Nations has selected the Wildlife Conservation Society (WCS) as an implementing partner in a cassava production project to cover Southern, Eastern and Western provinces. WCS has been selected to implement this project for the Eastern province of Zambia to cover Chama, Lundazi and Mambwe districts. This document provides instructions and guidelines for people responsible for the implementation of this project.

The Project.

The cassava project will run from August 2004 to April 2005. The project will see the establishment of 20 cassava nurseries by WCS in three (3) districts of Eastern province. The following are the nursery sites:

District	Depot	Total nurseries
Chama	Kambombo	2
	Tembwe	1
	Chikwa	2
	Chifunda	1
Lundazi	Kazembe	2
	Chitungulu	1
	Zumwanda	1
	Chikomeni	1
	Mwasemphangwe	1
	Magodi	1
Mambwe	Mwanya	1
	Nsefu	1
	Malama	1
	Kakumbi	1
	Mnkhanya	2
	Sandwe	1
Total nurseries		20

Each nursery will be 1 hectare and will be tended to by two farmers. These nurseries will be used in future to obtain cassava cuttings as inputs for farmer group members in the WCS food security program.

Selection of the nursery sites:

The nurseries will be established near COMACO depots. The sites selected for the nurseries should be:

1. on good soils recommended by an expert from WCS food security program. The CRB in each area will help locate such a site.
2. near good water source where a treadle pump can be used to irrigate the nursery. A well will be dug where necessary to supply water to the nursery.
3. on land owned or allocated by the CRB through their patron and not on an individual farmer's land. The selected recipient farmers will tend to the cassava from these locations.

The selected area of one hector should have room for expansion in future to increase cassava nursery to reach more farmers.

Selection of beneficiary farmers:

Farmers to be selected, as beneficiaries in this project, should meet the following:

1. The farmer must be a member of a registered farmer group under the COMACO program with active support of conservation objectives of this program.
2. The farmer must have demonstrated good conservation farming skills from the COMACO food security program and must have practiced conservation farming and compost making in the past two seasons.
3. The farmer should be residing near a depot where the cassava nursery will be established for easy access when tending to the nursery.
4. The farmer should demonstrate ability to develop into a trainer (thus, someone able to read and write, even in local language).

A total of two farmers per nursery will be selected as trainers. This will help in case the other farmer is not available to tend to the nursery. The following table shows how many farmers will be selected per depot:

District	Depot	Total nurseries	Total trainers
Chama	Kambombo	2	4
	Tembwe	1	2
	Chikwa	2	4
	Chifunda	1	2
	<i>Total for Chama</i>	<i>6 nurseries</i>	<i>12 farmers</i>
Lundazi	Kazembe	2	4
	Chitungulu	1	2
	Zumwanda	1	2
	Chikomeni	1	2
	Mwasemphangwe	1	2
	Magodi	1	2
	<i>Total for Lundazi</i>	<i>7 nurseries</i>	<i>14 farmers</i>
Mambwe	Mwanya	1	2
	Nsefu	1	2
	Malama	1	2
	Kakumbi	1	2
	Mnkhanya	2	4
	Sandwe	1	2
	<i>Total for Mambwe</i>	<i>7 nurseries</i>	<i>14 farmers</i>
Grand Total		20 Nurseries	40 Farmers

Because this selection requires an assessment of farmers to identify the farmers who qualify to benefit from this project, trainers (who have good knowledge of farmers and compliance to CF) will play a leading roll in selecting these farmers. However, the trainers in consultation with the depot managers and WCS extension officer will compile a short listed list of names that should be given to the CRB for approval. Once the names have been approved by the CRB and the chief (who is the CRB patron) endorses them, the selected farmers will then attend training prior to land preparation. The selected farmers for each depot will form a **cassava nursery group**, which will have a maximum of five (5) members inclusive of the two trainer farmers per nursery and the inputs received will be group inputs for the nursery.

The deadline for the selection of beneficiary trainee farmers is Friday the 13th of September for all the regions, thus Chama, Lundazi and Mambwe. The **regional coordinators** will work with extension officers to ensure that a complete list of beneficiaries

for his area is prepared by the 13th of September and is submitted to the **data manager**. Group formation should commence immediately after the trainee farmers have been selected.

Project staffing

For effective monitoring, three extension officers will be engaged for a period of 9 months specifically for this project. Each field officer will be allocated a region (according to the food security regions under WCS) to monitor farmers in cassava nurseries. These extension officers will directly monitor each farmer regularly, every month, throughout the project period to ensure that farmers are complying with the project requirements in maintaining the nurseries. The extension officers will be allocated as follows:

Region	Areas covered	No. of nurseries	No. of extensions officer	Base station
Chama	Kambombo, Tembwe	3	1	Chama boma
Lundazi	Chikwa, Chifunda, Kazembe, Chitungulu, Zumwanda, Chikomeni, Magodi and Mwasemphangwe	10	1	Lundazi CTC
Mambwe	Nsefu, Kakumbi, Mwanya, Mnkhanya, Malama and Sandwe	7	1	Mfuwe CTC

The extension officers will be supervised by the **Regional coordinators** under the WCS food security program and will report to them respectively on activities in this program.

Training

Training of extension officers: The selected extension officers will undergo two types of training:

1. **WCS food security program orientation training:** This training is scheduled for the second week of September. This two-day training workshop will be conducted at the Lundazi CTC and facilitated by WCS staff headed by the regional coordinator for Lundazi and Chama.
2. **FAO cassava cultivation training:** This training will be facilitated by FAO experts and will be conducted in the third and fourth weeks of September. Here, the extension staff will attend this training together with beneficiary farmers.

Training of beneficiaries: Beneficiary farmers will be trained in various cassava growing and processing skills by FAO cassava experts. There will be two training workshops for beneficiaries:

1. First workshop will be held in Lundazi at the FTC (farmers training center) and will bring participants from Chama and Lundazi regions. The proposed dates for the training are in the third week of September. The training workshop will be for five (5) days. At this workshop, 26 beneficiary trainee farmers and two extension officers will be trained.
2. Second similar workshop for beneficiaries will be held in Mfuwe in the fourth week of September at Masumba. Here, a total of 14 trainee farmers and one extension officer will be trained.

In total, 43 people will attend training workshops in the month of September in preparation for the implementation of the cassava project.

Land preparation

Land preparations for each nursery will commence in the third week of September after the first beneficiary farmer's training workshop. After the trainee farmers have been trained, they, in turn, will train the other three (3) group members of their groups. Farmers will prepare their nursery by conservation farming methods. Each plot will be 1 hectare (100m x 100m). Farmers will be required to dig basin holes as required by the CF farming system. Before this however, each nursery will receive 2 chaka holes for use in CF.

Inputs distribution:

The following inputs will be provided for each nursery:

1. 2 x Chaka holes.
2. 1 x Treadle pump for watering the nursery (complete with pipes)
3. 1 x Weed wiping device.
4. 16 x 50 Kg bags of agricultural lime.
5. 4 x 50 Kg bags of D-Compound fertilizer
6. 4 x 50 Kg bags of Urea fertilizer
7. Cassava cuttings for 1 hectare cultivation

Therefore, the following are the total quantities of inputs for the twenty nurseries:

Input description	Total required	Units
Chaka holes	40	Ind
Treadle pumps	20	Ind
Weed wiping device	20	Ind
Agricultural lime	320	50Kg bags
D-Compound fertilizer	80	50Kg bags
Top dressing	80	50Kg bags
Cassava cuttings	enough for 20 nurseries	

These inputs may not be supplied all at the same time but the Chaka holes will be supplied in good time for land preparation (unless there are some unexpected delays due to logistical problems). Application of inputs such as lime and fertilizer will be done in October in readiness for planting in November. Cassava cuttings are expected to start arriving from FAO by the third week of October, by which time each nursery should have been prepared using CF and fertilizer applied. Farmers will receive adequate training from FAO experts in land preparation, inputs application and planting of cassava cuttings.

Nursery planting:

Planting of cassava cuttings will take place in November starting the first week, before the start of the rain season. The nurseries will be watered using treadle pumps until enough rainfall starts around mid November.

Weeding:

There shall be four weeding for each nursery for the period from planting to April 2005. The following are the weeding deadlines:

1. First weeding – should be done by mid December, that is by the end of the second week December.

2. Second weeding – this should be done by mid January, that is by the end of the second week January.
3. Third weeding – mid February
4. Last weeding – by the end (last week) of March.

The extension officers charged with the supervision of cassava farmers will monitor each nursery to ensure that weeding took place at required times. However, weeding times indicated here may change depending on the rainfall pattern and also location of the nursery (whether in the valley or plateau. The valley nurseries may require more than four weeding because weeds grow faster there). In fact, farmers must know when the weeds have grown enough for weeding.

Making wells:

WCS will provide cement for the construction of wells and group members are expected to make the wells from well-burned bricks bought from the community at no more than K300 kwacha per brick. Each group is responsible for digging the well themselves but WCS will pay for the contract to engage a local builder to lay the bricks, etc. but this should not exceed K150,000.

Monitoring:

Apart from the regular monthly nursery monitoring by extension officers, special attention will be given for the month of November where **extension officers** will spend most of the time in the field. Each extension officer is to ensure that each nursery meets the minimum expectations in terms of land preparation, inputs application, availability of water for watering the nursery and planting the cuttings. In some cases these extension officers will rely on community coordinators. During this time also, we expect people from FAO to visit some of our nurseries to assess progress of the project. The **Regional Coordinator** will ensure that he/she has visited each nursery to ascertain that work has gone on accordingly.

Compliance:

Because certain benchmarks are required of us to complete the cassava nursery successfully and report to FAO, groups will be required to meet these benchmarks by the time of assessment and groups that meet these benchmarks will receive bonuses. Benchmark assessment will take place every 2-3 months as follows:

- 1) First assessment in end of October 2004
- 2) Second will be end of December 2004.
- 3) Last assessment end of March 2005

During these assessments, the regional coordinators with the extension officers will go from one nursery to another to do an assessment. For each nursery that reaches the benchmarks, the group members will receive a bonus payment in cash not exceeding K50,000.00 each group member for each month of the period. .

Since each nursery will have a weed-wiping device, farmers will use the weed-wiping device to kill weeds in the nursery when weeding is required. Only trained farmers should use this device to avoid destroying young cassava plants. Extension officers should visit each nursery during the weeding period to ensure that the nurseries have been properly weeded.

Farmers are not allowed to make ridges in the cassava nurseries even after the plants have grown adequately as this will provide water run offs during heavy downfalls.

Benchmarks:

First two months, Sept-Oct. (K100,000 per group member if benchmarks fulfilled)

1. Trainers selected and form group for each nursery
2. Trainers go for training and disseminate information to group
3. Group by-laws and agreement of use and safe storage of inputs and equipment
4. Well built by end of October
5. 1 hectare of land prepared using CF

Next two months, Nov-Dec (K100,000 per group member if benchmarks fulfilled)

1. inputs applied applied by first week of November
2. planting of cassava by second week November
3. First weeding by second week of December

Next three months, Jan-Mar (K150,000 per group member if benchmarks fulfilled)

1. Second weeding mid-January
2. Third weeding mid-February
3. Last weeding last week of March

Reporting:

Each extension officer will use designed data forms to monitor nursery progress and compliance by the cassava nursery groups. WCS has proposed a total of 6 extension officer, who may or may not have other responsibilities related to WCS's overall food security program. The two **Regional Coordinators** will monitor the work of the extension officers who are required to make physical inspections of the nurseries and advise the groups on needed improvements in order to meet the benchmark requirements. Payments to the groups cannot be made unless the group achieves the expected benchmarks. Where qualified **community coordinators** exist and where radio contact is also available, community coordinators will assist with nursery inspections.

Extension officers must report each month in writing on the progress for each of the nurseries in his/her prescribed area and the regional coordinators are responsible for consolidating these reports and making independent assessment trips to verify the accuracy of these reports. All benchmark data are submitted to the **Data manager** on a schedule agreed by the **Regional Coordinator** and the **Data manager** within the guidelines of the FAO agreement document, but the final report is the responsibility of the **Regional Coordinator**, which should submit the report to Ruth Nabuyanda, **WCS-FAO Liaison Officer**. There will be three reports for FAO:

- 1) 1st reports, which must be submitted to FAO by 30th September 2004.
- 2) 2nd report, which must be submitted to FAO by 31st December 2004 and
- 3) 3rd report submitted by 31st March 2005.

The fourth and final report will be a comprehensive end of project report which will be submitted by the 30th of April 2005.