

# CB-NRM Technical Manual

## Vol. 1 Seedling Production and Tree Planting Promotion



Prepared by

**The Project for Community-Based Sustainable Natural Resource  
Management in the Democratic Republic of Timor-Leste**



From  
the People of Japan



## FOREWORD

Forest degradation and deforestation is one of the critical issues that the Government of Timor-Leste (GoTL) needs to tackle to achieve sustainable socio-economic development in the country. The study made in 2013 shows that approximately 184,000 ha of forest has disappeared between 2003 and 2012 and around 170,000 ha of dense forest has been degraded into sparse canopy forests for the same period.

Community-Based Natural Resource Management (CB-NRM) is an approach to nature conservation by recognizing the rights of local communities to benefit from sustainable management of natural resources (forests, lands, water, and biodiversity) within a designated area. This is an alternative to a top-down regulatory approach, which has not been necessarily effective in many countries, especially when the regulations do not fully cope with the changes in social, cultural, and economic contexts in the countries.

The Project for Community-Based Sustainable Natural Resource Management (the CB-NRM Project) jointly implemented by the Japan International Cooperation Agency (JICA) and the Ministry of Agriculture and Fisheries (MAF), particularly the National Directorate of Forest and Watershed Management (NDFWM), has developed an operative mechanism for CB-NRM in Timor-Leste. The same project has also issued the following manuals over the course of the project to help MAF expand the same mechanism in major river basins in the country.

- ◆ Operation Manual for Establishment of the CB-NRM Mechanism at the Village Level
- ◆ CB-NRM Technical Manuals
  - Vol. 1: Seedling Production and Tree Planting Promotion
  - Vol. 2: Sustainable Upland Farming Promotion
  - Vol. 3: Income Generating/Livelihood Development
- ◆ Manual for Formation of a Watershed Management Council

The CB-NRM Technical Manuals introduce key techniques/skills relevant to sustainable land and forest management as well as livelihood development along with the detailed procedures for provision of hands-on training. They are based on learning from experiences in the field; therefore, we, as representatives of the MAF, strongly recommend that the manuals should be widely used by field practitioners of not only MAF but also other organizations working in the forestry and agriculture sectors as a guiding tool for provision of agriculture and forestry extension services to local communities.



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Manuel Mendes

National Director of National  
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October 2015



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## **About the CB-NRM Manuals**

The CB-NRM Manuals have been developed and published by the JICA and MAF Joint Project named the Community-Based Sustainable Natural Resource Management to provide practical and useful tools for planners and practitioners in the forest sector in Timor-Leste to enable them to protect and manage natural resources in a collaborative and sustainable manner. There are three (3) types of manuals as shown below.

- i) Operation Manual for Establishment of the CB-NRM Mechanism at the Village Level
- ii) CB-NRM Technical Manuals
  - Vol. 1: Seedling Production and Tree Planting
  - Vol. 2: Sustainable Upland Farming Promotion
  - Vol. 3: Income Generating/Livelihood Development
- iii) Manual for Formation of the Watershed Management Council

The Operation Manual is the main document which spells out the standard operation procedures for introduction and establishment of the CB-NRM mechanism at the village level. It is designed for use by planners, field practitioners, and researchers working/studying in the forest sector in Timor-Leste, especially those who engage in forest protection, watershed conservation, and community forestry in the National Directorate of Forest and Watershed Management (NDFWM).

The CB-NRM Technical Manuals supplement the Operation Manual by introducing relevant techniques and skills which can help rural communities use and manage natural resources, especially lands and forests, in a productive and sustainable manner. They will be used mainly by field extension workers (such as MAF municipal staff: namely, municipal officers, extension officers, and forest guards) and NGO staff, as technical references for their field works.

The Manual for Formation of the Watershed Management Council introduces the process to develop a collaboration platform/framework for sustainable natural resource management at the sub-municipal or sub-watershed level, which can also lay groundwork for expansion of the CB-NRM mechanism on watershed scale. As one of the key approaches to improvement of environmental governance at the watershed level by enhancing coordination and networking among local stakeholders, this manual can be of help for those who engage in watershed management.

Furthermore, the JICA and MAF Joint Project has also developed and issued simplified versions of those manuals to help users in the field easily follow the procedures or apply the techniques described in the manuals.

It is hoped that these manuals with their simplified versions will serve as practical references for a wide range of stakeholders in the forest sector in Timor-Leste.

## CB-NRM TECHNICAL MANUALS

### **Vol.1: Seedling Production and Tree Planting Promotion**

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## **Vol.1: Seedling Production and Tree Planting Promotion**

### **1. Introduction**

#### **1.1 Rationale for the Techniques**

Community-based seedling production and tree planting are crucial activities to achieve the goal of the National Forest Sector Policy issued in 2008. In fact, they are in line with one of the strategies set for one of the key policy objectives of the National Forest Sector Policy, namely “Afforestation and Land Restoration.” In the context of CB-NRM, they are also considered as essential activities since they would contribute to not only the realization of a future land use plan prepared in the process of Participatory Land Use Planning, but also the improvement of the long-term livelihoods of local communities.

Techniques introduced by the Project for Community-Based Sustainable Natural Resource Management (hereinafter referred to as “the JICA CB-NRM Project”) for seedling production and tree planting have been proven to be effective in the field in terms of financial and technical viewpoints and also applicable to local settings in the target river basins. Hence, the techniques and skills introduced in this technical manual are not from the text books used in other country, but those demonstrated and put to trial in the field over the course of the JICA CB-NRM Project.

#### **1.2 Objectives of the Techniques**

The main objective of the techniques for seedling production and tree planting is to promote the production of quality seedlings and the expansion of plantations in rural areas in collaboration with local communities. Specifically, the techniques aim to enable local communities to:

- establish and operate a small-scale community nursery in a proper manner;
- produce quality seedlings collaboratively among communities;
- plant seedlings in a proper manner to ensure high survival and robust growth of seedlings; and
- establish plantations appropriate for species/types of seedling.

#### **1.3 Objectives of the Manual**

This manual aims to guide field workers and planners who intend to establish a community nursery and/or promote community reforestation in rural areas in Timor-Leste. Particularly, District Forestry Officers, Sub-district Extension Coordinators, Extension officers, Forest Guards, and field staff of NGOs are targeted as main users.

This manual can be used as guidelines not only for provision of technical assistance by the field implementers (e.g., District Officers, Extension Officers, and NGO staff) but also for monitoring and evaluation of field activities done by the supervisors (e.g., NDF Officers).

## 2. Approaches to Effective Extension

### 2.1 Farmers' Field School (FFS) Approach

Farmers' Field School (FFS) is an extension approach prevalingly used in developing countries for agricultural extension. Originally, it was developed in Southeast Asia for the integrated pest management (IPM) in the 1990s. Since then, the concept has evolved owing to its effectiveness, and been applied to a wide range of subjects. FFS employs a non-formal educational method based on the concepts of "experimental," "participatory," and "learner-centered."

FFS aims to create an environment where participants/farmers could learn a specific subject by doing/practicing in the fields, debating results/observations, and periodically working together with other participants/farmers in the same fields. Through a series of FFS sessions, participants/farmers can:

- experience the whole cycle of the subject, such as cropping, forestry development, animal husbandry, soil improvement, and commodity production;
- assess and analyze field situations and consider necessary actions to be taken for improvement;
- empower themselves with knowledge and skills relating to the subject;

The following key elements should be considered in the design of FFS.

**Key Element of FFS**

Elements	Descriptions
a. Participants of FFS	In general, FFS is designed for 20~25 participants in a group. In the case of the JICA CB-NRM Project, one group is composed of 15~40 members. Ideally, the number of the members should be not more than 30.
b. Field school	FFS sessions should be held in the field. A small scale nursery built at the aldeia level should be used as a venue where the members learn a series of techniques on nursery operations, while a demonstration plot for tree planting should be a venue for FFS sessions on plantation establishment.
c. Curriculum of FFS	The curriculum of FFS should basically cover all the topics/techniques in a cycle of the subject, namely seedling production and tree planting, so that the participants could actually experience in the entire process of the subject in the field.  In particular, the members should learn and experience key techniques of nursery operations, namely establishment of a nursery, sowing seeds in seed beds, preparation of media to be filled in plastic bags, transplanting of seedlings into plastic bags, and pest management in a community nursery. On the other hand, designs of plantations and ways for planting seedlings should be introduced to the members.
d. Facilitator	The facilitator who has enough technical background in the subject as well as competent skills in facilitation should be assigned for FFS. He/She will lead the members through the FFS sessions.  Ideally, the extension officers (or extensionists) are supposed to be the facilitators with support from District Forest Officers. It is, however, unrealistic that the extension officers could perform as facilitators at present, as their technical and facilitation capacities are still quite limited. Hence, the field staff of NGOs who have facilitation skills as well as experiences in seedling production and tree planting would be the resource persons for the sessions.
e. Core members	The members who can offer his/her lands/farms for a nursery and demonstration plot and play a leading role in the FFS sessions should be selected as core members.



Elements	Descriptions
f. Budget allocation	FFS is not necessarily a low-budget training scheme in Timor-Leste as compared to the conventional extension method since food and snacks should be served for the participants in a session. There is a need to secure sufficient budget for the conducts of a series of FFS sessions.

Source: JICA Project Team (2015)

## 2.2 On-farm Demonstration Approach

Simultaneously with FFS, the on-farm demonstration approach is to be taken for dissemination of techniques among communities in suco, since the number of the participants in the FFS sessions is limited as compared to the numbers of communities in suco. Hence, a community nursery and demonstration plot are expected to have a dual purpose, namely as i) a venue for training courses of FFS and ii) a model for non-members (or other communities who are not involved in FFS) to observe the results of the techniques applied by the members.



## 2.3 Farmer-to-Farmer Extension Approach

This may not be the core extension approach under the current circumstances in Timor-Leste, as there are less innovative farmers existing in the field, especially in mountainous areas. It is, however, expected that core farmers might be fostered after the FFS sessions in the demonstration plot and become a role model for other farmers in the future.

In the context of Timor-Leste, farmer-to-farmer extension is might be more effective than the extension by someone from outside since communities generally would not to instantly accept those introduced by outsiders. Observing the performance of neighboring farmers could rather convince them to regard the techniques as worth applying.

## 2.4 Proposed Extension Method

It is recommended that the following integrated approach shall be taken as a principle extension method to promote and disseminate techniques/skills of seedling production and tree planting at suco level.

### Proposed Framework of Extension of the Techniques

Items	Outlines
Duration	2 years
Extension method	Application of Farmers' Field School and On-farm Demonstration Approaches
Target group	20~30 persons in a group at aldeia level
Outline of FFSs 1 <sup>st</sup> year	<ol style="list-style-type: none"> <li>Select tree species for seedling production and decide the number of seedlings to be produced for each species with the members</li> <li>Select a site appropriate for a community nursery and that for a demonstration plot for tree planting.</li> <li>Develop a curriculum of FFS which comprises a series of hands-on training and follow-up activities in the nursery/demonstration plot.</li> <li>Conduct a series of FFS sessions/hands-on training courses at the nursery/demonstration plot to enable the members to practice the procedures for seedling production and tree planting.</li> <li>Help the members continue nursery operations using the techniques that they have learned through FFS sessions and maintain seedlings in the nursery</li> </ol>

Items	Outlines
	<p>properly.</p> <p>f. In the first year, the main aims of FFSs are to: i) introduce and demonstrate the techniques; ii) give the members opportunities to practice the techniques in the field; iii) give them chances to observe the results of the techniques introduced in the demonstration plot, and iv) help them assess/analyze the techniques based on the results in the demonstration plot.</p>
2 <sup>nd</sup> year	<p>a. Determine tree species and number of the seedling produced based on the results of 1<sup>st</sup> year's FFS.</p> <p>b. Hold the same FFS sessions as those in the 1<sup>st</sup> year in the nursery/demonstration plot except establishment of a nursery to ensure that the members could acquire the techniques.</p> <p>c. Help the members maintain seedlings using techniques that they have learned in the FFS sessions.</p> <p>d. Encourage the group members to plant seedlings in the individual plots in a proper manner applying the techniques that they have practiced in the FFS sessions.</p> <p>e. The main focus of the second year's activity shall be put on not only the conduct of FFS sessions at the demonstration plot, but also the facilitation of the members' application of the key techniques to their own farms.</p>

*Source: JICA Project Team (2015)*

### **3. Recommended Techniques introduced for Seedling Production and Tree Planting**

#### **3.1 Overall View of Techniques**

In the FFS sessions on seedling production and tree planting, the following techniques should be introduced in a community nursery and demonstration plot in the form of hands-on training so that the members could actually practice the techniques through the sessions.

- i) Nursery establishment
- ii) Nursery operations (Seedling production)
  - a. Seed preparation and sowing seeds
  - b. Preparation of seedling pots
  - c. Maintenance of seedlings
  - d. Hardening-off
- iii) Development of tree plantation
  - a. Compost production
  - b. Delineation of contour line and staking
  - c. Planting
  - d. Tending

#### **3.2 Techniques for Nursery Establishment and Operations**

The techniques needed for nursery establishment and operations are further described in the following sections. Each section introduces the objectives, procedures for application, and timeframe of the techniques along with some important tips about effective application.

### 3.2.1 Nursery Establishment

#### (1) Objective

The main objective of the technique is to establish a small-scale nursery at aldeia level using locally available materials.



#### (2) Procedures for Application

The following four (4) steps shall be taken to establish a small-scale nursery.

- i) Design of a layout of nursery
- ii) Selection of a site
- iii) Installation of a water system
- iv) Development of a nursery

#### a. Design of a layout of nursery

- i) Select the species of seedlings to be planted.

The preferable environment conditions for major species are summarized below.

**Preferable Conditions for Seedling Production by Species**

Species	Altitude (m)	Type of soils	Materials/Methods used for multiplication
Teak	0 - 700	Anything	Seed, Stum
Mahogany	0-1,000	Anything	Seed
Sandalwood	50 - 1,200	Infertile sandy soils	Seed
Casuarina	0 - 2,000	Anything	Seed
Rambutan	0 - 600	Fertile loamy soils	Seed, Graft
Longan	0 - 700	Anything	Seed, Graft
Durian	0 - 800	Fertile silty/clay soils	Seed, Graft
Orange	0 - 1,000	Fertile humus soils	Seed, Graft
Clove	200 - 300	Loamy soils with average fertility	Seed

Source: Halarae Foundation (2015)

- ii) Determine the number of seedlings to be produced in a nursery. About 20 % of mortality of seedlings should be taken into account in determination of the total number of seedlings produced in a nursery.

#### Important Tips

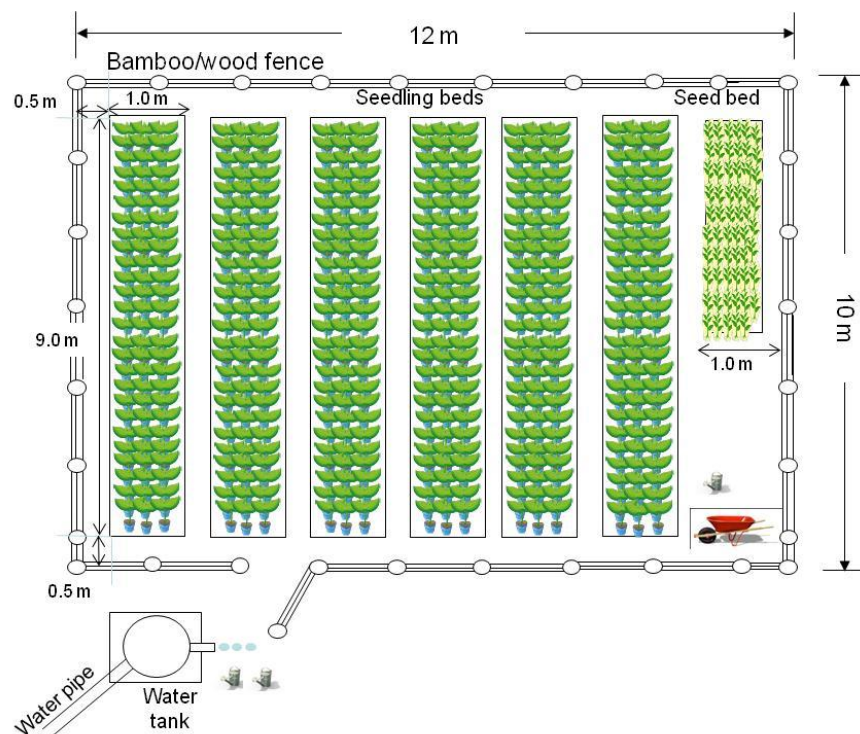


- ▶ The species of seedlings should be selected through a discussion with the participants/farmers to reflect their preference to maintain their interest in the activities.
- ▶ The number of seedlings should be determined on the basis of participants'/farmers' capacity to plant seedlings. Based on the experiences of the JICA CB-NRM Project, the number of seedlings that one family could plant in a proper manner ranges from 50 to 150 seedlings.

iii) Design a layout of a nursery which encompasses seedling beds, a seedbed and side paths with the following specifications.

- Seedbed: 1.2 – 1.5 m in width
- Side path: 0.4 – 0.5 m in width
- Seedling bed: 0.6 – 1.0 m in width and 3 – 5 m in length
- 100 seedling pots require the area of 1.0 m<sup>2</sup>

Assuming that the total number of seedlings produced in a nursery is 5,400 seedlings (150 seedlings/person x 30 members x 120%), a 10 m x 12 m-sized nursery should be established. A standard layout of the nursery is shown below.



**Standard Design of Nursery**

b. Selection of a site

- Select a site for a nursery considering the following conditions: a) accessibility to a water source, b) ground condition (open but less windy), c) terrain condition (flat or gentle sloping), and d) accessibility to the majority of communities' houses
- Consult with a land owner of the selected site about the use of the area for a nursery. At the same time, consult with an owner and users of the water source and agrees with them on the use of the water source for seedling production.

c. Installation of a water system

- Connect a water source (natural source or water tank) to the nursery with bamboo pipes/a hose.
- Place a drum can with a capacity of at least 200 liters in the nursery to store water during the night time.

- d. Development of a nursery
- i) Clear and level the selected site for building a nursery.
  - ii) Collect local materials (e.g., bamboo or wood poles and palm leaves) for pillars, beams, roof and walls of a nursery. The following table shows materials necessary for establishment of a nursery as large as 120 m<sup>2</sup> which is good for 5,400 seedlings.



**Necessary Materials for Nursery Development**

Items	Quantity	Remarks
Bamboo poles	40 pcs	For pillars, beams, and fences of the nursery
Wood/Bamboo poles for pillars	12 pcs	3-4 m in length and 20 cm in diameter is desirable.
Wood/Bamboo poles for beams	20 pcs	3-4 m in length and 5 cm in diameter is desirable.
Nalo grasses/palm leaves for thatching	30 bundles	-
Nail	4 kg	7cm in length
Wire	3 rolls	-

Source: JICA Project Team (2014)

- iii) Put fences around bamboo poles and thatch nursery's roof with nalo grasses/palm leaves.
- iv) In case the site is located in a windy area, install windbreaks made of grasses or leaves.

*Thickness of thatched roof should be adjusted according to the site conditions, namely intensity of insolation in the area. If there is an existing shade, the roof should be thin and sparse.*

### (3) Timeframe of Application

In the northern part of the country which is under the monsoon type climate with clear distinction between the wet and dry seasons, the establishment of nursery should start in March so that the seedlings can be grown enough to be planted in November in the same year. The standard timeframe of the FFSs on nursery establishment is outlined below.

*It is strongly advisable to install windbreaks for producing seedlings intolerant to the wind, such as rambutan.*

**Standard Timeframe of FFS on Nursery Establishment**

Activities	Timing	Duration of the Session
i) Design of a layout of nursery	March	Two to three days
ii) Selection of a site	March	One day for sight inspection and one to two days to discuss with owners of a land and a water source as well as water users.
iii) Installation of a water system	March	Two days for hands-on training
iv) Building of a nursery	March	Four days for hands-on training

Source: JICA Project Team (2015)

### 3.2.2 Seed Preparation and Sowing Seeds

#### (1) Objective

The main objective of the technique is to ensure high germination of seeds sown in the seed beds in the nursery.

#### (2) Procedures for Application

The following steps shall be introduced in the sessions on this topic.

- i) Collection of seeds
  - ii) Pre-treatment of seeds
  - iii) Making of a seedbed
  - iv) Sowing and maintenance of seeds at the seedbed
- a. Collection of seeds
- i) Identify and select healthy mother trees which are large with well developed crowns in the case of timber species or bear large and quality fruits in the case of fruit species.
  - ii) Collect seeds from mother trees at the respective harvesting seasons as follows.

**Harvesting Period of Seeds**

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sandalwood	-	-	X	X	-	-	-	-	X	X	-	-
Clove	-	-	X	X	-	-	-	-	-	-	-	-
Citrus	-	-	-	-	X	X	X	-	-	-	-	-
Rambutan	-	-	X	X	X	-	-	-	-	-	-	-
Longan	-	-	-	-	-	-	X	X	X	-	-	-
Teak	-	-	-	-	-	-	X	X	-	-	-	-
Mahogany	-	-	-	-	-	-	X	X	-	-	-	-

Note. X: Harvesting period

Source: JICA Project Team (2015)

- iii) In case there is no mother tree found in the area, procure seeds from reliable sources in the country.
- b. Pre-treatment of seeds

Pre-treat seeds of the respective species following the methods described below to break seed dormancy and obtain high germination.

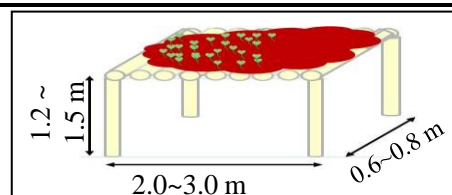
**Methods of Pre-treatment of Seeds**

Species	Methods of pre-treatment of seeds
Sandalwood	1) Soak seeds in cool water from 12 to 24 hours
Clove	1) Remove skin of seeds 2) Soak into water for 1-2 hours
Citrus	1) Mix seeds with ash
Rambutan	Not necessary
Longan	ditto
Teak	1) Put seeds in a rice sack and soak the sack in the cool water for 72 hours. 2) After taking the sack from water, spread seeds in a black-colored container. 3) Expose seeds to sunlight for at least 2 days to dry them.
Mahogany	1) Dry seeds for 48 hours

Source: JICA Project Team (2015)

#### c. Making a seedbed

- i) Collect local materials, such as bamboo or woods for a seedbed.
  - ii) Develop a frame of the seedbed as high as 1.2~1.5 m which is tall enough to prevent damage by chicken.
  - iii) Mix top soils with sands and compost at a rate of 2:1:1 and fill them in the seedbed.
- d. Sowing and maintenance of seeds in the seedbed
- i) Pour water the seedbed one day before sowing.
  - ii) Sow seeds in the seedbed.
  - iii) Cover the surface of the seedbed with dried grasses after sowing to maintain the moisture contents and temperature for ensuring high germination.
  - iv) Water the seedbed twice a day (morning and afternoon) carefully not to dislodge seeds sown.



**Typical Design of a Seedbed**



### Important Tips



- ▶ A shallow bucket with a moist soft cloth placed at the bottom could be used as a seedbed for germination of sandalwood seed in case the number of seedlings is limited.
- ▶ For germination of teak seeds, the seedbed should be covered with a black-colored plastic sheet for 48 hours without watering.

- v) Check if seeds sown germinate in the seedbed periodically. The duration for germination varies with species as shown below.

#### Required Period for Germination of Seeds

Species	Required period for germination of seeds
Sandalwood	2 weeks
Clove	3-4 days to 1 week
Citrus	1 week
Rambutan	3-4 days
Longan	4-5 days
Teak*	1 month
Mahogany	1 weeks

Note\*: It is recommendable to use the seeds of teak harvested one year to be sown at the seedbed.

Source: JICA Project Team (2015)

### (3) Timeframe of Application

The FFS sessions on these topics should be held according to the following timeframes.

#### Standard Timeframe of FFS on Seed Preparation and Sowing Seeds

Activities	Timing	Duration of the Session
i) Collection of seeds and pre-treatment of seeds	Mar.-Sep. (depending on species)	Two days for hands-on training
ii) Building of a seedbed	May/June	One day for hands-on training
iii) Sowing and maintenance of seeds sown in the seedbed	May/June	One day for hands-on training

Source: JICA Project Team (2015)



### 3.2.3 Preparation of Seedling Pots

#### (1) Objective

The main objective of the technique is to prepare seedling pots by mixing and filling potting media and transplanting sprouts into the pots in a proper manner.

#### (2) Procedures for Application

The following four (4) steps shall be taken to prepare seedling pots.

- i) Collection of soils and other materials for potting media
- ii) Mixing of soils with other media
- iii) Filling of potting media into poly bags
- iv) Transplanting of sprouts into poly bags filled with media

##### a. Collect soils and other materials

- i) Collect top soils (black soils), sub-soils, and sands in the locality together with the participants/farmers. Top soil should be collected in dense forests or coffee plantations, while sands should be collected in the rivers. Soils underneath the top layer can be used as sub-soils.
- ii) Procure compost from external sources (e.g., Dili) especially for the 1<sup>st</sup> year or 1<sup>st</sup> round of FFS/seedling production as it might be difficult for the participants/farmers to obtain compost in the locality in the same year.
- iii) Collect/procure materials for soil amendment, such as rice husk and sown wood dust to improve the physical property of potting media.

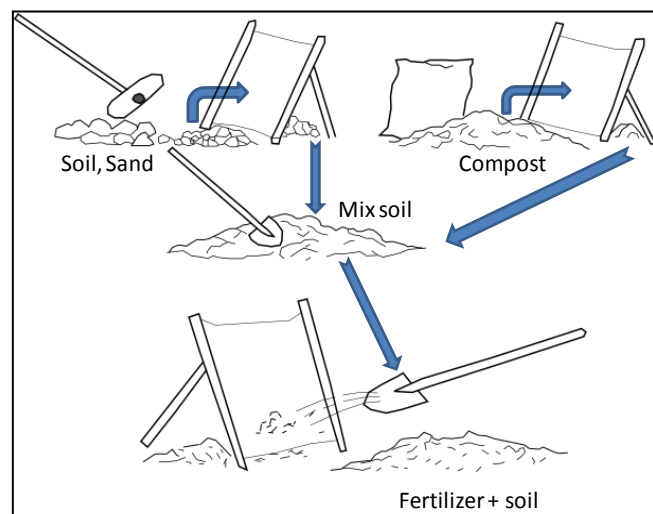
##### b. Mix soils with other materials

- i) Sieve soils, sands and compost through a mesh (0.5 cm of mesh is recommendable.) to remove large clods and irregularities including roots and twigs of trees.
- ii) Mix soils, sands, and compost at the following rates.

- Timber and fruits: top (or black) soils, sands, and manure/compost at a rate of 3:1:2 (50%: 17%: 34%)
- Sandalwood: top (or black) soil and sands at a rate of 2:1 (67%: 33%)

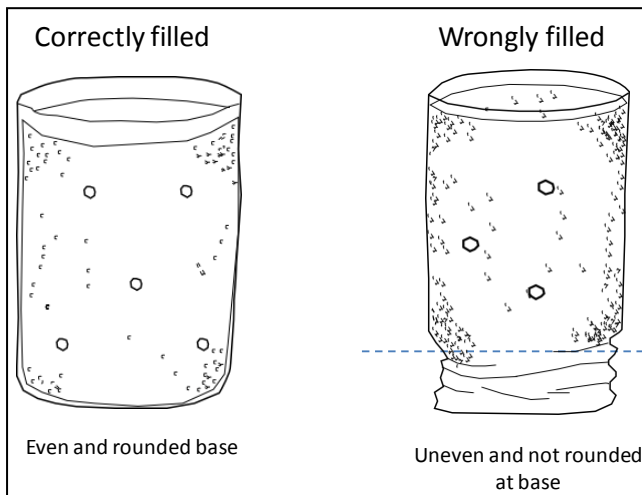
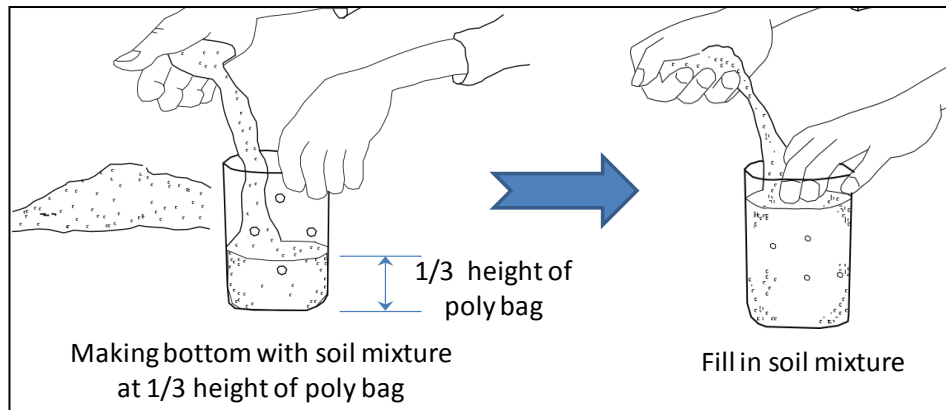
##### c. Filling the mixture into poly bags

- i) Procure poly bags sufficient for the total number of seedlings produced in the nursery. The size of poly bags should be 8 cm in diameter and 22 cm in height for



timber species and industrial plants, while the same for fruit species should be 12 cm in diameter and 22 cm in height.

- ii) Fill the mixture (potting media) to one-third of the height of a poly bag and shake it to fill the mixture evenly in the bottom of a poly bags.
- iii) Continue filling the mixture into a poly bag.



*Poly bags should be shaken up and down at times while being filled with the mixture to: i) compact the mixture at the base, ii) fill the mixture evenly in a poly bags, and iii) avoid leaving air pockets in a poly bag. If the mixture is evenly filled in a poly bag, the base of a poly bag would become rounded and sufficiently compact.*

- vi) Put the poly bags filled with the mixture in the seeding beds making a block of 100 pcs (10 x 10 pcs) of poly bags, so that the seedling pots can be easily managed in the nursery.

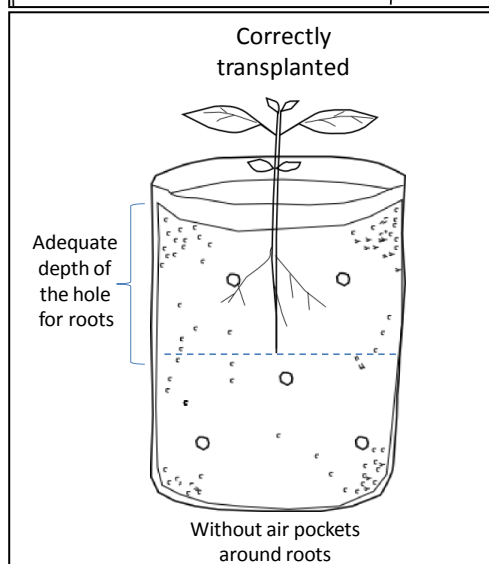
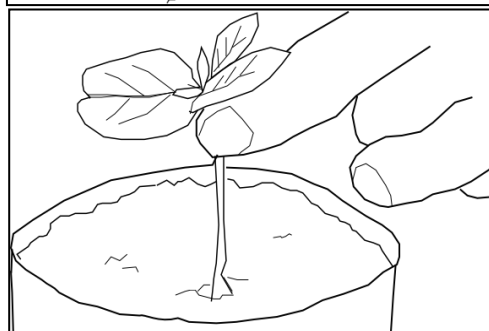
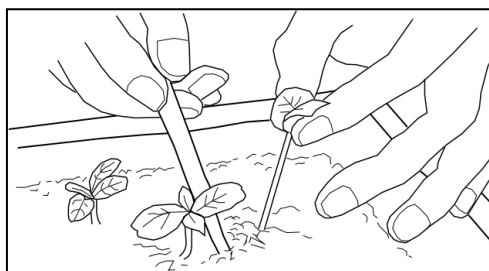
d. Transplanting sprouts into pots

- i) In the case of sandalwood, collect host plants (*Alternanthera ficoidea*) to be planted together with sprouts of sandalwood into seedling pots.
- ii) Water seedling pots one (1) day before transplanting sprouts.
- iii) Prick and lift sprouts from the seedbed holding them at the terminal leaf and place them in a shallow bowl of water. The number of sprouts to be lift at one time should be as



many sprouts as the participants/farmers can transplant within 15 minutes to prevent any damage caused by dryness. Pricking and transplanting should be done in the early morning or late afternoon to protect sprouts from being exposed by intensive sun light.

- iv) Make a small hole each in seedling pots using a small stick. The size of hole should be large enough to put the root system without bending its taproot.
- v) Pick a sprout up from a bowl holding it at its terminal leaf and insert its root system into a hole.
- vi) Cover and firm the base of the sprout gently and carefully not to leave air pockets around its root system.
- vii) Water seedling pots immediately after planting.
- viii) Water regularly to maintain the water contents for the next three (3) days with due care so as not to overwater them.
- viii) Place them in the unlighted part of the seedling beds for few days.
- ix) Relocate seedlings or remove shade to give partial sunlight to them when new leaves emerge.
- ix) Put the label with the following information at each block of seedling pots.
  - species
  - date of transplanting
  - Number of sprouts transplanted



### (3) Timeframe of Application

#### Standard Timeframe of FFS on Preparing Seedling Pots

Activities	Timing	Duration of the Session
i) Collection of materials for potting medium	May/June	One day for hands-on training
ii) Preparation of soil mixture and filling soil mixture into pots	May/June	Half day each for hands-on training
iii) Transplanting of sprouts into pots	May/June	Half day for hands-on training

Source: JICA Project Team (2015)

### 3.2.4 Maintenance of Seedlings

#### (1) Objective

The main objective of the technique is to grow healthy seedlings with due care in the nursery.

#### (2) Activities to be conducted

The activities for maintenance of seedlings comprise i) watering, ii) weeding, iii) spacing, iv) preparation and application of liquid fertilizer, v) root pruning and vi) pest control. More details of the activities are described below.

*The total maintenance period ranges from six (6) months to nine (9) months depending on altitude of the area: six (6) months (from June to November) in lowlands while nine (9) months (from March – November) in highlands in the country.*

#### a. Watering

Water seedling pots until water penetrates to the bottom of seedling pots using a watering can either early morning or late afternoon in a day.

*You should use a water can so that you can avoid splashing muddy water on leaves as muddy water could cause infection of diseases.*

#### Important Tips



- ▶ *The frequency of watering varies with species, age of seedlings, and composition of potting media.*
- ▶ *The soil permeability in seedling pots may gradually decline during the maintenance period. Micro particles in soil suspension made after watering infill pores in the pots along with water penetration.*
- ▶ *If you find molds or mosses in the surface in the pots, they are the signs of poor drainage in the pots. You should break soil blocks in the pots to soften or loosen soils.*

#### b. Weeding

- Carefully hand-pick weeds on pots regularly to secure nutrients and sunlight for seedlings.
- Weed the nurseries periodically to minimize chances for pests/insects to contact seedlings.



#### c. Spacing

- Keep proper distance between seedling pots to secure the sufficient space for seedlings to spread their leaves, or they would become spindly.

#### d. Preparation and application of liquid fertilizer

- Prepare liquid fertilizer for additional fertilizer application referring Sub-section 3.3.8 of CB-NRM Technical Manual Vol.2: Sustainable Upland Farming Promotion.

ii) Apply liquid fertilizer referring to Sub-section 3.3.9 of CB-NRM Technical Manual Vol.2: Sustainable Upland Farming Promotion when observing any symptoms of nutritional disorder (e.g., discolor of the leaves or poor growth of seedlings).







e. Root pruning





In case roots of seedlings come out from the poly bags, cut the roots with a scissor or knife to prevent them from penetrating into ground.

f. Pest and disease control

Observe seedlings and take necessary measures to control pests and diseases whenever necessary. Some of the major symptoms observed over the course of the JICA CB-NRM Project are shown below with the possible measures to be taken.

**Major Symptoms of Pest Attacks to the Seedlings and Possible Measures to be taken**

Symptom	Species attacked	Cause of symptom	Measures to be taken
1. Rolling up and discolor of leaves 	Orange	Citrus leaf miner (moth) moving inside the leaf 	<u>Application</u> -Spray water mixed with tobacco leaves (tobacco water) from back side of leaf once a week for 2-3weeks. <u>Preparation of tobacco water</u> - Mix 2 leaves of tobacco (or 8 sticks of dried leaves of cigarette) with 1 liter of water. - Use it 3 days after mixing by diluting 1 cup of tobacco water with 1 liter of water.
2. Spots on leaves 	Teak	Spider 	<u>Application</u> - Spray water mixed with vinegar (vinegar water) or brewed coffee from back side of leaves to kill mite. <u>Preparation</u> - Dilute vinegar with 20 times of water. - Brewed coffee should not be diluted for application.
3. Holes on leaves 	Mahogany	Scarab beetle 	<u>Application</u> - Remove insects.

Symptom	Species attacked	Cause of symptom	Measures to be taken
<p>4. Holes on leaves</p> 	Mahogany, Orange	<p>Grasshopper/ Leaf roller</p> 	<p><u>Application</u> - Spray decoction of green banana skin.</p> <p><u>Preparation</u> - Boil 1 liter water and add one handful of green banana skin. Brew it for 30 minutes. Remove the banana skin by filter and apply it to the insects.</p>
<p>5. Leaf shrunk</p> 	Mahogany, Teak	Virus possibly transmitted by mites	<p><u>Application</u> - Remove diseased leaves from the seedling and separate from healthy seedling. - Apply disinfectant.</p>
<p>6. White-colored leaves (White powdery mildew)</p> 	Orange	fungus	<p><u>Application</u> - Apply plant ash or splay diluted vinegar with 20-30 times of water.</p>

### (3) Timeframe of Application

#### Standard Timeframe of FFS on Maintenance of Seedlings

Activities	Timing	Duration of the Session
i) Watering and weeding	May-Aug	Half day for hands-on training
ii) Spacing and pruning roots	Sep-Oct	Half day for hands-on training
iii) Preparation of liquid fertilizer	May-Aug	One day for hands-on training
iv) Application of liquid fertilizer	May-Aug	Half day for hands-on training
v) Pests and diseases control	May-Aug	One day for hands-on training

Source: JICA Project Team (2015)

### Important Tips



- ▶ When you find the seedlings affected by pests and diseases, immediately isolate such seedling pots from others in order to avoid expansion of the infection.

### 3.2.5 Hardening-off

#### (1) Objective

The main objective of the technique is to adapt seedlings to external environment by exposing them to sunlight and reducing the frequency of water supply before planting.

#### (2) Activities to be conducted

Hardening-off can be done few weeks before planting seedlings by reducing i) watering, ii) shading, iii) root pruning and iv) fertilizing as described below.

##### a. Watering

Reduce the frequency of watering and amount of water applied to the seedlings so that the seedlings could be adapted to the less watering condition.

##### b. Shading

Remove thatching roof of the nursery to expose seedlings to sunlight one (1) month before planting seedlings.

##### c. Root pruning

Stop cutting roots coming out from the seedling pots one month before planting.

##### d. Fertilizing

Stop liquid fertilizer application two to three weeks before planting.

#### (3) Timeframe of Application

**Standard Timeframe of FFS on Hardening-off**

Activities	Timing	Duration of the Session
Hardening-off (control of watering, shading, root pruning and fertilizing)	Oct	One day for hands-on training

Source: JICA Project Team (2015)

### **3.3 Techniques for Tree Planting**

#### **3.3.1 Production of Compost**

##### **(1) Objective**

The main objective of the technique is to produce of quality organic fertilizer made of materials locally available so that the members could apply basal fertilizer when planting seedlings.

##### **(2) Procedures for Application**

The same procedures described in Sub-section 3.3.1 of CB-NRM Technical Manual Vol.2: Sustainable Upland Farming Promotion shall be followed.

##### **(3) Timeframe for Application**

Compost production shall begin in May and continue the maintenance of compost until the time when it is applied as described in Sub-section 3.3.1 of CB-NRM Technical Manual Vol.2: Sustainable Upland Farming Promotion.



### 3.3.2 Determination of Layout of Plantations

#### (1) Objective

The main objective is to determine and design a/ layout/s of plantations suitable for the respective purposes and applicable to the respective site conditions.

#### (2) Procedures for Application

Prior to planting trees in the field, a/ layout/s of plantations shall be designed on the basis of the purposes and types of seedlings planted. In general, plantations can be classified into the following types.

- i) Fruit and industrial plant plantation
- ii) Coffee plantation
- iii) Timber plantation
- iv) Regenerated forest in degraded land

Basic conditions and typical designs of the respective plantations are described below.

#### Basic conditions and Typical Designs for Tree Plantations

##### a. Fruit and industrial plant plantation, and Coffee plantation

Type	Fruit/industrial plant seedling	Coffee production
Target site	Home garden or backyard farms with existing standing trees and perennial crops such as banana	Areas for shifting cultivation or farms close to existing coffee plantation
Species to be planted	<ul style="list-style-type: none"> <li>- Fruit and industrial plants, such as, rambutan, longan, clove, cinnamon and jackfruits</li> <li>- High value timber species, namely sandalwood</li> <li>- Trees which prefer shady conditions in their initial growth</li> <li>- Leguminous trees as living fence and fodder trees</li> </ul>	<ul style="list-style-type: none"> <li>- Coffee</li> <li>- Upper-layered shade trees: Albizia, Casuarina</li> <li>- Medium-layered shade tree: Calliandra</li> </ul>
Intervals between seedlings	Random planting among existing trees and perennial crops with following intervals: <ul style="list-style-type: none"> <li>- Trees: 4 m (e.g., clove)~7 m (e.g., Rambutan)</li> <li>- Perennial crops, e.g., banana: 1~2 m</li> <li>- Leguminous trees: 3~4 m</li> </ul>	<ul style="list-style-type: none"> <li>- Coffee: 2.0-3.0 m x 2.0-3.0 m</li> <li>- Upper/Mid-layered shade tree: 10 m x 10 m</li> </ul>
Typical design/ Image of the plantation		

**b. Timber plantation and Regenerated forest in degraded land**

Type	Timber production	Regenerated forest in degraded land
Target site	Areas for shifting cultivation, especially those with low fertility and/or not suitable for crop production	Degraded forests Open area (wasteland/barren land) Grassland
Recommendable species	- Timber wood species, e.g., Teak, Mahogany and other suitable timber species	- Fast growing leguminous species, e.g., calliandra, gamal and lamtro (L-19) - Drought tolerant species, e.g., casurina
Intervals between seedlings	- Timber: 3 m x 3m	- Leguminous species: 3 m x 6 m -Drought tolerant species: 3 m x 6 m
Typical design/ Image of the plantation	<p>..... Contour line delineated using "A-frame"</p> <p>★ Teak ✦ Mahogany</p>	<p>..... Contour line delineated using "A-frame"</p> <p>★ Leguminous species ✦ Drought tolerant species</p>

Source: JICA Project Team (2015)

### 3.3.3 Delineation of Contour Lines and Sticking of Stakes

As most of the potential sites for plantations in rural areas must be hilly or sloping lands, seedlings should be planted along contour lines to minimize the risk of soil erosion. Hence, the layout of plantation should be adjusted with the slope conditions of the plantation sites.

#### (1) Objective

The main objective of the technique is to make contour lines using a simple tool made of local materials and locate points of planting pits according to the designed layout/s.

#### (2) Procedures for Application

The following steps shall be taken to delineate contour lines and stick stakes.

- i) Making of A-frames with collection of local materials
- ii) Delineation of contour lines using A-frames
- iii) Sticking of stakes

#### a. Making of A-frames using local materials

- i) Collect the following materials for making A-frames.

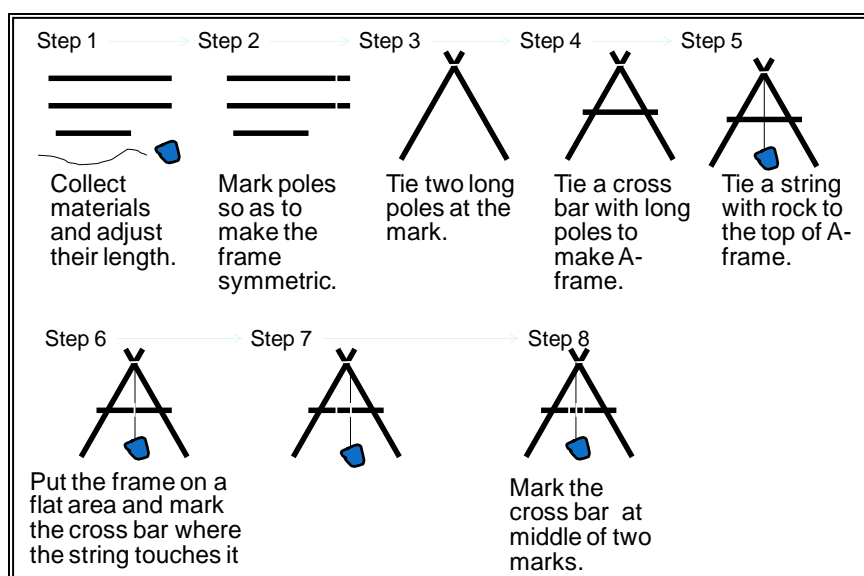
► Materials needed for one A-frame

- 2 pieces of 2 meter long wood or bamboo
- 1 piece of 1 meter long wood or bamboo
- 1 fist-sized rock
- 2 m of string or thin rope
- Nails/wires/binding strings

► Tools to be used for making A-frames

- Hammer/Machete/Saw/Knife

- ii) Make A-frames according to the following procedures.



#### Important Tips



- You should check if the string sits in the middle mark, because the string does not sit in the middle if the A-frame is not level.

b. Delineation of contour lines using A-frames

- i) Stick the first stake at the middle edge of the plantation site and put the left leg of the A-frame at the first stake.
- ii) Adjust the right leg to make the string pass through the midpoint of the crossbar and stick another stake at the right leg.
- iii) Move the A-frame to the right by placing the left leg at the stake where the right leg previously was.
- iv) Adjust the left leg again until the string passes through the midpoint, and again stick the stake at the right leg.
- v) Follow this procedure up to the other side of the site.
- vi) Take another point 2.2 to 2.6 meter downwards or upwards using a measure or other materials (e.g., a rope or stick) which are the same in length. Do the activities from i) to v) to take the contour line.
- vii) Repeat the activities i) to vi) until all the contour lines are delineated in the site.



*The contour line is not correctly delineated as the lines were taken without clearing the areas.*



*A one-meter stick should be used to check the vertical distance between contour lines.*

**Important Tips**



- ▶ You should take out all grasses in a farm before using the A-frame, or you cannot delineate contour lines correctly.

c. Sticking of stakes

Stick stakes at points where seedlings are planted according to the layout/s.

(3) Timeframe of Application

**Standard Timeframe of FFS on Delineating Contour Lines**

Activities	Timing	Duration of the Session
i) A-frames making with collection of local materials	Sep.	One day for hands-on training
ii) Delineation of contour lines and sticking stakes.	Oct.	One day for hands-on training

Source: JICA Project Team (2015)

### 3.3.4 Planting

#### (1) Objective

The main objective of the technique is to plant seedlings in a proper manner to ensure high survival of seedlings after planting.

#### (2) Procedures for Application

The following four (4) steps shall be taken for planting seedlings.

- i) Digging of planting pits
- ii) Refilling of pits with soils and compost
- iii) Selection and transporting of seedlings
- iv) Planting of seedlings

#### a. Digging of planting pits

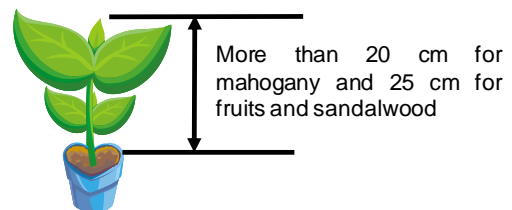
- i) Dig holes 40 cm each in depth and diameter for timber species and 45 to 60 cm in the same for fruits and industrial plant species.
- ii) Put top soils separately from sub-surface soils when digging a hole.

#### b. Refilling of pits with soils and compost

- i) Carry compost to the plantation site and mix it with sub-surface soils.
- ii) Refill pits with sub-surface soils mixed with compost first and overlay top soils.

#### c. Selection and transporting of seedlings

- i) Select seedlings ready for planting, which are more than 20 cm in height for timber species (e.g., mahogany and teak) and over 25 cm in height for fruits and industrial plants (e.g., clove and sandalwood).



Ready to be planted in the sites

- ii) Pack seedling pots in a portable carrier (e.g., a basket) putting them carefully one by one in a carrier.
- iii) Transport seedling pots to the plantation site carefully so that they would not topple over while being carried.

#### d. Planting of seedlings

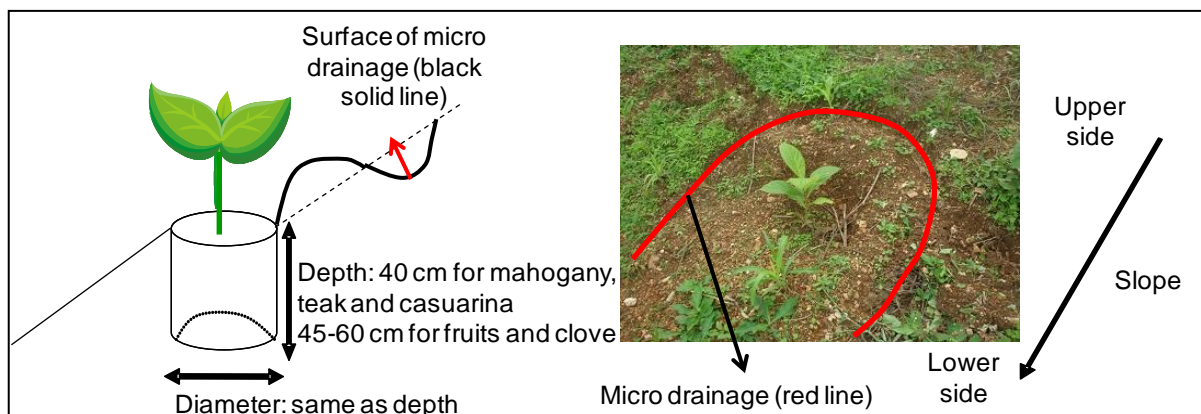
- i) Dig planting holes as deep as the height of seedling pots.
- ii) Cut and remove plastic of seedling pots with a small knife.
- iii) Plant seedlings in holes.

## Important Tips



- ▶ Species which need shade in the initial stage (e.g., sandalwood, clove, and rambutan) shall be planted under the shade of existing plants (e.g., banana and other trees).
- ▶ Sandalwood shall be planted together with or close to its host plants, such as Ai turi or leguminous trees (e.g., Acacia sp., Albizia, etc). Distance between sandalwood and the host plant/tree should be two (2) to three (3) meters.

- iv) Make u-shaped micro drainages in the upper slope of each seedling to protect it from damage caused by run-off water during the rainy season.



### Design of U-shaped Micro Drainages

### (3) Timeframe of Application

#### Standard Timeframe of FFS on Planting

Activities	Timing	Duration of the Session
i) Hole digging	Nov.	One day for hands-on training
ii) Refilling of holes with organic matter	Nov.	One day for hands-on training
iii) Transporting and planting of seedlings	Nov-Dec.	One and half day for hands-on training

Source: JICA Project Team (2015)

### 3.3.5 Tending

#### (1) Objective

The main objective of the technique is to properly maintain seedlings for a few years after planting to ensure robust growth of seedlings in the initial stage.

#### (2) Activities to be conducted

The techniques to be applied are i) weeding, ii) shading, and iii) mulching as described below.

##### a. Weeding

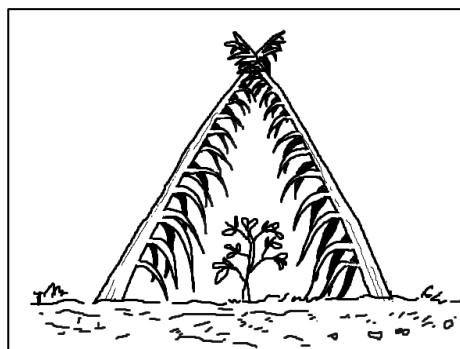
Weed grasses within 0.5 m radius from seedlings every two (2) months during the rainy season and at the end of the rainy season to eliminate weeds which compete with seedlings for water, light, and nutrition.

##### b. Mulching

Mulch the bases of seedlings with weeded grasses to maintain moisture contents of soils and prevent the growth of weeds.

##### c. Shading

Put a sun shade made of local materials (e.g., coconut leaves as shown right) if seedlings are planted in an open area (area without any shade of existing plants) and need shade in the initial stage.



Shading made of Local Materials

#### (3) Timeframe of Application

##### Standard Timeframe of FFS on Tending

Activities	Timing	Duration of the Session
i) Weeding and mulching	Jan.	Half day for hands-on training
ii) Shading of seedlings (depending on species)	Apr.-May	Half day for hands-on training

Source: JICA Project Team (2015)

#### 4. Standard Training Modules

The following table shows the standard training modules for the respective techniques introduced in Section 3.2 and 3.3. All the training courses will be conducted at either community nursery or demonstration plot as FFSs.

**Standard Training Module for the Techniques**

Training course	Items	Description
Nursery establishment	Objectives	To enable the members to build a small-scale community nursery by using local materials.
	Timeframe	6 days a. Installation of water system (2 days) b. Development of a nursery (4 days)
	Materials	Farm tools (machete, saw, shovel, hammer), materials for water system (water tank, pipes, hose), props (wood and bamboo poles), roof frames (wood and bamboo poles) and thatching roof (naro grasses, palm leaves), nail, wire.
	Expected Results	A small-scale nursery will be established.
Seed preparation and sowing seeds	Objectives	To enable the members to sow seeds properly in the seedbed and facilitate seed germination.
	Timeframe and process	4 days a. Collection of seeds (1 day) b. Pre-treatment of seeds (1 day) c. Making seedbed (1 day) d. Sowing and maintenance of seeds sown in the seedbed (1 day)
	Materials	Farm tools (machete, saw, shovel, scoop, hammer), materials for the frame of seedbed (wood or bamboo poles), nail, wire and medium for the seedbed (soil, sand and compost), water can, plastic sheet (optional)
	Expected Results	Seeds sown in the seedbed will germinate at a high rate.
Preparing seedling pots	Objectives	To enable the members to prepare seedling pots and transplant sprouts in a proper manner
	Timeframe and process	2~3 days a. Collection of materials for potting media (1 day) b. Mixing of potting media (0.5 day) c. Filling soil of the mixture into pots (0.5 day) d. Transplanting of sprouts into pots (0.5 day)
	Materials	Farm tools (iron stick, shovel, scoop), wheel barrow, stick, shallow bowl, sieve, poly bags, soil, sand, compost, rice husk (optional), wood plate (for label at the seedling block)
	Expected Results	Seedlings will be transplanted to seedling pots
Maintenance of seedlings	Objectives	To enable the members to properly maintain seedlings in the nursery
	Timeframe and process	2~3 days a. Watering and weeding (0.5 day) b. Spacing and root pruning (0.5 day) c. Preparation of liquid fertilizer (0.5 day) d. Application of liquid fertilizer (0.5 day) e. Pest control (0.5 day)
	Materials	Scissor, drum, materials for making liquid fertilizer (weed and water), materials for making pesticide (tobacco, water, etc) and hand spray
	Expected Results	Seedlings will grow in healthy condition in the nursery.
Hardening-off	Objectives	To enable the members to adapt seedlings to external environment similar to that of the of planting site



Training course	Items	Description
	Timeframe	1 day a. Reduction of watering, shading, root pruning and fertilizing (1 day)
	Materials	-
	Expected Results	Seedlings will be ready for planting.
Production of compost	Objectives	To enable the members to produce organic fertilizer (compost) using materials locally available.
	Timeframe	<u>1st training: 2 days</u> a. Collection and chopping of materials (0.5 day/1st day) b. Pitting (0.5 day/1st day) c. Piling of materials (1 day/2nd day) <u>2nd training: 1 day</u> a. Turning (1 day)
	Materials	Farm tools (Iron stick, machete, shovel), materials for compost (grasses, weeds, stalks, manures, soils/ashes), Banana leaves, Thatching materials (4 pcs of 1~2 m pole and coconut leaves)
	Expected Results	2~3 ton of compost will be produced.
Delineation of contour lines	Objectives	To enable the members to properly delineate contour lines using a tool made of materials locally available.
	Timeframe and process	2~3days a. Collection of materials (0.5 day/1st day) b. Framing of an A-frame (2 hours/1st day) c. Preparation of sticks (1 hours/1st day) d. Delineation of contour lines (1 day/2nd day)
	Materials (for 3 units of A-frame)	6 pcs of 2 m pole, 3 pcs of 1m pole, 3 pcs of 1.5 m string, 3 pcs of handful stones/blocks, wires or nails and machete
	Expected Results	Contour lines will be delineated in the plantation site.
Planting	Objectives	To enable the members to plant seedlings in a proper manner
	Timeframe and Process	2~3 days a. Digging of pits (1 day) b. Refilling of pits with soils and compost (1 day) c. Selection and transporting of seedlings (0.5 day) d. Planting of seedling (1 day)
	Materials	Scale, farm tools (shovel, pickax and iron stick), compost
	Expected Results	Seedlings will be planted in the plantation site according to the layout.
Tending	Objectives	To enable the members to properly maintain seedlings to ensure high survival and robust initial growth of seedlings.
	Timeframe and Process	1 day a. Weeding and mulching (0.5 day) b. Shading (0.5 day)
	Materials	Machete and materials for shading (coconuts leaves)
	Expected Results	Young stands will grow vigorously and healthy.

Source: JICA Project Team (2015)

## 5. Cost Estimates

This chapter introduces how to estimate the budget required for the conduct of a series of FFS sessions at suco or aldeia level. The estimation of cost is one of the essential skills/techniques to prepare a convincing plan which could ensure financial support from a source of fund. The following sections explain the ways to estimate the budgets per training session as well as per suco/aldeia introducing the major cost items to be considered in the estimation.

### 5.1 Estimate of Cost for Hands-on Training in FFS

The major cost items for hands-on training are: i) materials used for training sessions, ii) food for the members/participants, iii) transportation cost for facilitators, iv) other miscellaneous cost, and v) cost for facilitators if external facilitators (such as NGOs) are used for training. The cost of each cost item is estimated by multiplying the quantity of the item by the unit cost. The following format can be used in the estimation.

**Format for Cost Estimation of Training Session**

Standard cost item	Quantity (a)	Unit cost (b)	Cost (a x b)
1. Materials for training (for those which cannot be collected in a village)			
2. Snack and food for the participants			
3. Transportation cost for facilitators			
4. Cost for facilitators (payment to facilitators)			
5. Other miscellaneous cost			
<b>Total cost for one training session (1+2+3+4+5)</b>	-	-	

Source: JICA Project Team (2015)

### 5.2 Estimate of Cost for Other FFS Sessions

In addition to hands-on training courses, the members may continue sowing seeds and preparation of seedlings pots to produce the target number of seedlings in the nursery. Core and some selected members will work for the follow-up FFS sessions with the technical assistance of facilitators. The major cost items for the follow-up sessions are i) food/snack for the members, ii) transportation cost for facilitators, iii) cost for facilitators, and iv) other miscellaneous cost. The same format shown above can be used for estimation.

### 5.3 Estimate of Cost for Nursery Operations

Aside from the FFS sessions, one or two member/s shall engage in nursery operations (e.g., watering, weeding, liquid fertilizer application, and pest and disease control) on a daily basis to maintain seedlings in the nursery. The major cost items for the daily nursery operations are i) monthly incentive for the person/s who maintain/s seedlings and ii) materials for operations, such as materials for liquid fertilizer and control of pests and diseases. The following format can be used for estimation of the cost of daily maintenance.

**Format for Cost Estimation of Daily Maintenance**

Standard cost item	Quantity	Unit cost (b)	Cost (a x b)
1. Monthly incentive for care taker/s			
2. Materials needed for daily maintenance			
<b>Total cost for one training session (1+2)</b>	-	-	

Source: JICA Project Team (2015)

## 5.4 Cost Estimate per Suco

The cost for one cycle of the FFS sessions or seedling production and tree planting activities in a village is estimated by summing up all the costs mentioned above. In case that the FFS sessions/seedling production and tree planting activities are carried out at aldeia or group level, the total cost should be estimated by multiplying the number of aldeias/groups by the costs of the respective activities (i.e., hands-on training, follow-up FFSs, and daily nursery operations). Consequently, the following format can be used for the estimation.

**Format for Cost Estimation of Training Session in the First Year**

Standard cost item	No. of Group (a)	Unit cost (b)	Cost (a x b)
1. Hands-on training on nursery establishment			
2. Hands-on training on seed preparation and sowing seed			
3. Follow-up of sowing seed			
4. Hands-on training on preparing seedling pots			
5. Follow-up of preparing seedling pots			
6. Hands-on training in maintenance of seedlings			
7. Daily maintenance of seedlings			
8. Hands-on training in hardening-off			
9. Hands-on training in making compost			
10. Hands-on training in delineation of contour lines			
11. Hands-on training in planting			
12. Hands-on training in tending			
<b>Total cost for the FFSs on Seedling Production and Tree Planting</b>	-	-	

Source: JICA Project Team (2015)

## **6. Field Validation of Effectiveness of the Techniques**

The results of one round of the FFS sessions shall be validated and evaluated by checking the survival and growth conditions of seedlings planted over the courses of the FFSs, since the members who have engaged in a series of the FFS sessions are expected to plant seedlings produced in the nurseries in their own plots and farms. The survival and growth conditions of seedlings should be checked one (1) year after planting for this purpose to measure direct effects and identify necessary actions taken to improve the growth of seedlings in the plantations if necessary.

A survey of the survival and growth conditions of seedlings (hereinafter referred to as “the survival survey”) is also expected to give lessons learned from the activities and useful suggestions that could make the techniques more effective and applicable to a wide range of local settings in the country. It is important to carry out the same survey to evaluate the results of any reforestation/afforestation project one year after establishment of plantations.

### **6.1. Objectives of the Survey**

The main objectives of the survival survey are to evaluate the effectiveness and efficiency of the FFS sessions on seedling production and tree planting activities and extract lessons that can be referred for improvement of the same activities in the following years. To this end, the survey specifically aims to:

- i) estimate the average ratio of survival (or mortality) of each type of species planted in the different conditions;
- ii) measure the height and stem diameter of seedlings to check the growth conditions of surviving seedlings;
- iii) extract lessons which need to be referred for the conducts of the FFSs in the following years; and
- iv) identify necessary actions taken to improve the growth conditions of seedlings as well as plantations.

### **6.2 Method of the Survey**

#### **6.2.1 Selection of Samples**

##### **(1) Preconditions and Principle of the Survey**

A full-scale survey is apparently difficult to carry out as it is time-consuming and labor-demanding. Given the fact that the plantations developed by the participants/farmers would have the following features in general, a plot-wise sampling method is recommended instead.

- i) The number of plantations (plots where communities planted seedlings) is many.
- ii) The size of plot is small in general.
- iii) The plots disperse in a village.
- iv) Each household seems to plant seedlings not in a single plot but a few plots in general.

The plot-wise sampling method shall be carried out according to the following principles so that the results of the survey could ensure the statistic reliability.

- i) Target of sampling: At least 5 % of the total number of seedlings planted should be selected as samples.
- ii) Sampling method: Random sampling should be employed.
- iii) Data used for sampling: Samples should be selected by using lists of members and plots.

## (2) Procedure for selection of sampling plots

The sampling plots/sites shall be selected according to the following procedures.

### a. 1st step: Selection of object members from a/ list/s of members

Several households shall be randomly selected among all the households who planted seedlings in each aldeia. A list of members with the number of seedlings provided shall be used for selection.

### b. 2nd step: Selection of survey plots

#### i) Interviews to the selected object members

Data on plantations developed by the selected object members shall be gathered by directly interviewing the members. The numbers of plots and seedlings planted in each plots shall be collected. Data shall be compiled in a table as a list of potential survey plots.

#### ii) Selection of survey plots

Several plots shall be randomly selected among all the plots developed by the selected object members so that the total number of seedlings sampled for the survey is beyond 5 % of the total seedlings planted in the area.

## 6.2.2 Field Survey

A group of surveyors shall i) check the survival of seedlings, ii) measure the growth of surviving seedlings, iii) record the conditions of the survey sites, and iv) take the GPS data of the sites using the survey format shown below.

### a. Mortality of seedlings

#### i) Check the survival or mortality of seedlings using the following criteria for judgment of dead trees.

- There is no branch left in seedling.
- The majority of stem seems dead.
- There is no above-ground part of seedling by either breaking its stem or felling it down.

### b. Stem diameter and height of seedlings

#### i) Measure stem diameter twice from different directions with a caliper and calculate the average.

#### ii) Measure seedling height with a tape measure or ruler.

### c. Site description and location measurement

#### i) Record the conditions of the survey site, such as vegetation, soil condition, terrain, and history of use of the area.

- ii) Take pictures of the site.
- iii) Identify the location of the survey site using GPS by taking more than four (4) data points or corner points along the perimeter of the site.

### A Format for Field Survey

Anekso-1		Numeru			
<b>Formulario Survey Terreno ba Aioan nebe Kuda tuir SPTPP-MP</b>					
Suco: _____		Data survey: _____			
Naran grupo benefisariu: _____		Naran Inspektur: _____			
Naran membro grupo benefisariu: _____		Informasaun Plot: _____			
Lokasi plot: _____					
No.	Species	Status Aioan (Moris/Mate)	Medida Aioan nebe Moris		Komentariu
			Diameter Abut (mm)	Altura (cm)	
1					
2					
3					

Source: JICA Project Team (2015)

### 6.2.3 Data Compilation/Analysis

Data collected from the field survey shall be encoded into entry forms made in MS Excel as shown in the following table.

#### MS Excel format for calculating survival rate

Tabla 1 Survival Rate no Aioan nebe Kuda tuir SPTPP-MP																
No. ID: TF-1		Suco: Talitu				Naran grupo benefisariu: Fatukhun				Naran membro grupo benefisariu: Filomino				Data Survey: 25/07/2014		
No.	Status of Species															
	Teak				Mahogany				Casuarina				Sandalwood			
	Moris	Mate	Diameter Aioan Nebe Moris Abut (mm)	Altura (cm)	Moris	Mate	Diameter Aioan Nebe Moris Abut (mm)	Altura (cm)	Moris	Mate	Diameter Aioan Nebe Moris Abut (mm)	Altura (cm)	Moris	Mate	Diameter Aioan Nebe Moris Abut (mm)	Altura (cm)
1					1		7	39								
2					1		6	60								
3					1		5	40								
4					1		7	54								
5					1		6	46								
6					1		12	60								
7					1		10	68								
8	1		4	26												
9	1		8	46												
10	1		4	22												
11	1		4	29												
12	1		5	33												
13		1														
14	1		3	14												
15	1		2	24												
16	1		5	27												
17	1		3	21												
18	1		3	22												
19	1		4	28												
20		1														
Total alive and dead seedlings	11	2			7	0			0	0			0	0		
Total No. of Seedlings by Species		13				7				0				0		
<b>Survival rate</b>	<b>85%</b>				<b>100%</b>				<b>#DIV/0!</b>				<b>#DIV/0!</b>			
Average size			4	27			8	52			#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!	

Source: JICA Project Team (2015)

The encoded data shall be further compiled into a summary table per village and species as

shown below.

**Example of summary of survival survey**

Aldeia	Species	Seedlings surveyed			Survival rate (%)	Groth conditions of seedlings	
		Alive (No.)	Dead (No.)	Total (No.)		Diameter (cm)	Height (cm)
Remapati	Teak						
	Mahagony						
	Casuarina						
Manehalo (Turisai)	Teak						
	Mahagony						
	Casuarina						
	Albizia						
Manefoni	Teak						
	Mahagony						
Desmanehata	Teak						
	Mahagony						
Bilmahatu	Teak						
	Mahagony						
Lismori	Teak						
	Mahagony						
<b>Total/Average</b>	<b>Teak</b>						
	<b>Mahogay</b>						
	<b>Casuarina</b>						
	<b>Alvizia</b>						
<b>Overall</b>							

Source: JICA Project Team (2015)

### 6.3 Survival Survey for a Large-scale Reforestation

Different methods shall be employed for measurement of the survival rate of seedlings planted by a large-scale reforestation/afforestation project, as plantations developed by such a project would be large but the number of the plantation developed could be limited. The following box describes one of the sampling/survey methods taken into account toward that end.

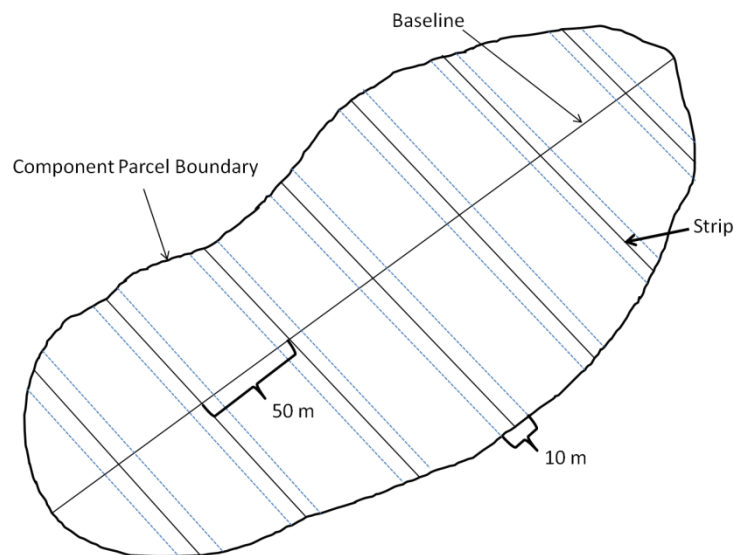
### BOX 1: Example of the Survival Survey Method for a Large-scale Plantation

The survival rate in a large plantation shall be measured by the strip sampling method. The procedures for sampling in a large plantation are shown below.

- 1) Establish a baseline, preferably along the longest section of the site .
- 2) Establish perpendicular strips 10 m in width along the baseline at 50 m distance between each strip's center (See the following figure.). The first strip shall be located 20 m from the edge of the site.
- 3) Count all surviving seedlings inside the strips.
- 4) Calculate the survival rate of seedlings planted in each strip by following the formula below.

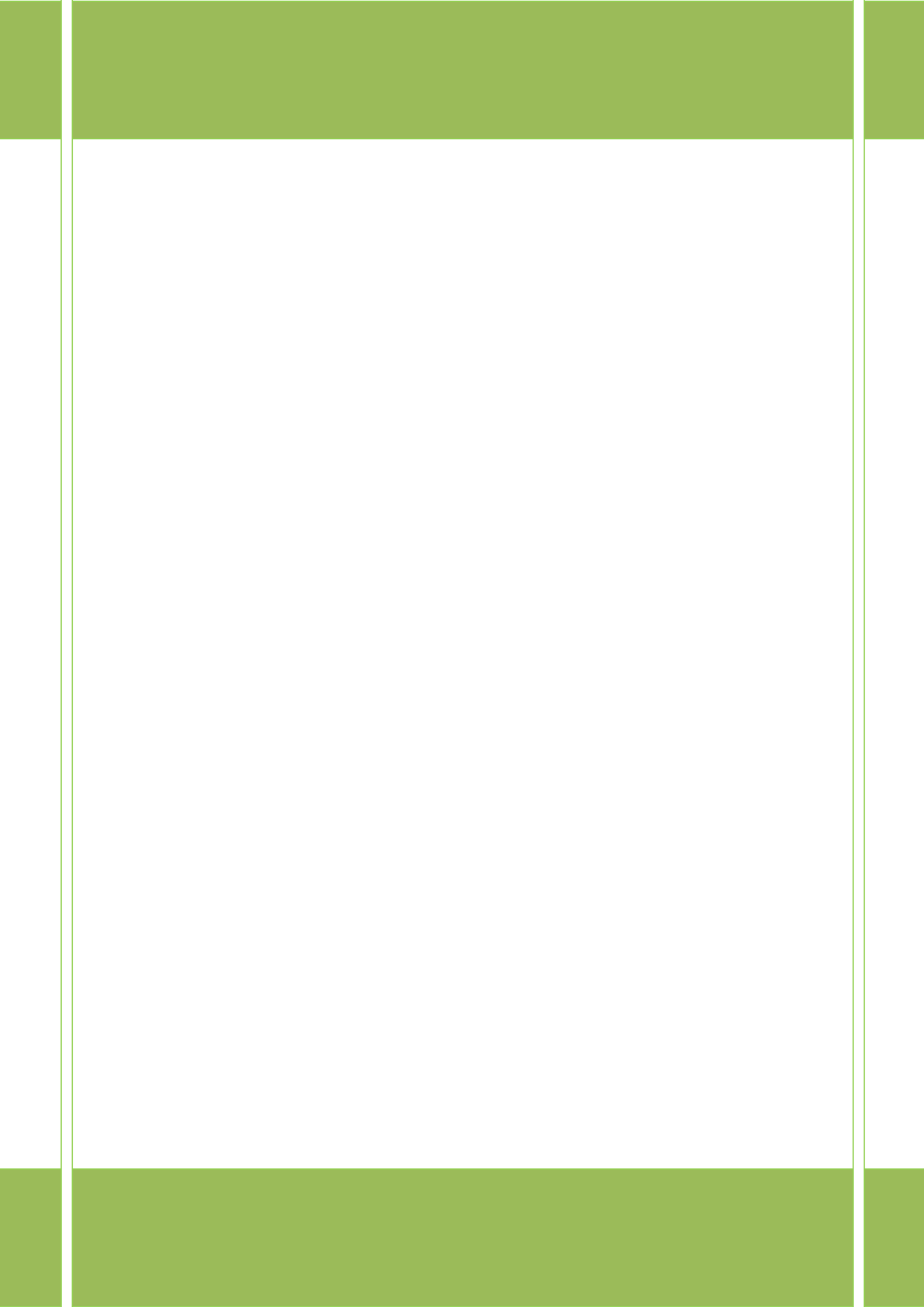
$$\text{Survival rate (\%)} = \frac{\text{Total surviving seedlings counted in a particular strip}}{\text{Total No. of expected seedlings planted in the same strip}} \times 100 \%$$

- 5) Estimate the survival rate of seedlings planted in the site by calculating the weighted average of all the strips surveyed.



**Strip Sampling Design**





# Manuál Tékniku CB-NRM

## Vol. 1 Produsaun Ai-oan no Promosaun Kuda Ai



**Prepara hosi**

**Projetu Jestaun Rekursu Naturál Sustentável Bazeia ba Komunitade  
República Democrática Timor-Leste**





## LIA MAKLOKEK

Degradasaun floresta no deforestasaun mak asuntu importante ida-ne'ebé Governu Timor-Leste (GoTL) preziza rezolve hodi atinje dezenvolvimentu sósiu-ekonómiku sustentável iha rai laran. Estudu ne'ebé hala'o iha tinan 2013 hatudu katak pelumenus 184.000 ha hosi floresta lakon ona entre tinan 2003 no 2012 no maizumenus 170.000 ha hosi floresta ho densidade nakonu hetan ona degradasaun sai floresta ho densidade uitoan iha períudu hanesan.

Jestaun Rekursu Naturál Bazeia ba Komunidade (CB-NRM) mak aprosimaun ba konservasaun natureza ho rekoñese komunidade lokál sira-nia direitu atu benefisia sira hosi jestaun rekursu naturál sustentável (floresta, rai, bee, no biodiversidade) iha área ne'ebé termina ona. Ida-ne'e mak alternativu aprosimaun reguladór hosi leten mai kraik, ne'ebé seidauk efetivu iha nasaun barak, liuliu bainhira regulamentu sira labele hatán hotu mudansa sosiál, kultura no kontestu ekonómiku iha rai laran.

Projetu Jestaun Rekursu Naturál Sustentável Bazeia ba Komunidade (Projetu CB-NRM) ne'ebé implementa hamutuk hosi Japan International Cooperation Agency (JICA) no Ministériu Agrikultura e Peska (MAP), partikulármente Diresaun Nasionál Floresta no Jestaun Bacias Hidrograficas (DNFGBH), dezenvolve tiha ona mekanizmu ne'ebé la'o daudaun ba CB-NRM iha Timor-Leste. Projetu ne'e mós hasai manuál tuirmai iha kursu projetu, atu ajuda MAP hodi habelar mekanizmu ne'ebé hanesan, iha mota prinsipál sira iha rai laran.

- ◆ Manuál Operasaun ba Estabelesimentu Mekanizmu CB-NRM iha nivel Suku
- ◆ Manuál Tékniku CB-NRM
  - Vol. 1: Produsaun Ai-oan no Promosaun Kuda ai
  - Vol. 2: Promosaun Toos Rai-lolon Sustentável
  - Vol. 3: Hasa'e Rendimentu/Dezenvolvimentu Vida-moris
- ◆ Manuál ba Formasaun Konsellu Jestaun Bacias Hidrograficas

Manuál Tékniku CB-NRM sira introdús tékniku/abilidade xave ne'ebé relevante ba jestaun rai no floresta sustentável no mós dezenvolvimentu vida-moris ho prosedimentu detallu ba provizaun treinamentu prátika direktamente. Hirak-ne'e bazeia ba aprendizajen hosi esperiénsia iha terrenu; Tanba ne'e, ami, hanesan reprezentativu MAP, rekomenda tebes katak, pratikante terrenu, la'ós de'it MAP, maibé mós organizasaun seluk ne'ebé servisu iha setór floresta no agrikultura, tenke uza manuál ne'e, hanesan instrumentu matadalan ba provizaun servisu estensaun agrikultura no floresta ba komunidade lokál sira.

  
Manuel Mendes  
Diretór Nasionál

Diresaun Nasionál Floresta no  
Gestaun Bacias Hidrograficas  
(DNFGBH), MAP

Outubru 2015  
  
Raimundo Mau  
Diretór Gerál Floresta, MAP



## **Kona-ba Manuál CB-NRM**

Manuál CB-NRM sira-ne'e dezenvolve no públika hosi Projetu Konjunta JICA no MAP hanaran Jestaun Rekursu Naturál Sustentável Bazeia ba Komunitade, atu fornese ekipamentu prátiiku ne'ebé útil ba planeadór no pratikante sira iha setór floresta iha Timor-Leste, hodi fasilita sira atu proteje no maneja rekursu natural sira ho maneira ne'ebé kolaborativu no sustentável. Materiál sira-ne'e kompostu hosi tipu manuál tolu (3), hanesan hatudu iha kraik ne'e.

- i) Manuál Operasionál ba Estabelesimentu Mekanizmu CB-NRM iha Nivel Suku
- ii) Manuál Tékniku CB-NRM
  - Vol. 1: Produsaun Ai-oan no Kuda Ai
  - Vol. 2: Promosaun To'os Rai-lolon Sustentável
  - Vol. 3: Hasa'e Rendimentu/Dezenvolvimentu Vida-moris
- iii) Manuál ba Formasaun Konsellu Jestaun Bacias Hidrograficas

Manuál Operasionál ne'e mak komponente prinsipál ne'ebé espesifika prosedimentu Operasaun padraun ba introdusaun no estabelesimentu mekanizmu CB-NRM iha nivel suku. Manuál operasionál ida-ne'e dezeña atu planeadór, pratikante, no servisu hanesan peskizadór/estudante sira iha setór floresta iha Timor-Leste bele uza, liuliu sira-ne'ebé envolve iha protesau floresta, konsersaun bacias hidrograficas, no floresta komunitária iha Diresaun Nasionál Floresta no Gestaun Bacias Hidrograficas (DNFGBH).

Manuál Tékniku CB-NRM sira suplementa Manuál Operasionál, introdús tékniku no abilidade relevante sira-ne'ebé bele ajuda komunitade rural, hodi bele uza no maneja rekursu naturál sira, liuliu rai no floresta, ho maneira ne'ebé produtivu maibé mós sustentável. Manuál sira-ne'e tenke uza, prinsipalmente hosi servisu estensaun terrenu sira, hanesan funsionáriu MAP munisípiu (ezemplu, funsionáriu munisípiu, estensionista, no guarda floresta sira) no mós funsionáriu ONG sira, hanesan referénsia tékniku ba sira-nia servisu iha terrenu.

Manuál ba formasaun Konsellu Jestaun Bacias Hidrograficas, introdús prosesu dezenvolvimentu kolaborasaun plataforma/kuadru servisu ba jestaun rekursu naturál sustentável iha nivel postu-administrativu ka sub-bacias hidrograficas, ne'ebé bele mós hanesan servisu baze ba espansaun mekanizmu CB-NRM iha eskala bacias hidrograficas. Tanba manuál ida-ne'etak aprosimasaun esensiál ida, hodi hadi'a governasaun ambiente iha nivel bacias hidrograficas, liu hosi hametin koordinasaun no rede servisu entre parseiru lokál sira. Manuál ida-ne'e bele uza hodi ajuda sira-ne'ebé envolve iha jestaun bacias hidrograficas.

Liután, Projetu Konjunta JICA no MAP mós dezenvolve no públíka tiha ona manuál sira-ne'e iha versaun simples, atu ajuda uza na'in sira fasil halo tuir prosedimentu sira ka aplíka tékníku sira-ne'ebé deskreve iha manuál sira-ne'e, iha terrenu.

Ne'e duni espera katak, manuál sira-ne'e ho sira-nia versaun simples bele serbí hanesan referénsia prátikú ba parseiru roioin iha setór floresta iha Timor-Leste.

## MANUÁL TÉCNIKU CB-NRM

### Vol.1: *Produsaun Ai-oan no Promosaun Kuda Ai*

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## **Vol.1: Produsaun Ai-oan no Promosaun Kuda Ai**

### **1. Introdusaun**

#### **1.1 Rasionál ba Tékniku**

Produsaun ai-oan no kuda ai bazeia ba comunidade mak atividade importante hodi atinje meta sira-ne'ebé hatuur iha Polítika Nasionál ba Setór Floresta, ne'ebé públika iha tinan 2008. Tuir loloos, polítika sira-ne'e iha ligasaun metin ho estratéjia ne'ebé hatuur ba objetivu prinsipál hosi Polítika Nasionál ba Setór Floresta, ne'ebé hanaran “Aflorestasaun no Restaurasaun Rai.” Iha kontestu CB-NRM, sira-ne'e konsidera nu'udar atividade esensial tanba sira sei kontribui la'ós de'it ba realizasaun planu uza rai iha futuro ne'ebé prepara iha prosesu Planeamentu Uza Rai Partisipativu, maibé mós sei hadi'a vida moris comunidade lokál ba tempu naruk.

Tékniku sira-ne'ebé introdús hosi Projeto Jestaun Rekursu Naturál Sustentável Bazeia ba Komunitade ( iha-ne'e refere ba “ Projeto JICA CB-NRM) ba Produsaun ai-oan no kuda ai, prova duni ninia efetividade iha terrenu hosi pontu de vista finanseiru no tékniku no mós bele aplika ba iha nivel lokál iha mota ninin ne'ebé sai hanesan tarjetu. Tanba ne'e, tékniku no abilidade sira-ne'ebé introdús iha manuál tékniku ne'e la'ós mai hosi livru manuál ne'ebé uza iha nasaun seluk, maibé mai hosi atividade sira-ne'ebé demonstra no koko ona iha terrenu durante kursu treinamentu iha Projeto JICA CB-NRM.

#### **1.2 Objétivu hosi Tékniku**

Objétivu prinsipál hosi tékniku produsaun ai-oan no kuda ai maka atu promove produsaun ai-oan ne'ebé qualidade no servisu hamutuk ho comunidade lokál hodi haluan plantasaun iha área rural sira. Liuliu, tékniku sira-ne'e nia objetivu atu fasilita comunidade lokál sira atu:

- Estabelese no maneja viveiru comunidade eskala ki'ik ho maneira ne'ebé apropriadu;
- Bele iha servisu hamutuk entre comunidade sira hodi prodús ai-oan ne'ebé iha qualidade;
- Kuda ai-oan ho maneira ne'ebé própriu hodi asegura kreximentu ai-oan ne'ebé aas no forte; no
- Estabelese plantasaun ne'ebé apropriadu ba espésie/tipu ai-oan.

#### **1.3 Objétivu hosi Manuál**

Manuál ida-ne'e ho objetivu atu orienta traballadór iha terrenu no planeadór sira-ne'ebé hakarak atu estabelese viveiru comunidade no promove reflorestasaun ne'ebé hala'o hosi comunidade iha área rural sira iha Timor-Leste. Liuliu Funsionáriu Floresta Munisípiu nian, Koordenadór Estensaun Postu-Administrativu sira, Guarda Floresta sira, no funsionáriu ONG nian iha terrenu nu'udar tarjetu prinsipál ne'ebé uza manuál ne'e.

Manuál ida-ne'e bele uza nu'udar matadalan, ne'ebé la'ós de'it atu fornese asisténsia tékniku ne'ebé fó hosi implementadór sira iha terrenu (ezemplu: Funsionáriu Munisípiu sira, estensionista sira, no funsionáriu (ONG), maibé mós ba monitorizasaun no avaliasaun ba atividade sira iha terrenu, ne'ebé hala'o hosi supervizór sira (ezemplu: Funsionáriu DNF sira).

## 2. Aproximasaun Estensaun ne'ebé Efetivu

### 2.1 Aproximasaun Eskola Agrikultór Terrenu (EAT)

Eskola Agrikultór Terrenu (EAT) mak maneira estensaun ida-ne'ebé mak predominante uza iha nasaun dezenvolidu sira ba servisu estensaun agrikultura. Maneira ida-ne'e fofoun dezenvolve uluk iha Ázia sudeste ba jestaun peste integradu (JPI) iha tinan 1990. Hosi ne'ebá kedas, konseitu ne'e dezenvolve tanba ninia efektividade no aplika ona iha dixiplina oioin. EAT emprega métodu edukasaun la-formál ne'ebé bazeia ba konseitu "Esperimentál," "Partisipativu," no "Sentradu ba Alunu."

EAT ninia objetivu mak atu kria ambiente ida-ne'ebé partisipante/agrikultór sira bele aprende lisaun spesífiku ida liuhosi halo rasik ka prátika direktamente iha terrenu, debate kona-ba rezultadu/observasaun, no periódikamente servisu hamutuk ho partisipante/agrikultór sira iha to'os ne'ebé hanesan. Liuhosi sesaun sira EAT nian, partisipante/to'os na'in sira bele:

- Esperiência síklu tomak hosi lisaun refere hanesan Kuda ai-han, dezenvolvimentu Floresta, hakiak animál, hadi'a rai, no produsaun produktu ba merkadu;
- Avalia no analiza situasaun terrenu no konsidera asaun nesesáriu ne'ebé tenke foti atu hadi'a di'ak liután;
- Kapasita sira nia-an ho koñesimentu no abilidade ne'ebé relasiona ho asuntu ne'e;

Tuirmai ne'e nu'udar elementu xave ne'ebé tenke konsidera bainhira dezeña EAT.

**Elementu Xave hosi EAT**

Elementu	Deskrisaun
a. Partisipante EAT	Jerálmente, EAT dezeña ba Partisipante na'in 20 – 25 iha grupu ida. Iha projetu JICA – CB-NRM, grupu ida kompostu hosi membru 15 – 40. Númeru ideal mak membru grupu labele liu hosi ema na'in tolunulu (30).
b. Eskola Terrenu	Sesaun sira EAT nian tenke hala'o iha terrenu. Tenke uza Viveiru eskala ki'ik ida-ne'ebé harii iha nivel aldeia hanesan fatin ba membru sira atu aprende tékniku oioin kona-ba operasaun viveiru, no uza to'os demonstrasaun ba kuda ai nu'udar fatin ba sesaun EAT nian kona-ba Estabelesimentu plantasaun.
c. Kurríkulu EAT	Kurríkulu EAT nian básikamente tenke kobre tópiku/tékniku hotu iha síklu ida hosi matéria ne'ebé hanaran produsaun ai-oan no kuda ai, atu nune'e partisipante sira bele esperiência prosesu tomak kona-ba matéria iha terrenu. Liuliu, membru sira tenke aprende no esperiência tékniku importante sira hosi operasaun viveiru, ne'ebé hanaran estabelesimentu viveiru, kuda fini iha kari fini fatin, preparasaun mídia rai hodi enxe ba <i>polybag</i> , transplanta ai-oan ba saku plástiku, no Jestaun peste iha viveiru komuidade nian. Iha parte seluk, dezeñu plantasaun no maneira hodi kuda ai tenke introdús ba membru sira.
d. Fasilitadór	Fasilitadór ne'ebé mak servisu iha EAT tenke iha Koñesimentu sufisiente iha área ne'e no mós iha abilidade di'ak kona-ba fasilitasaun. Nia sei lidera membru sira liuhosi sesaun EAT nian. Tuir loloos, Funsionáriu estensaun (ka estensionista) mak sei sai hanesan fasilitadór ho apoiu hosi Funsionáriu Floresta Munisípiu. Maibé, ida-ne'e ladún realístiku atu funsionáriu estensaun sira bele halo servisu hanesan Fasilitadór iha tempu agora, tanba sira-nia kapasidade tékniku no fasilitasaun sei limitadu tebes. Tanba ne'e, funsionáriu ONG iha terrenu ne'ebé mak iha abilidade fasilitasaun no mós esperiência iha produsaun ai-oan no kuda ai bele hala'o knaar hanesan fasilitadór ba sesaun sira-ne'e.
e. Membru	Membru sira-ne'ebé oferese sira-nia rai/to'os ba fatin halo viveiru no to'os

Elementu	Deskrisaun
prinsipál	demonstrasaun no hola parte importante iha lidera sesaun EAT nian tenke hili sira nu'udar membru prinsipál.
f. Alokasaun Orsamentu	Iha Timor-Leste eskema orsamentu ba formasaun EAT nian la'ós ki'ik bainhira kompara ho métodu estensaun konvensional nian tanba hahán no merenda tenke prepara ba partisipante sira iha sesaun. Nune'e, presiza tebes atu aseguira katak iha orsamentu ne'ebé suficiente hodi hala'o sesaun sira EAT nian.

Rekursu: Eipa Projetu JICA (2015)

## 2.2 Aproxima iha To'os Demonstrasaun

Simultaneamente ho EAT, aproximasaun iha to'os demonstrasaun sei hala'o hodi habelar informasaun kona-ba tékniku sira entre comunidade sira iha suku, tanba número partisipante sira iha sesaun EAT ki'ik liu kompara ho membru comunidade sira iha suku. Tanba ne'e, viveiru comunidade nian no to'os demonstrasaun ida tenke iha objetivu rua, mak hanesan i) nu'udar fatin ba formasaun EAT nian no ii) nu'udar modelu ida ba sira-ne'ebé la'ós membru (ka comunidade seluk ne'ebé la involve iha EAT) hodi observa rezultadu hosi tékniku sira-ne'ebé aplika hosi membru sira.



## 2.3 Aproximasaun ho Estensaun Agrikultór-ba-Agrikultór

Ida-ne'e karik la'ós aproximasaun estensaun ne'ebé prinsipál iha situasaun atuál iha Timor-Leste, tanba sei menus tebes agrikultór inovativu ne'ebé eziste iha terrenu, liuliu iha área foho. Maibé, espera katak sei haforsa agrikultór prinsipál sira depois sesaun EAT iha to'os demonstrasaun no sai nu'udar modelu ida ba agrikultór sira seluk iha futuru.

Iha kontestu Timor-Leste, estensaun hosi agrikultór-ba-agrikultór seluk karik sei efetivu liu kompara ho simu estensaun hosi ema ne'ebé mai hosi rai seluk, tanba jerálmente comunidade sira lakohi simu kedas tékniku sira-ne'ebé introdús hosi ema ne'ebé mai hosi rai seluk. Observa rezultadu di'ak ne'ebé hetan hosi maluk agrikultór iha sira-nia hela fatin, bele halo sira simu tékniku sira-ne'ebé introdús hodi bele aplika.

## 2.4 Métodu Ekstensaun ne'ebé Propoin

Iha ne'e atu rekomenda katak aproximasaun integradu tuirmai ne'e tenke hala'o nu'udar prinsípiu ida kona-ba métodu estensaun prinsipál atu promove no habelar tékniku/abilidade hosi produsaun ai-oan no kuda ai iha nivel suku.

### Kuadru Servisu ne'ebé propoin ba Estensaun Tékniku

Item	Liña Jeral
Durasau	Tinan 2
Métodu Estensaun	Aplikasaun Eskola Agrikultór Terrenu no Aproximasaun iha To'os Demonstrasaun
Grupu tarjetu	Ema na'in 20~30 iha grupu ida iha nivel aldeia
Liña jerál EAT iha tinan dahuluk	a. Hili espésie ai ba Produsaun ai-oan no deside número ai-oan ne'ebé atu prodús ba kada espésie ho número membru sira-ne'ebé involve. b. Hili fatin ida-ne'ebé apropriadu ba viveiru comunidade nian no fatin ida-ne'e ba to'os demonstrasaun kuda ai.

<b>Item</b>	<b>Liña Jeral</b>
	<p>c. Dezenvolve Kurríkulu EAT ida-ne'ebé kompostu hosi formasaun ho atividade prátika oioin no haree tuir nafatin atividade sira iha viveiru komunitade nian/to'os demonstrasaun.</p> <p>d. Hala'o EAT nia sesaun oioin /formasaun ho atividade prátika iha viveiru/to'os demonstrasaun hodi halo membru sira pratika prosedimentu kona-ba Produsaun ai-oan no kuda ai.</p> <p>e. Ajuda membru sira atu kontinua atividade operasaun viveiru uza tékniku ne'ebé sira aprende ona iha sesaun AET nian no mantén ai-oan iha viveiru ho apropriadu.</p> <p>f. Iha tinan dahuluk, objetivu prinsipál hosi EAT mak atu: i) introdús no demonstra tékniku sira; ii) fó oportunidade ba membru sira atu pratika tékniku refere iha terrenu; iii) fó oportunidade ba sira atu observa rezultadu hosi tékniku ne'ebé introdús iha to'os demonstrasaun. no iv) ajuda sira avalia ka analiza tékniku sira-ne'e bazeia ba rezultadu ne'ebé hatudu iha to'os demonstrasaun.</p>
Tinan daruak	<p>a. Determina espésie ai no número ai-oan ne'ebé presiza prodús bazeia ba rezultadu hosi EAT iha tinan dahuluk.</p> <p>b. Hala'o sesaun EAT ne'ebé hanesan ho sesaun sira-ne'ebé hala'o tiha ona iha tinan dahuluk iha fatin viveiru/to'os demonstrasaun esklui estabelesimentu viveiru hodi asegura membru sira bele aprende tékniku sira.</p> <p>c. Ajuda membru sira mantén ai-oan uza tékniku ne'ebé sira aprende ona iha sesaun EAT nian.</p> <p>d. Enkoraja membru grupu sira hodi kuda ai-oan iha to'os ho maneira ne'ebé apropriadu liuhosi aplika tékniku ne'ebé sira aprende ona iha sesaun EAT nian.</p> <p>e. Fokus prinsipál hosi atividade sira iha tinan daruak mak la'ós de'it atu hala'o sesaun EAT nian iha to'os demonstrasaun, maibé mós fasilita membru sira hodi aplika tékniku xave sira ba iha sira-nia to'os rasik.</p>

*Rekursu: Ekipa Projetu JICA (2015)*

### **3. Tékniku ne'ebé Introdús ba Produsaun Ai-oan no Kuda Ai ne'ebé Rekomenda**

#### **3.1 Vizaun Jerál kona-ba Tékniku**

Iha sesaun EAT nian kona-ba Produsaun ai-oan no kuda ai, tékniku sira tuirmai ne'e tenke introdús iha fatin viveiru komunitade nian no to'os demonstrasaun liuhosi atividade prátika atu nune'e membru sira bele pratika ka halo tuir tékniku sira iha sesaun oioin.

- i) Estabelesimentu viveiru
- ii) Operasaun viveiru (Produsaun Ai-oan)
  - a. Preparasaun fini no kuda fini
  - b. Preparasaun *polybag* ba ai-oan
  - c. Manutensaun ba ai-oan
  - d. Hatoos ai-oan
- iii) Dezenvolvimentu plantasaun ai
  - a. Produsaun adubu orgánika
  - b. Delineasaun liña-male'uk no tau ai-estaka
  - c. Kuda
  - d. Atendementu

#### **3.2 Tékniku sira kona-ba Estabelesimentu no Operasaun Viveiru**

Tékniku sira-ne'ebé prezisa ba estabelesimentu no operasaun viveiru sei esprika kle'an liután iha sesaun sira tuirmai ne'e. Kada sesaun introdús objetivu sira, prosedimentu ba aplikasaun, no durasaun hosi tékniku ho ponta importante seluk tan ba aplikasaun ne'ebé efetivu.

### 3.2.1 Estabelesimentu Viveiru

#### (1) Objektivu

Objetivu prinsipál hosi tékniku ida-ne'e mak atu estabelese viveiru eskala ki'ik ida iha nivel aldeia uza materiál sira-ne'ebé disponivel iha lokalidade.



#### (2) Prosedimentu ba Aplikasaun

Etapa haat (4) tuirmai ne'e tenke halo atubele estabelese viveiru eskala ki'ik.

- i) Dezeñu modelu viveiru nian
- ii) Selesaun ka hili fatin
- iii) Instalasaun sistema bee
- iv) Dezenvolve viveiru

#### a. Dezeñu modelu fatin viveiru nian

- i) Hili espésie ai-oan ne'ebé atu kuda.

Kondisaun ambiente ne'ebé favoravel liu ba maioria espésie mak deskreve hanesan tuirmai ne'e.

#### Kondisaun ne'ebé favoravel ba Produsaun Ai-oan ba espésie ida-idak

Espésie	Rai nia aas/Altitude (m)	Tipu rai	Materiál/Métodu ne'ebé uza hodi habarak fini
Ai-teka	0 - 700	Naran rai ida	Musan, sanak
Ai-mahoni	0-1,000	Naran rai ida	Musan
Ai-kameli	50 - 1,200	Rai-henek ne'ebé la fertil	Musan
Ai-Kakeu	0 - 2,000	Naran rai ida	Musan
Rambutan	0 - 600	Rai isin ne'ebé fertil	Musan, Graft
Kelengkeng	0 - 700	Naran rai ida	Musan, Graft
Durian	0 - 800	Tahu-teen/rai-mean ne'ebé fertil.	Musan, Graft
Sabraka	0 - 1,000	Rai humus ne'ebé fertil	Musan, Graft
Cengkeh	200 - 300	Rai isin ne'ebé fertil nato'on de'it.	Musan

Rekursu: Fundasaun Halarae(2015)

- ii) Determina número ai-oan ne'ebé presiza prodús iha fatin viveiru. Atubele determina loloos totál número ai-oan ne'ebé presiza prodús iha fatin viveiru, tenke konsidera katak maizumenus 20% hosi totál ai-oan mak karik sei mate.

#### Ponta Importante

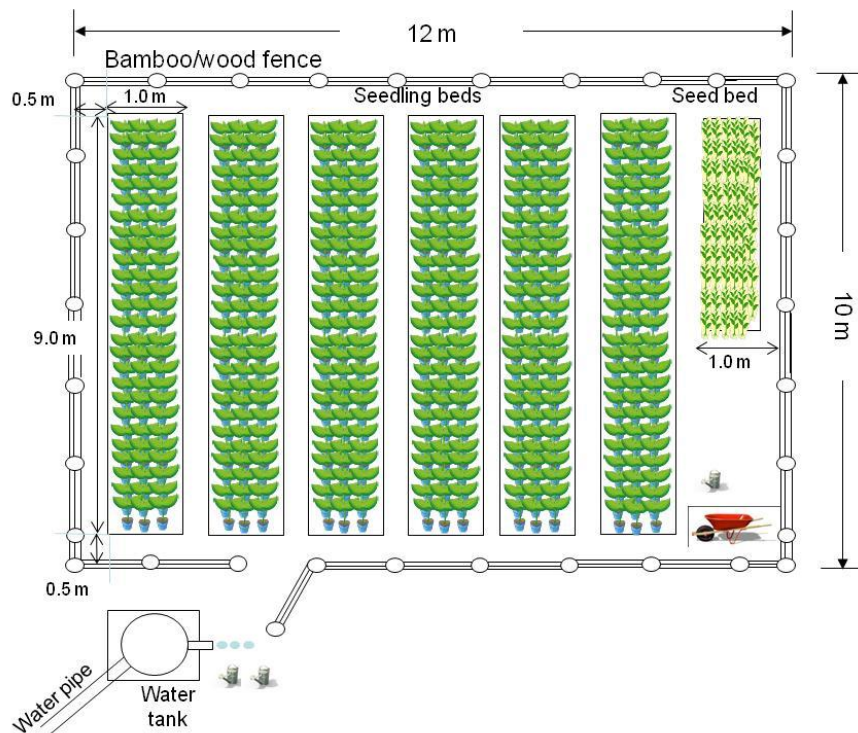


- ▶ Halo selesaun ba espésie ai-oan tenke liuhosi diskusaun ho partisipante/agrikultór sira hodi refleta sira-nia preferénsia, nune'e bele mantén sira-nia interese iha atividade sira.
- ▶ Número ai-oan tenke determina bazeia ba Kapasidade partisipante/agrikultór atu kuda ai-oan. Tuir esperiéncia Projeto JICA CB-NRM, número ai-oan ne'ebé família ida bele kuda ho maneira ne'ebé di'ak mak hosi 50 to'o 150 ai-oan.

iii) Dezeña dezeñu viveiru nian ne'ebé kompostu hosi fatin kari fini, kantedeiru ba ai-oan no dalan ki'ik iha viveiru, bazeia ba espesifikasaun tuirmai:

- Fatin kari fini nia luan: 1.2 – 1.5 m
- Dalan ki'ik iha viveiru nia luan: 0.4 – 0.5 m
- Kantedeiru nia luan: 0.6 – 1.0 m; no nia naruk: 3 – 5 m
- *Polybag* ba ai-oan 100 presiza área 1.0 m<sup>2</sup>

Se hanoin katak totál número ai-oan atu prodús iha fatin viveiru ida mak 5,400 ai-oan (150 ai-oan/ema ida x membru 30 x 120%), entaun tenke estabelese fatin viveiru ida ho medida 10m x 12m . Modelu fatin viveiru tuir padraun mak hatudu iha dezeñu tuirmai ne'e.



**Standard Dezeñu Viveiru nian**

**b. Selesaun fatin**

- Atu hili área ida ba fatin viveiru nian presiza konsidera kondisaun sira tuirmai: a) hetan asesu ba bee, b) kondisaun fatin (nakloke maibé menus anin), c) kondisaun rai (rai tetuk ka rai lolon uitoan de'it), no d) besik ka iha asesu ba maioria uma comunidade nian.
- Halo konsultasaun ho ema ne'ebé na'in ba rai ne'ebé hili ona atu sai fatin ba viveiru. Iha tempu hanesan, halo mós konsultasaun ho comunidade sira-ne'ebé uza bee-matan ka ema ne'ebé tau matan ba bee-matan hodi halo konkordánsia ho sira kona-ba uza bee hosi bee-matan refere ba produsaun ai-oan.

**c. Instalasaun sistema bee**

- Liga bee-matan (hosi be matan ka tanke bee) ba iha fatin viveiru uza au/mangeira.
- Tau bidón ida ho volume maizumenus litru 200 iha fatin viveiru hodi rai bee iha tempu kalan.



d. Dezenvolve viveiru

- i) Hamoos no halo tetuk fatin ne'ebé hili ona hodi halo viveiru.
- ii) Halibur materiál lokál sira (ezemplu, au ka ai no tali-tahan) hodi uza ba ai-riin, didin, uma kakuluk ba viveiru. Tabela tuirmai ne'e hatudu materiál ne'ebé presiza atu estabelese fatin viveiru ida ho luan 120m<sup>2</sup> ne'ebé di'ak ba ai-oan 5.400.



**Materiál Nesesáriu hodi Hari'i Viveiru**

Item	Kuantidade	Komentáriu
Au-lolon	Lolon 40	Ba ai-riin, didin no lutu viveiru nian
Ai/au atu uza ba ai-riin	Lolon 12	Naruk 3-4 m no ho diámetru 20 cm mak di'ak liu.
Ai/au ba didin/atu suporta	Lolon 20	Naruk 3-4 m no ho diámetru 5 cm mak di'ak liu
Du'ut nalo/tali-tahan ba kakuluk	Futun 30	-
Pregu	4 kg	7cm
Arame	Lulun 3	-

Rekursu: Ekipa Projetu JICA (2014)

- iii) Halo lutu hale'u uza au no taka uma ba viveiru nia kakuluk ho du'ut nalo/tali-tahan.
- iv) Se fatin halo viveiru ne'e lokaliza iha área ne'ebé iha anin boot, halo didin uza du'ut ka tali-tahan hodi satan netik anin.

*Uma kakuluk nia mahar tenke ajusta tuir kondisaun fatin, ezemplu intensidade manas iha área refere. Karik iha ona mahon, uma kakuluk tenke halo mihis ka taka dodok malu uitoan.*

(3) Tempu ba Aplikasaun

Iha parte norte ne'ebé mak ho tipu klima *monsoon* ho diferença ne'ebé klaru entre tempu-udan no tempu-bailoron, Estabelesimentu/halo viveiru tenke komesa iha fulan-marsu atu nune'e ai-oan bele moris boot suficiente hodi kuda iha fulan-novembru iha tinan ne'ebé hanesan. Padraun kona-ba tempu halo/estabelese viveiru hosi EAT mak deskreve tuirmai ne'e.

*Sujere tebes atu didin netik hodi taka anin nian bainhira prodús ai-oan ne'ebé la tahan anin, hanesan Rambutan.*

**Tempu Padraun hosi FFS ba Estabelesimentu Viveiru**

Atividade	Tempu	Durasaun hosi sesaun
i) Dezeña modelu viveiru nian	Marsu	Loron rua to'o tolu
ii) Selesaun fatin	Marsu	Loron ida halo observaun ba fatin no loron ida to'o rua halo diskusaun ho rai na'in no na'in ba bee-matan ne'ebé atu uza ba viveiru no mós komunitade sira-ne'ebé uza bee.
iii) Instalasaun Sistema bee	Marsu	Loron rua ba Treinamentu prátika direktamente
iv) Harii viveiru	Marsu	Loron haat ba Treinamentu prátika direktamente

Rekursu: Ekipa Projetu JICA (2015)

### 3.2.2 Preparasaun Fini no Kuda Fini

#### (1) Objektivu

Objektivu prinsipál hosi tékniku ne'e mak atu aseguira jerminasaun ne'ebé aas iha fatin kari fini iha fatin viveiru nian.

#### (2) Prosedimentu ba Aplikasaun

Etapas no tópicu sira tuirmai tenke introdús iha sesaun sira

- i) Kolesaun Fini
  - ii) Pré-tratamentu fini
  - iii) Halo fatin kari fini nian
  - iv) Kari no halo manutensaun fini iha fatin kari fini nian
- a. Kolesaun Fini
- i) Identifika no hili ai-inan ne'ebé moris boot no nia tahan no sanak dezenvolve ho di'ak, ba espésie ai-industriál no ba ai ne'ebé fó fuan, hili espésie ai-inan ne'ebé fó fuan boot no qualidade.
  - ii) Koleta fini hosi ai-inan iha tempu kolleita hanesan tuirmai ne'e

**Períodu Koileta Fini**

Espésie	Jan	Fev	Mar	Abr	Maiu	Juñu	Jullu	Aug	Set	Out	Nov	Dez
Ai-kameli	-	-	X	X	-	-	-	-	X	X	-	-
Cengkeh	-	-	X	X	-	-	-	-	-	-	-	-
Derok	-	-	-	-	X	X	X	-	-	-	-	-
Rambutan	-	-	X	X	X	-	-	-	-	-	-	-
Kelengkeng	-	-	-	-	-	-	X	X	X	-	-	-
Ai-teka	-	-	-	-	-	-	X	X	-	-	-	-
Ai-mahoni	-	-	-	-	-	-	X	X	-	-	-	-

Nota. X: Tempu kolleita

Rekursu: Ekpa Projeto JICA (2015)

- iii) Se laiha ai-inan iha ita-nia área, buka fini hosi fonte ne'ebé kredivel iha ita-nia rain.
- b. Pré-tratamentu fini

Métodu sira-ne'ebé deskreve iha okos ne'e, nu'udar métodu pre-tratamentu fini ba kada espésie atu halo fini moris lalais no hetan jerminasaun ne'ebé aas.

**Metodu pré-tratamentu fini**

Espésie	Metodu pré-tratamentu fini
Ai-kameli	1) Hoban fini iha bee malirin durante oras 12 to'o 24
Cengkeh	1) Hasai tiha kulit li'ur 2) Hoban iha bee durante oras 1-2
Derok/sabraka	1) Kahur fini ho ahi-kadesan
Rambutan	La presiza
Kelengkeng	La presiza
Ai-teka	1) Tau fini iha saku foos nia no hoban iha bee malirin durante oras 72. 2) Depois hoban foti sai saku ne'e hosi bee laran, tau iha balde metan ka kontentór metan ida. 3) Habai fini sira-ne'e iha loro-matan pelumenus durante loron 2 hodi hamaran fini sira-ne'e.
Ai-mahoni	1) Habai fini durante oras 48

Rekursu: Ekpa Projeto JICA (2015)

- c. Halo fatin kari fini nian

i) Halibur materiál lokál, hanesan au, ai hodi halo fatin kari fini nian.

ii) Halo hadak ida ba fatin kari fini nian ho nia aas 1.2~1.5m ne'ebé aas nato'on hodi prevene manu atu estraga.

iii) Kahur rai-metan ho rai-henek no adubu orgánika ka adubu iha proporsaan 2:1:1 no fakar ba iha fatin kari fini nian.

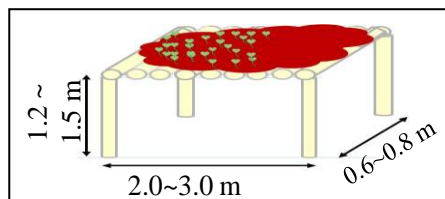
d. Kari fini no halo manutensaun fini iha fatin kari fini nian

i) Rega bee ba fatin kari fini nian lora ida molok kari fini.

ii) Kari fini iha fatin kari fini nian.

iii) Kari hotu tiha, taka fatin kari fini nian ho du'ut maran hodi mantén temperatura no halo fatin bokon nafatin atu asegura jerminasaun ne'ebé aas.

iv) Rega fatin kari fini nian dala rua lora ida (dadeer no loraik), tenke rega ho didi'ak atu fini ne'ebé kari ona labele haksoit sai.



Dezeñu Típiku Fatin kari fini



### Ponta Importante



- ▶ Balde ki'ik ida ho hena bokon ida tau iha okos bele uza hanesan fatin kari fini ba fini ai-kameli se númeru ai-oan uitoan.
- ▶ Ba jerminasaun fini ai-teka, fatin kari fini tenke taka ho plástiku metan no labele rega durante oras 48.

v) Observa beibeik atu haree karik fini ne'ebé kari moris ona. Durasau ba fini atu moris diferente entre kada espésie hanesan hatudu iha kraik.

#### Períodu ne'ebé presiza ba Jerminasaun Fini

Espésie	Príodu ne'eb'e presiza ba jerminasaun fini
Ai-kameli	Semana 2
Cengkeh	Lora 3-4 to'o semana 1
Derok/sabraka	Semana 1
Rambutan	Lora 3-4
Kelengkeng	Lora 4-5
Ai-teka*	Fulan 1
Ai-mahoni	Semana 1

Nota\*: rekomena katak di'ak liu mak uza fini ai-teka ne'ebé kolleita tinan ida ona ne'e mak kari iha fatin kari fini nian.  
Fonte: Ekipa Projeto JICA (2015)

### (3) Tempu ba Aplikasaun

Sesaun AET nian ba tópiku hirak-ne'e tenke hala'o tuir Tempu hirak tuirmai ne'e.

#### Tempu Padraun hosi EAT ba Preparasaun no Kari Fini

Atividade	Tempu	Durasau hosi sesaun
i) Kolesaun fini no pre-tratamentu fini	Marsu-Setembru (depende ba espésie)	Lora rua ba treinamentu prátika diretamente
ii) Halo fatin kari fini nian	Maiu/Juñu	Lora ida ba treinamentu prátika diretamente
iii) Kari fini no halo manutensaun fini ne'ebé kari ona iha fatin kari fini nian	Maiu/Juñu	Lora ida ba treinamentu prátika diretamente

Rekursu: Ekipa Projeto JICA (2015)

### 3.2.3 Preparasaun Fazu hodi Kuda Ai-oan sira

#### (1) Objetivu

Objetivu prinsipál hosi tékniku ne'e mak atu prepara fazu ba ai-oan sira liuhosi kahur no enxe mília fazu no transplanta fini-oan ba fazu ho maneira ne'ebé própriu.

#### (2) Prosedimentu ba Aplikasaun

Etaapa haat (4) tuirmai ne'e tenke hala'o bainhira halo preparasaun fazu ba ai-oan.

- i) Kolesaun rai no materiál sira seluk ba mília fazu
- ii) Kahur rai ho mília seluk
- iii) Enxe rai ne'ebé kahur ona ba *polybag*
- iv) Transplanta fini-oan ba fazu ne'ebé enxe ona ho mília

#### a. Kolleita rai no materiál sira seluk

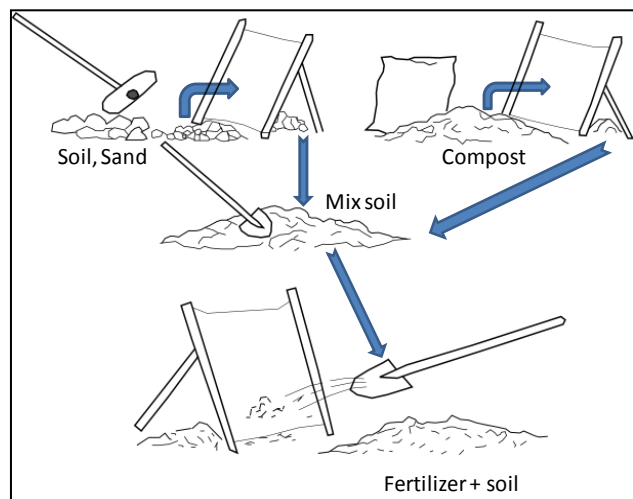
- i) Kolleita rai-leten (rai-metan), rai-okos (*sub-soils*), no rai-henek iha lokalidade hamutuk ho partisipante/agrikultór sira. Rai-leten tenke kolleita hosi floresta ho densidade nakonu ka plantasaun kafé, no rai-henek tenke kolleita hosi mota. Rai hosi rai-metan nia okos, bele uza hanesan rai-okos.
- ii) Prokura adubu orgánika hosi fatin seluk (Ezemplu, Dili) liuliu iha tinan dahuluk ka etapa dahuluk FFS/Produsaun ai-oan tanba karik sei difisil ba partisipante/agrikultór sira atu hetan adubu orgánika iha sira-nia fatin iha tinan ne'ebé hanesan.
- v) Kolleita/prokura materiál sira hodi hadi'a rai, hanesan hare-kulit no ai-uut hodi hadi'a propriedade fíziku mília rai.

#### b. Kahur rai ho materiál sira seluk

- i) Pineira rai, rai-henek no adubu orgánika liuhosi dai-matan (rekomenda uza dai-matan ho diámetru 0,5 cm) hodi hasai rai-kafu'ak no irregularidade sira seluk inklui ai-abut no ai-kunak/sanak sira.
- ii) Kahur rai, rai-henek no adubu orgánika ho kompozisaun hanesan tuirmai.



- Ai-kabelak no ai-fuan: rai-leten (ka rai-metan), rai-henek, no estrume/adubu orgánika ho proporsaun 3:1:2 (50% : 17% : 34%).
- Ai-kameli: rai-leten (rai metan), rai-okos (*sub-soils*) no rai-henek ho proporsaun 1:2:1 (25% : 50% : 25%).

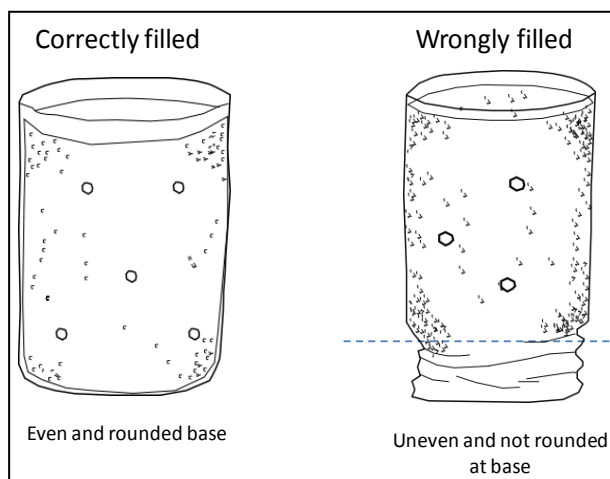
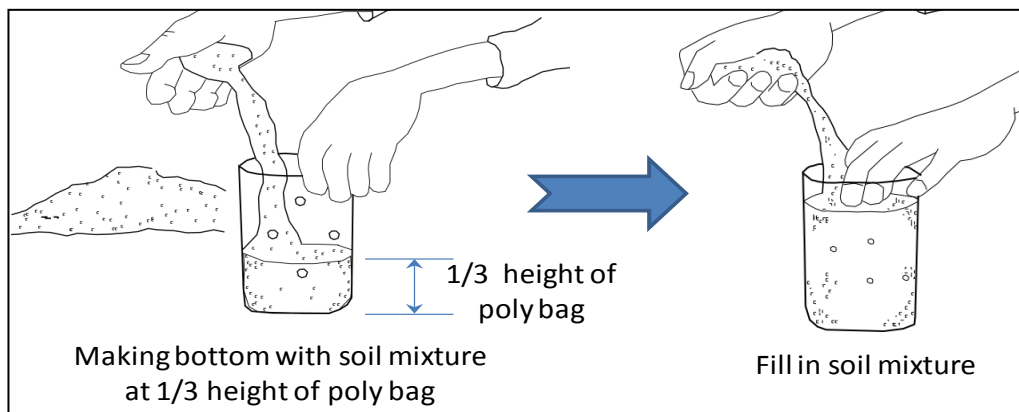


#### c. Enxe rai ne'ebé kahur ona ba *polybag*

- i) Prokura *polybag* ne'ebé sufisiente ba númeru totál ai-oan ne'ebé prodús iha viveiru.

*Polybag* nia tamañu tenke ho diámetru 8 cm no altura 12 cm ba espésie ai-kabelak no ai-industriál, no ba espésie ai-fuan nia tamañu tenke ho diámetru 12 cm no altura 22 cm.

- ii) Enxe rai ne'ebé kahur ona to'ò katoluk ida hosi *polybag* nia altura, no doko *polybag* ne'e, atu enxe ho uniforme hosi okos to'ò parte leten *polybag* nian.
- iii) Kontinua enxe rai ne'ebé kahur ona ba *polybag*.



Tenke doko *Polybag* ba leten no ba kraik bainhira enxe rai ba *polybag*, atu nune'e i) hametin mistura rai iha baze, ii) enxe rai ho uniforme ba *polybag*, no iii) prevene anin kuak iha *polybag* laran.

Se rai enxe ho uniforme ba *polybag*, *polybag* nia baze sei sai kabuar no metin.

- iv) Rai *polybag* ne'ebé enxe ona ho mistura rai iha fatin rai fini nian halo *polybags* kuadradu 100 (*polibag* 10 x 10), atu nune'e fazu ai-oan sira bele maneja ho fasil iha viveiru laran.



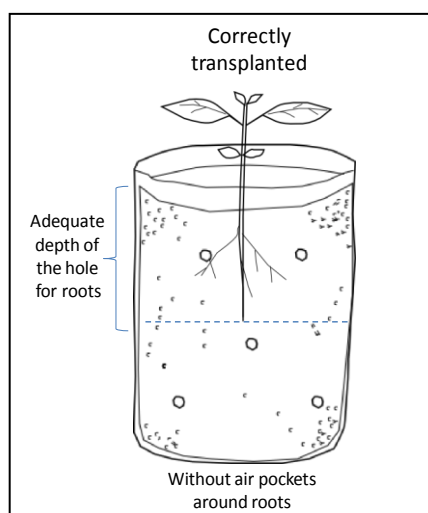
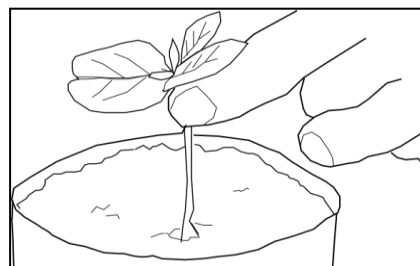
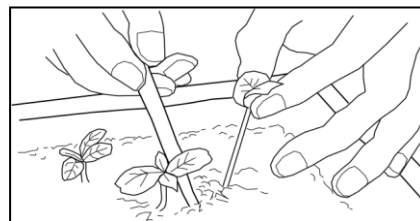
d. Transplanta fini-oan ba fazu

- i) Ba ai-kameli, kolleita ai-inan (*Alternanthera ficoidea*) hodi kuda hamutuk ho ai-kameli fini-oan ba fazu laran.
- ii) Rega fazu ai-oan loron ida (1) molok transplanta fini-oan.
- iii) Fokit no foti fini-oan hosi fini-fatin, kaer iha fini-oan nia tahan tutun no tau iha basia ne'ebé tau ona bee. Kuantidade fini-oan



ne'ebé fokit dala ida tenke tuir número ne'ebé partisipante/agrikultór sira bele transplanta iha minutu 15 nia laran, hodi prevene estragu ba fini-oan ne'ebé kauza hosi maran. Fokit no transplantasaun tenke hala'o sedu iha dadeersaan ka lokraik hodi proteje fini-oan kona loro-matan ne'ebé intensivu.

- iv) Halo kuak ki'ik iha kada fazu ai-oan uza ai-sanak ki'ik. Tamañu kuak tenke ho boot ne'ebé suficiente hodi hatama abut fini-oan sein hakle'uk fini-oan nia abut (*taproot*).
- v) Foti fini-oan hosi basia laran, kaer iha ninia tahan tutun no hatama nia abut ba kuak ne'ebé halo ona.
- vi) Taka rai kuak no hanehan baze ai-oan nian neineik no kuidadu atu labele hosik anin kuak hale'u fini-oan nia sistema abut.
- vii) Rega faze ai-oan imediatamente depois kuda.
- viii) Rega ho regulár atu mantein kontén bee nian ba loron tolu tuirmai ho kuidadu, atu nune'e labele rega demais ai-oan sira.
- ix) Rai ai-oan sira iha fatin nakukun ba loron balu.
- x) Muda ai-oan sira ka hasai tiha mahon, atu ai-oan sira bele hetan netik loron bainhira tahan foun sai ona.
- xi) Tau etiketa ho informasaun tuirmai iha kada kuadradu fazu ai-oan nian.
  - espésie
  - data transplanta
  - número fini-oan ne'ebé transplanta



### (3) Tempu ba Aplikasaun

#### Tempu Padraun FFS ba Preparasaun fazu ai-oan

Atividade	Tempu	Durasaun hosi sesaun
i) Kolesaun materiál ba mídia fazu	Maiu/Juñu	Loron ida ba treinamentu prátika direktamente
ii) Preparasaun rai mistura no enxe rai ne'ebé kahur ona ba fazu	Maiu/Juñu	Loron sorin ba kada treinamentu prátika direktamente
iii) Transplanta fini-oan ba fazu	Maiu/Juñu	Loron sorin ba treinamentu prátika direktamente

Rekursu: Ekipa Projetu JICA (2015)

### 3.2.4 Kuidadu Ai-oan

#### (1) Objektivu

Objektivu prinsipál hosi tékniku ne'e mak atu kuda ai-oan ne'ebé saudavel tanba hetan tratamentu di'ak iha viveiru laran.

#### (2) Atividade sira-ne'ebé sei hala'ó

Atividade sira hodi kuidadu ai-oan adubu orgánik atu hosi i) rega, ii) hamoos du'ut, iii) halo espasu ba ai-oan, iv) preparasaun no aplikasaun adubu-been, v) Ko'a ai-oan nia abut no vi) kontrola peste. Ba detallu liután hosi atividade ne'e deskreve iha kraik ne'e.

#### a. Rega

Rega ai-oan to'o bee tama to'o fazu ai-oan nia okos uza regadór, bele sedu iha dadeersaan ka loraik, iha loran ida.

*Totál período durasaun kuidadu ai-oan hosi fulan neen (6) to'o fulan sia (9) depende ba área nia altitude: fulan neen (6) (hosi Juñu to'o Novembru iha área rai-tetuk no fulan sia (9) (hosi Marsu – Novembru) iha área rai-foho iha nasaun ne'e.*

*Ita tenke uza regadór, atu nune'e evita bee fo'er namkari ba ai-oan nia tahan tanba bee fo'er ne'e bele kauza infesaun no halo ai-oan moras.*

#### Ponta Importante



- ▶ *Frekuénsia rega ai-oan diferente ba kada espésie, ai-oan nia tinan, no kompozisaun rai (mídia rai) iha fazu laran.*
- ▶ *Permeabilidade rai iha fazu ai-oan sei gradualmente redús durante período kuidadu ai-oan. Partíkula mikro sira iha rai nia suspensaun sei estabelese depois rega bee ne'ebé sei tama rai nia poru sira iha fazu bainhira bee tama ba rai laran.*
- ▶ *Karik ita-boot hetan molde ka musgu/tahan mutin iha ai-oan nia tahan, ida-ne'e sinál katak drainajen ladún di'ak iha fazu laran. Ita-boot presiza hamamar rai iha fazu laran hodi hadi'a drainajen bee nian.*

#### b. Hamoos du'ut

- Ho kuidadu fokit du'ut hosi fazu laran uza liman regularmente hodi asegura nutriente no loran suficiente ba ai-oan
- Hamoos du'ut iha viveiru laran periodikamente hodi minimiza oportunidade ba peste/insekta atu ataka ai-oan.



#### c. Halo espasu ba ai-oan

- Mantein distánsia ne'ebé própriu entre fazu ai-oan sira hodi asegura espasu ne'ebé suficiente ba ai-oan sira hodi loke sira-nia tahan, selae ai-oan sira sei nakdulas.

d. Preparasaun no aplikasaun adubu-been

- i) Prepara adubu-been ba aplikasaun adubu adisionál, refere ba Sub-sesaun 3.3.8 hosi Manuál Tékniku CB-NRM Vol.2: Promosaun To'os Foho-lolon ne'ebé Sustentável
- ii) Aplika adubu-been, refere ba Sub-sesaun 3.3.9 hosi Manuál Tékniku CB-NRM Vol.2: Promosaun To'os Foho-lolon ne'ebé Sustentável bainhira observa sintoma ruma hosi moras nutrisaun (ezemplu, kór ai-tahan troka ka kreximentu ai-oan ne'ebé ladi'ak).







e. Ko'a ai-oan nia abut

Karik ai-oan nia abut sai liu hosi fazu laran, tesi kotu tiha ai-oan abut ho tezoura ka tudik hodi prevene ai-oan nia abut tama ba rai-laran.





f. Kontrola Peste no Moras

Observa ai-oan no foti asaun ne'ebé nesesáriu hodi kontrola peste no moras iha tempu ne'ebé nesesáriu. Sintoma prinsipál ne'ebé observa durante kursu implementasaun Projetu JICA CB-NRM mak hatudu iha kraik ne'e ho asaun posivel ne'ebé presiza foti.

**Sintoma Prinsipál sira hosi Ataka peste ba Ai-oan sira no Asaun Posivel ne'ebé presiza foti**

Sintoma	Espésie ne'ebé hetan ataka	Kauza hosi sintoma	Asaun ne'ebé presiza foti
<p>1. Ai-oan tahan nakdulas no ai-tahan nia kór troka</p> 	Sabraka	<p><i>Citrus leaf miner</i> (moth) muda ba mai iha ai-tahan laran</p> 	<p><u>Aplikasaun</u></p> <ul style="list-style-type: none"> <li>- Rega bee ne'ebé kahur ho tabaku tahan (tabaku been) hosi ai-tahan kotuk dala ida semana ida, durante semana 2-3.</li> </ul> <p><u>Preparasaun tabaku been</u></p> <ul style="list-style-type: none"> <li>- Kahur tabaku-tahan 2 (ka tabaku-sanak rohan 8) ho bee litru 1.</li> <li>- Uza been ne'e loron 3 depois kahur tabaku been liuhosi kahur Tabaku been xikra 1 ho bee litru 1</li> </ul>
<p>2. Metan-metan iha ai-tahan</p> 	Ai-teka	<p>Labadain</p> 	<p><u>Aplikasaun</u></p> <ul style="list-style-type: none"> <li>- Rega bee ne'ebé kahur ho tua-sin (tua-sin been) ka kafé ne'ebé fermenta, hosi ai-tahan kotuk hodi oho ladak.</li> </ul> <p><u>Preparasaun</u></p> <ul style="list-style-type: none"> <li>- Hamihis tua-sin ho bee dala 20.</li> <li>- Kafé ne'ebé fermenta labele hamihis ba aplikasaun.</li> </ul>
<p>3. Kuak iha ai-tahan</p> 	Ai-mahoni	<p><i>Scarab beetle</i></p> 	<p><u>Aplikasaun</u></p> <ul style="list-style-type: none"> <li>- Hasai insetu sira hosi ai-tahan .</li> </ul>



Sintoma	Espésie ne'ebé hetan ataka	Kauza hosi sintoma	Asaun ne'ebé presiza foti
<p>4. Kuak iha ai-tahan</p> 	Ai-mahoni, Sabraka	<p>Lala'ek/ leaf roller</p> 	<p><u>Aplikasaun</u></p> <p>- Rega ho been hosi hudi kulit matak da'an.</p> <p><u>Preparasaun</u></p> <p>- Da'an bee litru 1 no aumenta hudi kulit matak liman isin ida. Da'an ba minutu 30. Hasai hudi kulit hodi ta'es, no aplika ba insetu sira.</p>
<p>5. Ai-tahan namkurut</p> 	Ai-mahoni, Ai-teka	Virus ne'ebé posivel tanba tranzmite hosi ladak	<p><u>Aplikasaun</u></p> <p>- Hasai ai-tahan ne'ebé hetan moras hosi ai-oan no hadook hosi ai-oan ne'ebé saudavel. Aplika dezinfetante.</p>
<p>6. Ai-tahan kór-mutin (White powdery mildew)</p> 	Sabraka	Kulat/fungus	<p><u>Aplikasaun</u></p> <p>- Aplika ahi-kadesan ka rega ho tua-sin ne'ebé kahur ho bee dala 20-30.</p>

### (3) Tempo ba Aplikasaun

#### Tempu Padraun ba FFS kona-ba Kuidadu Ai-oan

Atividade	Tempu	Durasaun hosi sesaun
i. Rega no Hamoos du'ut	Maiu-Agostu	Loron sorin ba treinamentu prátika direktamente
ii. Halo espasu no ko'a ai-oan nia abut	Setembru-Outubru	Loron sorin ba treinamentu prátika direktamente
iii. Preparasaun adubu-been	Maiu-Agostu	Loron ida ba treinamentu prátika direktamente
iv. Aplikasaun adubu-been	Maiu-Agostu	Loron sorin ba treinamentu prátika direktamente
v. Kontrola peste no moras	Maiu-Agostu	Loron ida ba treinamentu prátika direktamente

Rekursu: Ekipa Projetu JICA (2015)

#### Ponta Importante



- ▶ *Bainhira ita-boot haree hetan ai-oan hetan atake hosi peste no moras, imediatamente izola ai-oan iha fazu hosi ai-oan seluk atu nune'e prevene infesaun da'et ba ai-oan sira seluk.*

### 3.2.5 Hatoos ai-oan

#### (1) Objektivu

Objetivu prisipál hosi tékniku ne'e mak atu adapta ai-oan ba ambiente li'ur liuhosi tau ai-oan sira kona loro-manas no redús frekuénsia rega ai-oan molok kuda.

#### (2) Atividade sira-ne'ebé sei hala'o

Hatoos ai-oan bele halo semana balu molok kuda ai-oan liuhosi redús i) rega ai-oan, ii) mahon, iii) ko'a ai-abut ne'ebé sai hosi fazu laran no) aplika adubu hanesan ne'ebé deskreve iha kraik ne'e.

##### a. Rega

Redús frekuénsia rega no kuantidade bee ne'ebé rega ba ai-oan, atu nune'e ai-oan sira bele adapta ba kondisaun menus bee.

##### b. Mahon

Hasai uma kakuluk viveiru nian hodi halo ai-oan hetan loro-manas fulan ida (1) molok kuda ai-oan sira.

##### c. Ko'a ai-abut

Para tesi ai-abut ne'ebé sai hosi fazu ai-oan laran, fulan ida molok kuda ai-oan sira

##### d. Aplika adubu

Para aplika adubu-been semana rua to'o tolu molok kuda ai-oan sira

#### (3) Tempu ba Aplikasaun

##### Tempu Padraun ba FFS kona-ba Hatoos Ai-oan

Atividade	Tempu	Durasaun hosi sesaun
Hatoos ai-oan (kontrola rega, mahon, tesi ai-abut no aplika adubu)	Outubru	Loron ida ba treinamentu prátika diretamente

Rekursu: Ekipa Projetu JICA (2015)

### **3.3 Tékniku Kuda Ai**

#### **3.3.1 Produsaun Adubu orgánika**

(1) **Objetivu**

Objetivu prinsipál hosi tékniku ne'e mak atu prodús adubu orgánika ho kualidade ne'ebé halo hosi materiál lokál sira-ne'ebé disponivel, atu nune'e membru sira bele aplika adubu báziku bainhira kuda ai-oan.

(2) **Prosedimentu ba Aplikasaun**

Prosedimentu hanesan, ne'ebé deskreve iha sub-sesaun 3.3.1 hosi Manuál Tékniku CB-NRM Vol.2: Promosaun To'os Foho-lolon ne'ebé Sustentável tenke halo tuir.

(3) **Tempu ba Aplikasaun**

Produsaun adubu orgánika tenke komesa iha fulan-maiu no kontinua haree adubu orgánika to'o tempu bainhira adubu orgánika ne'e aplika hanesan ne'ebé deskreve iha sub-sesaun 3.3.1 hosi Manuál Tékniku CB-NRM Vol.2: Promosaun To'os Foho-lolon ne'ebé Sustentável.

### 3.3.2 Determinasaun Formatu Plantasaun

#### (1) Objektivu

Objetivu prinsipál hosi tékniku ne'e mak atu determina dezeńu/formatu plantasaun ne'ebé apropiadu ba respetiva objetivu no aplikavel ba respetiva fatin nia kondisaun.

#### (2) Prosedimentu ba Aplikasaun

Priór ba kuda ai iha terrenu, plantasaun nia formatu tenke dezeńa bazeia ba objetivu no tipu hosi ai-oan ne'ebé kuda. Jerálmente, plantasaun bele klasifika ba tipu hanesan tuirmai ne'e.

- i) Plantasaun ai-fuan no ai-industriál
- ii) Plantasaun kafé
- iii) Plantasaun ai-kabelak
- iv) Rejeneradu Floresta iha rai degradadu

Kondisaun báziku no dezeńu nia típiku hosi respetiva plantasaun, deskreve iha kraik ne'e.

#### Kondisaun báziku no dezeńa nia típiku ba Plantasaun Ai

##### a. Plantasaun Ai-fuan no ai-industriál, no plantasaun kafé

Tipu	Kuda ai-fuan/ai-industriál oan	Produsaun kafé
Fatin tarjetu	To'os uma-hun ka to'os iha uma-kotuk ho ai ne'ebé eziste ona no ai-han inan hanesan hudu	Área ba to'os muda ba mai ka to'os ne'ebé besik ho plantasaun kafé ne'ebé eziste ona
Espésie ne'ebé sei kuda	<ul style="list-style-type: none"> <li>- Ai-fuan no ai-industriál, hanesan, <i>rambutan</i>, <i>lengkeng</i>, <i>cengkeh</i>, kanela no kulu</li> <li>- Espésie ai-kabelak folin boot, hanaran, kameli</li> <li>- Ai ne'ebé prefere liu kondisaun ne'ebé mahon iha sira-nia kreximentu inisiál</li> <li>- Ai-koto hanesan lutu-moris no ai-han ba animál</li> </ul>	<ul style="list-style-type: none"> <li>- Kafé</li> <li>- Parte leten ai-mahon : Samtuku, Kakeu</li> <li>- Parte média ai-mahon: <i>Caliandra</i></li> </ul>
Espasu entre ai-oan	Kuda kahur ai ne'ebé eziste ona no ai-han inan ho espasu hanesan tuirmai ne'e: <ul style="list-style-type: none"> <li>- Ai: 4 m (ezemplu, <i>cengkeh</i>) - 7 m (ezemplu, <i>rambutan</i>)</li> <li>- Ai-han inan, ezemplu, hudu: 1-2 m</li> <li>- Ai-koto: 3-4 m</li> </ul>	<ul style="list-style-type: none"> <li>- Kafé: 2.0-3.0 m x 2.0-3.0 m</li> <li>- Parte leten/média ai-mahon: 10 m x 10 m</li> </ul>
Dezeńu nia típiku/ Plantasaun nia imajen		<p>           ----- Contour line            ☆ Albizia (Upper-layered)            ⊕ Calliandra (Middle-layered)            ● Coffee         </p>

**b. Plantaun Ai-kabelak no Rejeneradu Floresta iha Rai Degradadu**

Tipu	Produsaun ai-kabelak	Rejeneradu floresta iha rai ne'ebé degradadu ona
Fatin tarjetu	Área ba to'os muda ba mai, especialmente sira-ne'ebé no fertilidade menus no/ka la apropriadu ba Produsaun ai-han	Floresta ne'ebé degradadu Área nakloke (rai-mamuk) Área ho du'ut
Espésie ne'ebé rekomenada	Espésie ai-kabelak, ezemplu, Ai-teka, Ai-mahoni no espésie ai-kabelak seluk ne'ebé apropriadu	- Espésie koto ne'ebé moris lalais, ezemplu, <i>calliandra</i> , <i>gamal</i> no ai-kafé (L-19) - Espésie ne'ebé tolera ba rai maran, ezemplu, <i>casurina</i>
Espasu entre ai-oan	Ai-kabelak: 3 m x 3m	- Espésie koto: 3 m x 6 m - Espésie ne'ebé tolera rai maran: 3 m x 6 m
Dezeñu nia típiku/ Plantaun nia imajen	<p>..... Contour line delineated using "A-frame"</p> <p>★ Teak ✦ Mahogany</p>	<p>..... Contour line delineated using "A-frame"</p> <p>★ Leguminous species ✦ Drought tolerant species</p>

Rekursu: Ekipa Projetu JICA (2015)

### 3.3.3 Delineasaun Liña-male'uk no Tidin Estaka

Tanba maioria fatin potenciál ba plantasaun iha área rurál sira mak rai-lolon ka rai ne'eb'e hali'is, ai-oan tenke kuda tuir liña-male'uk hodi minimiza risku erozaun rai. Tanba ne'e, formatu hosi plantasaun tenke ajusta ho kondisaun rai-lolon hosi fatin plantasaun.

#### (1) Objektivu

Objetivu prinsipál hosi tékniku ne'e mak atu halo liña-male'uk uza ekipamentu simples ne'ebé halo uza materiál lokál sira no lokaliza fatin ke'e rai-kuak hodi kuda ai tuir formatu ne'ebé dezeña ona.

#### (2) Prosedimentu ba Aplikasaun

Eta pa tuirmai tenke halo hodi halo delineasaun liña-male'uk no tidin estaka.

- i) Halo Kuadru-A ho koleasaun materiál lokál sira
  - ii) Delineasaun liña-male'uk uza Kuadru-A
  - iii) Tidin estaka
- a. Halo Kuadru-A uza materiál lokál sira

##### i) Kollaita materiál tuirmai hodi halo Kuadru-A

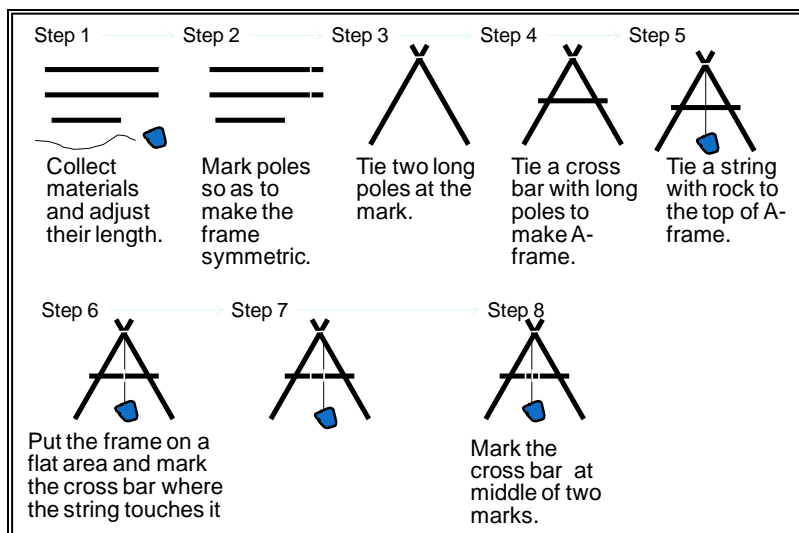
###### ► Materiál ne'ebé presiza hodi halo Kuadru-A ida

- Ai ka au lolon rua ho naruk metru 2
- Ai ka au lolon ida ho naruk metru 1
- Fatuk natoon 1
- Tali ho naruk metru 2
- Pregu/aramé hodi kesi

###### ► Ekipamentu ne'ebé uza hodi halo Kuadru-A

- Martelu/katana/kadoo/tudik

##### ii) Halo Kuadru-A ho prosedimentu tuirmai ne'e.



#### Ponta Importante



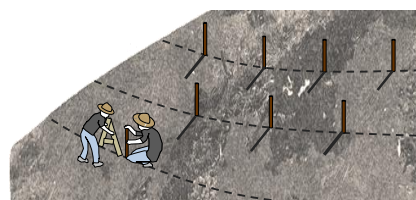
- Ita-boot tenke observa, tali iha kuadru-A tuur iha marka ne'ebé tau ona iha klaran ka lae, tanba tali se la tuur iha marka klaran se kuadru-A ne'e kle'uk ka la loos.

b. Delineasaun liña-male'uk uza Kuadru-A

- i) Tidin estaka dahuluk iha ninin parte klaran hosi fatin plantasaun no tau kuadru-A nia ai-riin karuk iha estaka dahuluk ne'ebé tidin ona.
- ii) Ajusta ai-riin parte liman loos nian hodi halo tali liuhosi marka klaran iha ai-klaran no tidin estaka seluk tan iha ai-riin parte liman loos.
- iii) Muda kuadru-A ba parte liman-loos liuhosi tau ai-riin karuk kuadru-A nian iha parte ai-riin loos ne'ebé tidin antes.
- iv) Ajusta ai-riin parte karuk tan, to'o tali pasa liuhosi marka klaran iha ai-klaran, no tidin tan estaka iha ai-riin parte liman-loos.
- v) Halo tuir prosedimentu ne'e to'o parte ninin seluk hosi fatin plantasaun ne'e.
- vi) Foti pontu seluk metru 2,2 to'o 2,6 ba kraik ka ba leten uza metru sukat ka materiál seluk (ezemplu, tali ka ai-sanak) ne'ebé ho naruk hanesan. Halo atividade hosi i) to'o v) hodi foti liña-male'uk.
- vii) Repete atividade i) to'o vi) to'o liña-male'uk hotu-hotu delinea ona iha fatin plantasaun



Delineasaun liña-male'uk



Liña-male'uk la delinea loloos tanba liña halo sein hamoos rai .



Ai-sanak ho naruk metru 1 tenke uza hodi kontrola distánsia vertikál entre liña-male'uk .

**Ponta Importante**



▶ *Ita-boot tenke hamoos du'ut hotu-hotu iha to'os molok uza kuadru-A, selae ita-boot labele delinea liña-male'uk ho loloos.*

c. Tidin estaka

Tidin estaka iha pontu sira-ne'ebé ai-oan sei kuda tuir formatu ne'ebé halo.

(3) Tempu ba Aplikasaun

**Tempu Padraun hosi FFS kona-ba Delineasaun Liña-male'uk**

Atividade	Tempu	Durasaun hosi sesaun
i) Kuadru-A konstrui ho koleasaun materiál lokál sira	Setembru	Loron ida ba treinamentu prátika diretamente
ii) Delineasaun liña-male'uk no tidin estaka	Outubru	Loron ida ba treinamentu prátika diretamente

Rekursu: Ekipa Projetu JICA (2015)

### 3.3.4 Kuda Ai

#### (1) Objektivu

Objetivu prinsipál hosi tékniku ne'e mak atu kuda ai-oan ho maneira ne'ebé própriu hodi aseguira sobrevivéncia ai-oan ne'ebé aas depois kuda.

#### (2) Prosedimentu ba Aplikasaun

Etapa haat (4) tuirmai tenke foti bainhira kuda ai-oan.

- i) Ke'e rai-kuak hodi kuda ai
- ii) Enxe filafali rai-kuak ho rai no adubu orgánika
- iii) Selesaun no lori ai-oan ba fatin kuda
- iv) Kuda ai-oan

#### a. Ke'e rai kuak hodi kuda ai

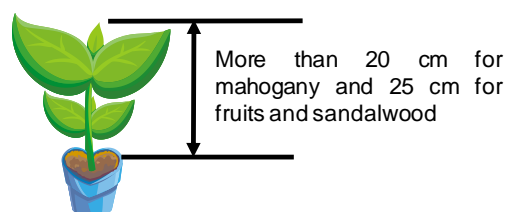
- i) Ke'e rai-kuak ho kle'an 40 cm no diámetru 40 cm ba kada rai-kuak ba espésie ai-kabelak no 45 to'o 60 cm ba kle'an no diámetru ba espésie ai-fuan no ai-industriál
- ii) Tau rai-leten separadu hosi rai-okos bainhira ke'e rai kuak.

#### b. Enxe filafali rai-kuak rai no adubu orgánika

- i) Lori adubu orgánika ba fatin plantasaun no kahur ho rai-okos.
- ii) Enxe filafali rai-kuak ho rai-okos ne'ebé kahur ona ho adubu orgánika dahuluk no taka ho rai-leten.

#### c. Selesaun no lori ai-oan ba fatin kuda

- i) Hili ai-oan ne'ebé prontu ona hodi kuda, ne'ebé ho aas liuhosi 20cm ba espésie ai-kabelak (ezemplu, ai-mahoni no ai-teka) no ho aas liuhosi 25cm ba espésie ai-fuan no ai-industriál (ezemplu, *cengkeh* no ai-kameli).



Ready to be planted in the sites

- ii) Tau fazu ai-oan sira iha fatin ne'ebé bele lori (hanesan bote ka raga) no tau ai-oan sira ida-ida ho kuidadu ba fatin ne'e.
- iii) Lori fazu ai-oan sira-ne'e ba fatin plantasaun ho kuidadu, atu nune'e ai-oan sira-ne'e la monu bainhira lori ba fatin kuda.

#### d. Kuda ai-oan

- i) Ke'e rai-kuak ho naruk hanesan ho faze ai-oan nia naruk.
- ii) Ko'a no hasai fazu ai-oan plástiku uza tudik ki'ik.
- iii) Kuda ai-oan iha rai-kuak.

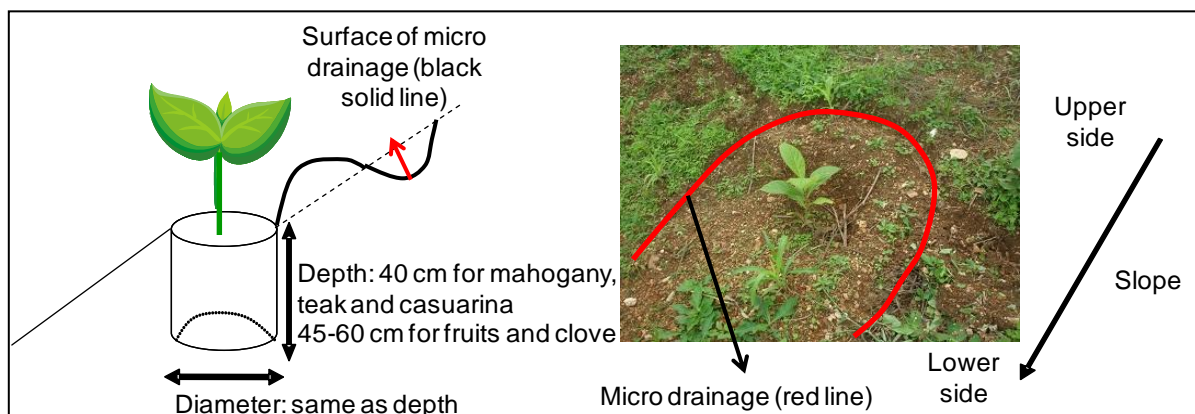


## Ponta Importante



- ▶ Espésie sira-ne'ebé presiza mahon iha etapa inisiál (ezemplu, ai-kameli, cengkeh, no rambutan) tenke kuda iha mahon hosi plantasaun ne'ebé eziste ona (ezemplu, hudi ka ai seluk).
- ▶ Ai-kameli tenke kuda hamutuk ka besik ho ai-inan, hanesan Ai-turi ka ai-koto (ezemplu, Acacia sp., Albizia, nst). Distánsia entre ai-kameli ho ai-inan tenke metru rua (2) to'o tolu (3).

- iv) Halo drainajen mikro modelu-U iha parte leten hosi kada ai-oan hodi proteje ai-oan ne'e hosi estragu ne'ebé kauza hosi bee halai iha rai-leten durante tempu udan.



### Dezeñu Modelu Mikro Drainajen Letra U

#### (3) Tempu ba Aplikasaun

##### Tempu Padraun hosi FFS ba Kuda Ai

Atividade	Tempu	Durasaun hosi sesaun
i) Ke'e rai-kuak	Novembru	Loron ida ba treinamentu prátika direktamente
ii) Enxe filafali rai-kuak ho rai no adubu orgánika	Novembru	Loron ida ba treinamentu prátika direktamente
iii) Lori no Kuda Ai-oan	Novembru - Dezemburu	Loron ida ho sorin ba treinamentu prátika direktamente

Rekursu: Ekipa Projetu JICA (2015)

### 3.3.5 Atendementu

#### (1) Objektivu

Objetivu prinsipál hosi tékniku ne'e mak atu mantein ai-oan ho própriu ba tinan balu depois kuda ai-oan, hodi aseguira kreximentu ai-oan ne'ebé di'ak iha etapa inisiál.

#### (2) Atividade ne'ebé sei hala'o

Tékniku ne'ebé sei aplika mak i) hamoos du'ut. ii) halo mahon, no tau ai-tahan rahun hanesan deskreve iha kraik ne'e.

##### a. Hamoos du'ut

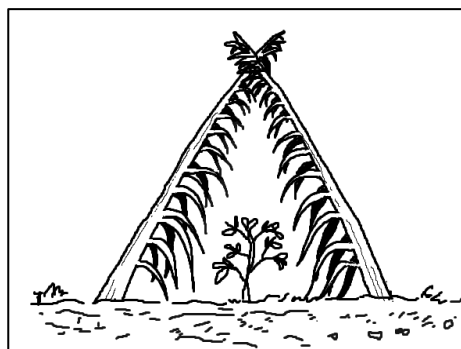
Hamoos du'ut iha raiu 0,5 m hosi ai-oan ne'ebé kuda kada fulan rua (2) durante tempu udan no iha findetempu udan hodi elimina du'ut ne'ebé kompete ho ai-oan hodi hetan bee, loro-manas no nutrisaun.

##### b. Tau Ai-tahan rahun

Tau ai-tahan rahun hanesan baze ba ai-oan uza du'ut ne'ebé hamoos hodi mantein konteúdu umidade rai no prevene du'ut atu moris.

##### c. Halo mahon

Halo mahon uza materiál lokál sira (ezemplu, nuu-tahan hanesan hatudu iha sorin) se ai-oan kuda iha área ne'ebé nakloke (área ne'ebé laiha mahon hosi ai-horis ne'ebé eziste) no presiza halo mahon iha etapa inisiál.



Mahon hosi materiál lokál

#### (3) Tempu ba Aplikasaun

##### Tempu Padraun hosi FFS kona-ba Atendementu

Atividade	Tempu	Durasaun hosi sesaun
i) Hamoos du'ut no tau ai-tahan rahun	Janeiru	Loron sorin treinamentu prátika direktamente
ii) Halo mahon ba ai-oan (depende ba espésie)	Abríl-Maiu	Loron sorin treinamentu prátika direktamente

Rekursu: Ekipa Projetu JICA (2015)

#### 4. Módulu Treinamentu Padraun

Tabela tuirmai hatudu módulu treinamentu padraun ba respetiva tékniku sira-ne'ebé introdús iha sesaun 3.2 no 3.3. Kursu treinamentu hotu-hotu sei hala'ó iha viveiru komuidade nian ka to'os demonstrasaun hanesan FFS.

##### Módulu Treinamentu Padraun ba Tékniku sira

Kursu treinamentu	Item	Deskrisaun
Estabelesimentu viveiru	Objetivu	Atu fasilita membru sira hodi harii viveiru komuidade nian ho eskala ki'ik uza materiál lokál.
	Tempu	Loron 6 a. Instalasaun sistema bee (loron 2) b. Konstrui viveiru (loron 4)
	Materiál	Ekipamentu to'os nian (katana, kadoo, kanuru rai, martelu), sira ba sistema irrigasaun (tanke bee, kanu, mangeira), sasán sadere (ai-riin no au-riin), uma kakuluk (du'ut <i>naro</i> , tali-tahan), pregu, arame.
	Rezultadu ne'ebé espera	Viveiru eskala ki'ik ida sei estabelese.
Preparasaun no kari fini	Objetivu	Atu fasilita Membru sira hodi kari fini ho própriu iha fatin kari fini no fasilita jerminasaun fini.
	Tempu no prosesu	Loron 4 a. Kolesaun fini (Loron 1) b. Pré-tratamentu fini (loron 1) c. Halo fatin kari fini (loron 1) d. Kari no kuidadu fini ne'ebé kari (loron 1)
	Materiál	Ekipamentu to'os nian (katana, kado, kanuru rai, martelu), materiál hodi halo hadak kari fini nian (ai-riin ka au-riin), pregu, arame no mília ba fatin kari fini (rai, rai-henek no adubu orgánika), regadór, plástiku taka (opcionál).
	Rezultadu ne'ebé espera	Fini kari iha fatin kari fini sei jermina ho taxa ne'ebé aas.
Preparasaun fazu ba ai-oan	Objetivu	Atu fasilita Membru sira hodi prepara fazu ai-oan no transplanta fini-oan ho maneira ne'ebé própriu.
	Tempu no prosesu	Loron 2-3 a. Kolesaun materiál ba mília rai hodi enxe ba fazu (loron 1) b. Kahur mília rai (loron sorin) c. Enxe rai ne'ebé kahur ona ba fazu (loron sorin) d. Transplanta fini-oan ba fazu (loron sorin)
	Materiál	Ekipamentu to'os nian (ai-suak, kanuru rai, kanuru rai ki'ik), karrosél, ai-sanak, masa mamuk, pineira rai, <i>polybag</i> , rai, rai-henek, adubu orgánika no hare kulit (opcionál), kartás ai (hodi tau etiketa iha bloku ai-oan).
	Rezultadu ne'ebé espera	Ai-oan sira sei transplanta ba fazu ai-oan.
Kuidadu ai-oan	Objetivu	Atu fasilita Membru sira atu mantein ai-oan sira ho própriu iha viveiru.
	Tempu no prosesu	Loron 2-3 a. Rega no hamoos du'ut (loron sorin) b. Halo espasu no ko'a abut (loron sorin) c. Preparasaun adubu been (loron sorin) d. Aplikasaun adubu been (loron sorin) e. Kontrola peste (loron sorin)
	Materiál	Tezoura, bidón, materiál atu halo adubu been (du'ut ho bee) materiál atu halo pestisida (tabaku, bee, nst.) no regadór.
	Rezultadu	Ai-oan sei moris ho kondisaun ne'ebé saudavel iha viveiru.

Kursu treinamentu	Item	Deskrisaun
Hatoos ai-oan	ne'ebé espera	
	Objetivu	Atu fasilita Membru sira hodi adapta ai-oan ba ambiente li'ur ne'ebé hanesan ho fatin ne'ebé ai-oan sira sei kuda ba.
	Tempu	Loron 1: Redús bee, mahon, ko'a abut no aplika adubu (loron 1).
	Materiál	-
Produsaun adubu orgánika	Rezultadu ne'ebé espera	Ai-oan sira sei prontu atu kuda.
	Objetivu	Atu fasilita membru sira hodi prodús adubu orgánika uza materiál ne'ebé disponivel iha lokalidade.
	Tempu	<u>Treinamentu loron dahuluk: loron 2</u> a. Kolesaun no tetak materiál sira (loron sorin/loron dahuluk) b. Ke'e rai-kuak (loron sorin/loron dahuluk) c. Akumula materiál sira (loron 1/loron daruak) <u>Treinamentu loron daruak: loron 1</u> a. Fila adubu orgánika (loron 1)
	Materiál	Ekipamentu to'os nian (ai-suak, katana, kanuru rai) materiál atu halo adubu orgánika (du'ut, du'ut fuik, kain, animál teen, rai/ahi-kadesan), hudi-tahan, materiál halo mahon ( ai-riin metru 1 -2 lolon haat no nuu-tahan).
Delineasaun liña-male'uk	Rezultadu espera	Sei prodús adubu orgánika tonelada 2-3.
	Objetivu	Atu fasilita Membru sira hodi delinea liña-male'uk ho própriu uza ekipamentu ne'ebé halo uza materiál lokál ne'ebé disponivel iha lokalidade.
	Tempu no prosesu	Loron 2-3 a. Kolesaun materiál sira (loron sorin/loron dahuluk) b. Halo Kuadru-A (oras 2/loron dahuluk) c. Preparasaun ai-estaka (oras 1/loron dahuluk) d. Delineasaun liña-male'uk (loron 1/loron daruak)
	Materiál (hodi halo kuadru-A tolu)	Ai-riin lolon 6 ho naruk metru 2, ai-riin lolon 3 ho naruk metru 1, tali ho naruk metru 1,5 pedasuk 3, Fatuk 3 ho tamañu hanesan liman, arame ka pregu no katana.
Kuda ai	Rezultadu ne'ebé espera	Liña-male'uk sei delinea iha fatin plantasaun.
	Objetivu	Atu fasilita Membru sira hodi kuda ai-oan sira ho maneira ne'ebé própriu.
	Tempu no prosesu	Loron 2~3 a. Ke'e rai-kuak fatin kuda ai-oan (loron 1) b. Enxe filafali rai-kuak ho rai no adubu orgánika (loron 1) c. Selesaun no lori ai-oan (loron sorin) d. Kuda ai-oan (loron 1)
	Materiál	Eskala, Ekipamentu to'os nian (kanuru rai, karau dikur no ai-suak), adubu orgánika.
Atendementu	Rezultadu ne'ebé espera	Ai-oan sei kuda iha fatin plantasaun tuir formatu .
	Objetivu	Atu fasilita Membru sira mantein ai-oan ho própriu hodi asegura sobrevivénsia ne'ebé aas no isin forte iha ai-oan nian moris inisiál.
	Tempu no prosesu	Loron 1 a. Hamoos du'ut no tau ai-tahan rahun (loron sorin) b. Halo mahon (loron sorin)
	Materiál	Katana no materiál hodi halo mahon (nuu-tahan).
	Rezultadu espera	Ai-oan ne'ebé sei ki'ik bele moris forte no saudavel .

Rekursu: Ekipa Projeto JICA (2015)

## 5. Estimasaun Kustu

Kapítulu ida-ne'e introdús oinsá atu estima orsamentu ne'ebé prezisa, hodi hala'o sesaun FFS série iha nivel suku no aldeia. Estimasaun kustu hanesan abilidade/tékniku esensiál ida, hodi prepara planu konvinsente, ne'ebé bele asegura suporta finansiál hosi rekursu fundus. Sesaun tuirmai esplika meius atu halo estimasaun orsamentu ba kada sesaun treinamentu, no mós ba kada suku/aldeia, hodi introdús item kustu prinsipál ne'ebé konsidera iha estimasaun.

### 5.1 Estima Kustu ba Treinamentu Prátika Diretamente iha EAT

Item kustu prinsipál ba treinamentu prátika diretamente mak: i) materiál ne'ebé uza ba sesaun treinamentu, ii) hahán ba membru/partisipante sira, iii) kustu transporte ba fasilitadór sira, iv) kustu oioin, no v) kustu ba fasilitadór se karik fasilitadór hosi ema li'ur (hanesan ONG) uza iha treinamentu. Kustu ba kada item kustu estimadu liuhosi multiplika kuantidade item ho kustu kada unidade. Formatu tuirmai bele uza iha estimasaun.

**Formatu ba Estimasaun Kustu iha Sesaun Treinamentu**

Item kustu padraun	Kuantidade (a)	Kustu kada unidade (b)	Kustu (a x b)
1. Materiál sira ba treinamentu (ba hirak-ne'ebé labele hetan iha suku)			
2. Merenda no hahán ba partisipante sira			
3. Kustu transportasaun ba fasilitadór sira			
4. Kustu ba fasilitadór (pagamentu ba fasilitadór sira)			
5. Kustu oioin (seluk)			
<b>Totál kustu ba sesaun treinamentu ida (1+2+3+4+5)</b>	-	-	

Rekursu: Ekipa Projeto JICA (2015)

### 5.2 Estima Kustu ba Sesaun EAT seluk

Hanesan adisionál ba kursu treinamentu prátika diretamente, membru sira bele kontinua kari fini no halo preparasaun fazu ai-oan hodi prodús kuantidade tarjetu ai-oan iha viveiru. Membru prinsipál no membru balu ne'ebé hili ona sei servisu hodi kontinua tuir sesaun FFS ho asisténsia tékniku hosi fasilitadór. Kustu prinsipál ba sesaun kontinuasaun mak i) hahán/merenda ba Membru sira, ii) kustu transportasaun ba fasilitadór, iii) kustu ba fasilitadór, no iv) kustu oioin (seluk). Format hanesan ne'ebé hatudu iha leten sei uza hodi halo estimasaun.

### 5.3 Estima Kustu ba Hala'o Viveiru

Parte iha sesaun FFS, membru ida ka rua sei envolve hala'o viveiru (ezemplu, rega ai-oan, hamoos du'ut, aplika adubu been, no kontrola peste no moras) loron-loron hodi mantein ai-oan iha viveiru. Item kustu prinsipál bá hala'o viveiru diária mak i) insentivu mensál ba membru ne'ebé mantein ai-oan, ii) materiál ba hala'o viveiru, hanesan materiál sira ba adubu been no kontrola peste no moras. Formatu tuirmai bele uza ba estimasaun kustu manutensaun diária.

**Formatu ba Estimasaun Kustu Manutensaun Diária**

Item kustu padraun	Kuantidade	Kustu kada unidade(b)	Kustu (a x b)
1. Insentivu mensál ba sira-ne'ebé tau matan ba viveiru			

2. Material ne'ebé presiza ba manutensaun diária			
<b>Kustu totál ba sesaun treinamentu ida (1+2)</b>	-	-	

Rekursu: Ekipa Projeto JICA (2015)

#### 5.4 Estima Kustu ba kada Suku

Kustu ba síklu ida hosi sesaun FFS ka Produsaun ai-oan no atividade kuda ai iha suku ida estimadu liuhosi soma hamutuk kustu hotu-hotu ne'ebé mensiona iha leten. Se karik sesaun FFS/Produsaun ai-oan no atividade kuda ai hala'o iha nivel aldeia ka grupu, kustu totál tenke estimadu liuhosi multiplika número aldeia/grupu ho kustu hosi respetiva atividade (ezemplu, treinamentu prátika diretamente, kontinuasaun FFS, no hala'o viveiru diária). tan ne'e, formatu tuirmai bele uza ba estimasaun.

##### Formatu ba Estimasaun Kustu ba Sesaun Treinamentu iha Tinan Dahuluk

Item kustu padraun	No. grupu (a)	Kustu kada unidade(b)	Kustu (a x b)
1. Treinamentu prátika diretamente kona-ba estabesimentu viveiru			
2. Treinamentu prátika diretamente kona-ba preparasaun fini no kari fini			
3. Kontinuasaun ba fini ne'ebé kari ona			
4. Treinamentu prátika diretamente kona-ba preparasaun fazu ai-oan			
5. Kontinuasaun ba preparasaun fazu ai-oan			
6. Treinamentu prátika diretamente kona-ba manutensaun ai-oan			
7. manutensaun diária ba ai-oan sira			
8. Treinamentu prátika diretamente kona-ba hatoos ai-oan			
9. Treinamentu prátika diretamente kona-ba halo adubu orgánika			
10. Treinamentu prátika diretamente kona-ba delineasaun liña-male'uk			
11. Treinamentu prátika diretamente kona-ba kuda ai			
12. Treinamentu prátika diretamente kona- ba kuidadu ai			
<b>Kustu totál ba FFS kona-ba Produsaun ai-oan no kuda ai</b>	-	-	

Rekursu: Ekipa Projeto JICA (2015)

## 6. Validasaun Terrenu ba Efetividade Tékniku

Rezultadu hosi síklu ida iha sesaun FFS sei valida no avalia liuhosi haree/observa kondisaun sobrevivénsia no moris ai-oan sira-ne'ebé kuda ona durante kursu FFS, tanba membru sira-ne'ebé envolve iha sesaun FFS série, espera atu kuda ai-oan ne'ebé prodús ona iha viveiru ba sira-nia kintál ka to'os rasik. Kondisaun sobrevivénsia no moris ai-oan tenke haree tinan ida (1) depois kuda ho objetivu atu sukat efeitu direktamente no identifika asaun nesesáriu ne'ebé foti hodi hadi'a moris ai-oan iha fatin plantasaun bainhira nesesáriu.

Observasaun ba kondisaun sobrevivénsia no moris ai-oan (iha ne'e refere ba "Observasaun sobrevivénsia") mós espera atu fó lisaun hodi aprende hosi atividade sira no sujestaun ne'ebé util, ne'ebé bele halo tékniku ne'ebé introdús sai efektivu no aplikavel liután ba eskala ne'ebé luan tan ba comunidade lokál iha nasaun ne'e. Importante tebes atu hala'ó observasaun hanesan, hodi avalia rezultadu hosi projetu ruma kona-ba reflorestasaun/aflorestasaun, tinan ida depois estabelesimentu plantasaun.

### 6.1. Objetivu hosi Observasaun

Objetivu prinsipál hosi observasaun sobrevivénsia mak atu avalia efetividade no efisiénsia hosi sesaun FFS kona-ba Produsaun ai-oan no atividade kuda ai no ta'es lisaun ne'ebé bele refere hodi hadi'a atividade ne'ebé hanesan iha tinan sira tuirmai. To'ó finál, observasaun ne'e espesifikamente ho objetivu atu:

- i) Estima proporsaan média hosi sobrevivénsia (ka mortalidade) hosi kada tipu hosi espésie ne'ebé kuda iha kondisaun ne'ebé diferente;
- ii) Sukat ai-oan nia altura no ai-hun nia diámetru hodi haree kondisaun moris hosi ai-oan ne'ebé sobrevive;
- iii) Ta'es lisaun ne'ebé presiza refere bainhira hala'ó FFS iha tinan sira tuirmai; no
- iv) Identifika asaun nesesáriu ne'ebé presiza foti hodi hadi'a kondisaun moris ai-oan no mós fatin plantasaun

### 6.2 Métopu Observasaun

#### 6.2.1 Selesaun Amostra

(1) Pré-kondisaun no prinsipiu hosi observasaun

Observasaun tomak parese difisil atu hala'ó tanba presiza tempu barak no traballadór ba serbisu. Iha realidade katak plantasaun ne'ebé partisipante/agrikultór sira dezenvolve ona, jeralmente iha karakterístika hanesan tuirmai, métodu amostra iha kintál ne'ebé rekomenda ba observasaun ne'e.

- i) Kuantidade plantasaun (fatin ne'ebé comunidade kuda ai-oan) barak.
- ii) Jerálmente, to'os nia medida ki'ik.
- iii) To'os sira hakari iha suku.
- iv) Iha indikasaun katak kada uma kain atu kuda ai-oan la'ós iha to'os ida de'it, maibé jeralmente iha to'os liu hosi fatin ida.

Métodu amostra fatin to'os tenke hala'ó tuir prinsipiu sira tuirmai ne'e atu nune'e rezultadu hosi observasaun bele asegura estatística ne'ebé bele konfia.

- i) Amostra tarjetu: pelumenus 5% hosi totál número ai-oan ne'ebé kuda tenke hili hanesan amostra.

- ii) Métopu foti amostra: Foti amostra ho maneira arbiru.
- iii) Dadus ne'ebé uza hodi hili amostra: Amostra tenke hili liuhosi uza lista membru no to'os sira.

## (2) Prosedimentu ba Selesaun To'os Amostra

To'os/fatin amostra tenke hili tuir prosedimentu sira tuirmai ne'e.

### a. Etapa dahuluk: Selesaun membru hosi lista membru sira

Uma kain balu tenke hili ho maneira arbiru entre uma kain sira hotu ne'ebé kuda ai-oan iha kada aldeia. Lista membru nian ho número ai-oan ne'ebé fornese tenke uza ba selesaun.

### b. Etapa daruak: Selesaun fatin observasaun

#### i) Entrevista membru sira-ne'ebé hili ona

Dadus kona-ba plantasaun ne'ebé dezenvolve hosi membru ne'ebé hili, tenke akumulá liuhosi halo Entrevista diretamente ho membru sira. Número to'os no ai-oan sira-ne'ebé kuda iha kada to'os tenke rekolla. Dadus tenke kompila iha tabela ida hanesan lista hosi to'os potenciál ba observasaun.

#### ii) Selesaun to'os observasaun

To'os balu tenke hili arbiru entre to'os hotu-hotu ne'ebé dezenvolve hosi membru sira-ne'ebé hili ona, atu nune'e total número ai-oan amostra ba observasaun, liu 5% hosi total ai-oan ne'ebé kuda iha área ne'e.

## 6.2.2 Observasaun Terrenu

Grupu hosi observadór tenke i) haree ai-oan nia sobrevivénsia, ii) sukat kondisaun moris ai-oan ne'ebé sobrevive, iii) rekorda kondisaun fatin observasaun, no iv) foti dadus GPS hosi fatin uza formatu observasaun hanesan hatudu iha kraik ne'e.

### a. Mortalidade hosi ai-oan

- i) Haree sobrevivénsia ka mortalidade hosi ai-oan uza kritéria sira tuirmai hodi sentesa ai-oan ne'ebé mate.
  - Laiha ai-sanak restu hosi ai-oan.
  - Maioria parte ai-oan nia kain maran ona.
  - Laiha restu ai-oan iha rai-leten atu silu nia kain ka haree.

### b. Diámetru kain no ai-oan nia altura

- i) Sukat diámetru ai-oan nia kain dala rua, hosi direasaun ne'ebé diferente uza *caliper* no kalkula ninia média.
- ii) Sukat ai-oan nia altura ho metru sukat ka régua.

### c. Deskrisaun fatin no sukat fatin

- i) Rekorda kondisaun fatin observasaun, hanesan vejetasaun, kondisaun rai, área, no istória hosi fatin ne'e.
- ii) Foti fotografia hosi fatin ne'e .
- iii) Identifika fatin observasaun uza *GPS* liuhosi foti pontu haat (4) ka foti pontu kantu tuir perímetru hosi fatin refere.



### Formatu ba Observasaun Terrenu

Anekso-1		Numeru			
<b>Formulario Survey Terrenu ba Aioan nebe Kuda tuir SPTPP-MP</b>					
Suco: _____		Data survey: _____			
Naran grupo benefisariu: _____		Naran Inspektur: _____			
Naran membro grupo benefisariu: _____		Informasaun Plot: _____			
Lokasi plot: _____					
No.	Species	Status Aioan (Moris/Mate)	Medida Aioan nebe Moris		Komentariu
			Diameter Abut (mm)	Altura (cm)	
1					
2					
3					

Rekursu: Ekpa Projeto JICA (2015)

### 6.2.3 Kompilasaun/Analiza Dadus

Dadus ne'ebé rekolla hosi observasaun terrenu tenke hatama ba formatu ne'ebé halo iha *Ms. Excel* hanesan hatudu iha tabela tuirmai.

#### Formatu *Ms. Excel* ba kalkulasaun taxa sobrevivénsia

<b>Tabla 1 Survival Rate no Aioan nebe Kuda tuir SPTPP-MP</b>																
No. ID:	TF-1		Naran grupo benefisariu: Fatukhun				Naran membro grupo benefisariu: Filomino				Data Survey: 25/07/2014					
No.	Teak				Mahogany				Casuarina				Sandalwood			
	Moris	Mate	Diameter Abut (mm)	Altura (cm)	Moris	Mate	Diameter Abut (mm)	Altura (cm)	Moris	Mate	Diameter Abut (mm)	Altura (cm)	Moris	Mate	Diameter Abut (mm)	Altura (cm)
1					1		7	39								
2					1		6	60								
3					1		5	40								
4					1		7	54								
5					1		6	46								
6					1		12	60								
7					1		10	68								
8	1		4	26												
9	1		8	46												
10	1		4	22												
11	1		4	29												
12	1		5	33												
13		1														
14	1		3	14												
15	1		2	24												
16	1		5	27												
17	1		3	21												
18	1		3	22												
19	1		4	28												
20		1														
Total alive and dead seedlings	11	2			7	0			0	0			0	0		
Total No. of Seedlings by Species		13			7				0				0			
Survival rate		85%			100%				#DIV/0!				#DIV/0!			
Average size			4	27			8	52			#DIV/0!	#DIV/0!			#DIV/0!	#DIV/0!

Rekursu: Ekpa Projeto JICA (2015)

Dadus ne'ebé tau ona kódiu ne'e tenke kompila tan ba tabela sumáriu ba kada suku no espésie hanesan hatudu iha kraik.

**Ezemplu sumáriu ba observasaun sobrevivénsia**

Aldeia	Species	Seedlings surveyed			Survival rate (%)	Groth conditions of seedlings	
		Alive (No.)	Dead (No.)	Total (No.)		Diameter (cm)	Height (cm)
Remapati	Teak						
	Mahagony						
	Casuarina						
Manehalo (Turisai)	Teak						
	Mahagony						
	Casuarina						
	Albizia						
Manefoni	Teak						
	Mahagony						
Desmanehata	Teak						
	Mahagony						
Bilmahatu	Teak						
	Mahagony						
Lismori	Teak						
	Mahagony						
Total/Average	Teak						
	Mahogay						
	Casuarina						
	Alvizia						
Overall							

Rekursu: Ekipa Projetu JICA (2015)

### 6.3 Observasaun Sobrevivénsia ba Reflorestasaun Eskala-Boot

Métodu diferente tenke uza hodi sukat taxa sobrevivénsia hosi ai-oan ne'ebé kuda hosi projetu reflorestasaun/aflorestasaun eskala-boot, tanba plantasaun ne'ebé dezenvolve hosi projetu ne'e karik boot, maibé número plantasaun ne'ebé dezenvolve bele limitadu. Kaixa tuirmai deskreve métodu foti amostra/observasaun to'o finál.

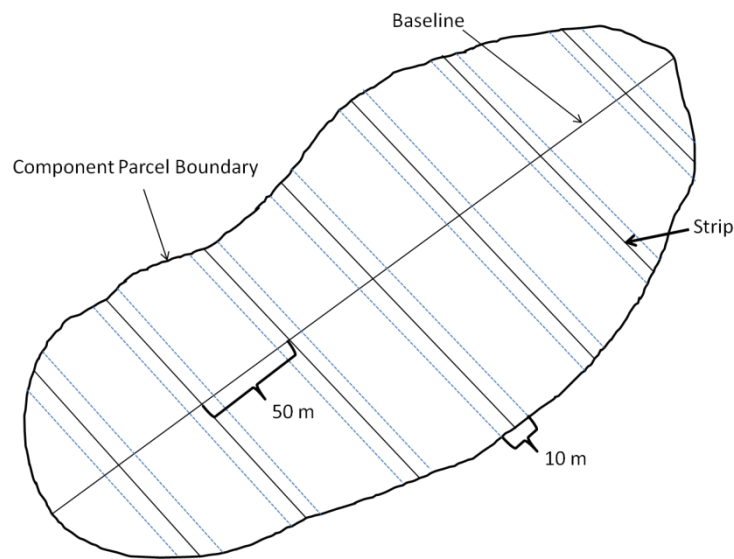
### Kaixa 1: Ezemplu hosi Métopu Observasaun Sobrevivénsia ba Plantasaun Eskala-boot ida

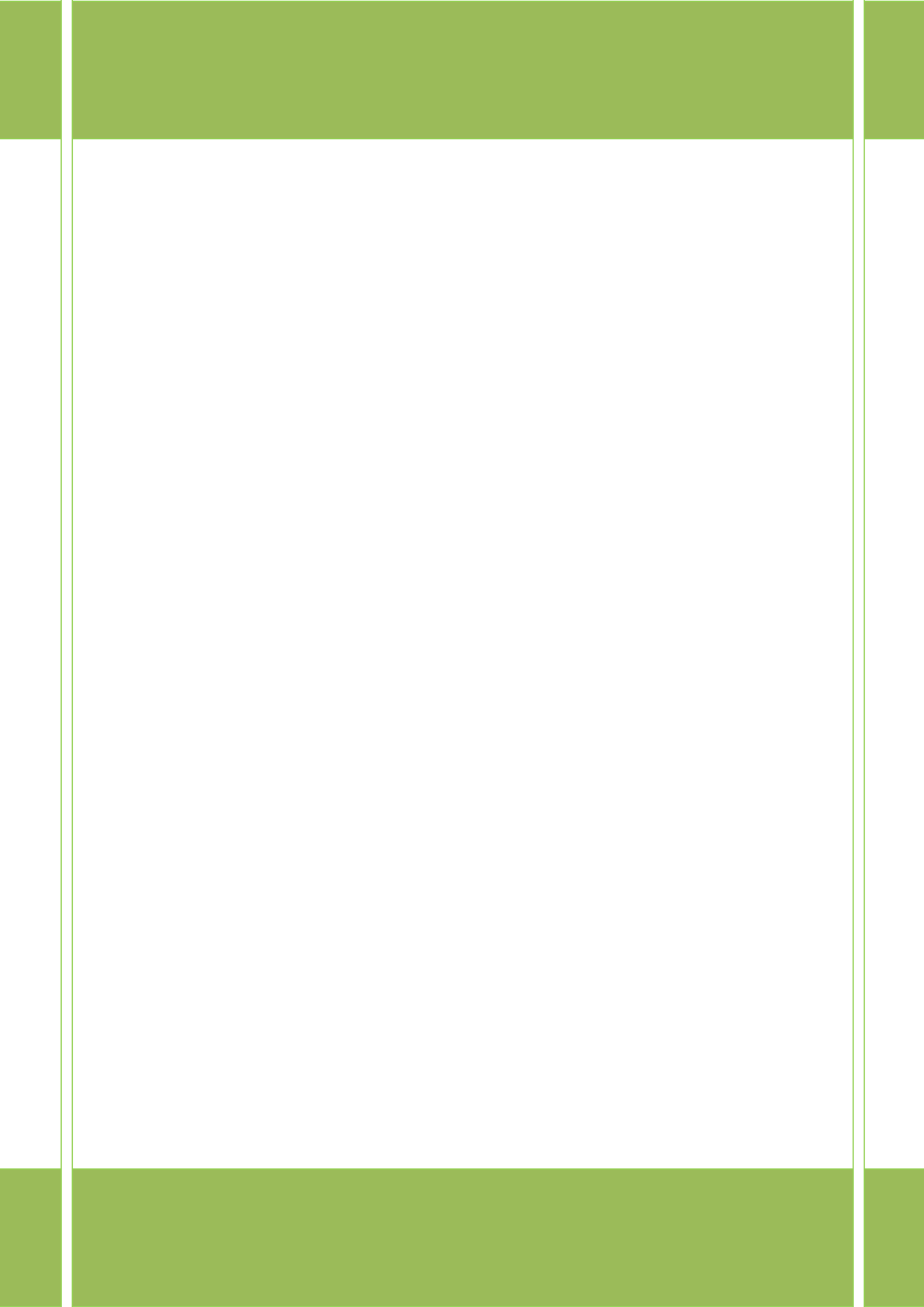
Taxa sobrevivénsia iha plantasaun eskala-boot tenke sukat liuhosi metodu foti amostra iha tiras. Prosedimentu foti amostra iha plantasaun eskala-boot hanesan hatudu iha kraik ne'e.

- 1) Estabelese liña-baze ida, prefere liu tuir sesaun ne'ebé naruk liu iha fatin ne'e.
- 2) Estabelese tiras perpendikulár ho luan 10m tuir liña-baze ne'e ho distánsia 50m entre kada sentru tiras (haree figura tuirmai). Tiras dahuluk tenke lokaliza 20m hosi fatin nia ninin.
- 3) Sura ai-oan hotu ne'ebé sobrevive iha tiras laran
- 4) Kalkula taxa sobrevivénsia ai-oan sira-ne'ebé kuda iha kada tiras uza formula tuirmai ne'e.

$$\text{Taxa sobrevivénsia (\%)} = \frac{\text{Totál ai-oan ne'ebé sobrevive ne'ebé kalkula iha tiras ida}}{\text{Totál No. ai-oan ne'ebé espera kuda iha tiras ne'e}} \times 100 \%$$

- 5) Halo estimasaun taxa sobrevivénsia ai-oan ne'ebé kuda iha fatin liuhosi kalkula média ai-oan hotu ne'ebé kuda hosi tiras hotu ne'ebé observa.





# CB-NRM Technical Manual

## Vol. 2 Sustainable Upland Farming

### Promotion (Including Community-Based Seed Extension and Sustainable Use of Backyard/Permanent Farms)



Prepared by

The Project for Community-Based Sustainable Natural Resource  
Management in the Democratic Republic of Timor-Leste



From  
the People of Japan



## FOREWORD

Forest degradation and deforestation is one of the critical issues that the Government of Timor-Leste (GoTL) needs to tackle to achieve sustainable socio-economic development in the country. The study made in 2013 shows that approximately 184,000 ha of forest has disappeared between 2003 and 2012 and around 170,000 ha of dense forest has been degraded into sparse canopy forests for the same period.

Community-Based Natural Resource Management (CB-NRM) is an approach to nature conservation by recognizing the rights of local communities to benefit from sustainable management of natural resources (forests, lands, water, and biodiversity) within a designated area. This is an alternative to a top-down regulatory approach, which has not been necessarily effective in many countries, especially when the regulations do not fully cope with the changes in social, cultural, and economic contexts in the countries.

The Project for Community-Based Sustainable Natural Resource Management (the CB-NRM Project) jointly implemented by the Japan International Cooperation Agency (JICA) and the Ministry of Agriculture and Fisheries (MAF), particularly the National Directorate of Forest and Watershed Management (NDFWM), has developed an operative mechanism for CB-NRM in Timor-Leste. The same project has also issued the following manuals over the course of the project to help MAF expand the same mechanism in major river basins in the country.

- ◆ Operation Manual for Establishment of the CB-NRM Mechanism at the Village Level
- ◆ CB-NRM Technical Manuals
  - Vol. 1: Seedling Production and Tree Planting Promotion
  - Vol. 2: Sustainable Upland Farming Promotion
  - Vol. 3: Income Generating/Livelihood Development
- ◆ Manual for Formation of a Watershed Management Council

The CB-NRM Technical Manuals introduce key techniques/skills relevant to sustainable land and forest management as well as livelihood development along with the detailed procedures for provision of hands-on training. They are based on learning from experiences in the field; therefore, we, as representatives of the MAF, strongly recommend that the manuals should be widely used by field practitioners of not only MAF but also other organizations working in the forestry and agriculture sectors as a guiding tool for provision of agriculture and forestry extension services to local communities.



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Manuel Mendes

National Director of National  
Directorate of Forest and Watershed  
Management (NDFWM), MAF

October 2015



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Raimundo Mau

General Director of Forestry, MAF

## **About the CB-NRM Manuals**

The CB-NRM Manuals have been developed and published by the JICA and MAF Joint Project named the Community-Based Sustainable Natural Resource Management to provide practical and useful tools for planners and practitioners in the forest sector in Timor-Leste to enable them to protect and manage natural resources in a collaborative and sustainable manner. There are three (3) types of manuals as shown below.

- i) Operation Manual for Establishment of the CB-NRM Mechanism at the Village Level
- ii) CB-NRM Technical Manuals
  - Vol. 1: Seedling Production and Tree Planting
  - Vol. 2: Sustainable Upland Farming Promotion
  - Vol. 3: Income Generating/Livelihood Development
- iii) Manual for Formation of the Watershed Management Council

The Operation Manual is the main document which spells out the standard operation procedures for introduction and establishment of the CB-NRM mechanism at the village level. It is designed for use by planners, field practitioners, and researchers working/studying in the forest sector in Timor-Leste, especially those who engage in forest protection, watershed conservation, and community forestry in the National Directorate of Forest and Watershed Management (NDFWM).

The CB-NRM Technical Manuals supplement the Operation Manual by introducing relevant techniques and skills which can help rural communities use and manage natural resources, especially lands and forests, in a productive and sustainable manner. They will be used mainly by field extension workers (such as MAF municipal staff: namely, municipal officers, extension officers, and forest guards) and NGO staff, as technical references for their field works.

The Manual for Formation of the Watershed Management Council introduces the process to develop a collaboration platform/framework for sustainable natural resource management at the sub-municipal or sub-watershed level, which can also lay groundwork for expansion of the CB-NRM mechanism on watershed scale. As one of the key approaches to improvement of environmental governance at the watershed level by enhancing coordination and networking among local stakeholders, this manual can be of help for those who engage in watershed management.

Furthermore, the JICA and MAF Joint Project has also developed and issued simplified versions of those manuals to help users in the field easily follow the procedures or apply the techniques described in the manuals.

It is hoped that these manuals with their simplified versions will serve as practical references for a wide range of stakeholders in the forest sector in Timor-Leste.



## CB-NRM Technical Manual

### **Vol. 2: Sustainable Upland Farming Promotion (Including Community-Based Seed Extension and Sustainable Use of Backyard/Permanent Farms)**

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## **Vol.2 Sustainable Upland Farming Promotion (including Community-Based Seed Extension and Sustainable Use of Backyard/Permanent Farm)**

### **1. Introduction**

#### **1.1 Rationale for the Techniques**

The Sustainable Upland Farming Promotion Micro Program (SUFP-MP) implemented under the Project for Community-Based Sustainable Natural Resource Management (hereinafter referred to as “the JICA CB-NRM Project”) has introduced a number of techniques on sloping land agriculture and improved upland farming with an aim to demonstrate a sustainable upland farming system which enables local communities to secure stable production of staple crops while maintaining land productivity of sloping farmlands and not harming existing forests in the localities. It is, in fact, a crucial program for achievement of sustainable natural resource management, especially sustainable land management, and simultaneously security of daily food in hilly and mountainous areas in Timor-Leste.

Introduction and dissemination of the techniques of the SUFP-MP are expected to contribute to the achievement of the objectives of the MAF strategic plan 2014-2020, especially those of Program 1: Sustainable Increase in Production and Productivity and Program 5: Natural Resource Conservation and Management. Moreover, the techniques introduced by the micro program are highly consistent with the needs of local communities as the lack of knowledge on proper land management is the major cause of low crop productivity and depletion of soil fertility in hilly and mountainous areas. Thus, communities in all the target villages that the JICA CB-NRM Project has worked in selected the micro program as a priority program that they wanted to engage in.

#### **1.2 Objectives of the Techniques**

The main objective of the SUFP-MP is to enable communities to use sloping farmlands for production of staple crops and other cash crops continuously without deterioration of soil fertility. Technically, the techniques aim to enable them to:

- apply the sloping agriculture techniques, which are easy to apply but effective in conservation of soils;
- convert their farming practices from shifting cultivation to permanent farming using organic farming techniques;
- use improved varieties of upland staple crops in a proper manner; and
- increase the productivity of staple crops.

#### **1.3 Objectives of the Manual**

This manual aims to guide field workers and planners who intend to introduce sustainable upland farming techniques in hilly and mountainous areas in Timor-Leste. Specifically, the manual should be used and referred when communities select/determine the sustainable upland farming as the priority techniques for sustainable natural resource management at suco level. As a nature of the techniques, District Forestry Officers, Coordinators of Extension officers, Extension officers, Forest guards, and field staff of NGOs are considered as main target users of the manual.

## 2. Approaches to Effective Extension

### 2.1 Farmers' Field School (FFS)

Farmers' Field School (FFS) is one of the extension methods prevalently used in developing countries for agricultural extension. Originally, it was developed in Southeast Asia for introduction of integrated pest management (IPM) in the 1990s. Since then, the method has evolved owing to its effectiveness, and been promoted/applied to a wide range of subjects. FFS employs a non-formal educational method based on the concepts of "experimental," "participatory," and "learner-centered."



FFS aims to create an environment where participants/farmers could learn a specific subject by doing/practicing in the fields, debating results/observations, and periodically working together with other participants/farmers in the same fields. Through a series of FFS sessions, participants/farmers can:

- experience the whole cycle of the subject, such as cropping, animal husbandry, soil improvement, and commodity production;
- assess and analyze current situations in the field and consider necessary actions to be taken for improvement; and
- capacitate themselves to replicate techniques/skills introduced in the course of FFSs in their own farms.

The following key elements should be considered in the design of FFS.

#### Key Element of FFS

Elements	Descriptions
a. Participants of FFS	In general, FFS is designed for 20~25 participants in a group. In the case of the JICA CB-NRM Project, one (1) group is composed of 15~40 members. Ideally, the number of the members should not be more than 30.
b. Field school	FFS sessions should be held in the field. Under the JICA CB-NRM Project, the demonstration plot was used as a venue of FFS where the members have learned and practiced a series of techniques.
c. Curriculum of FFS	The curriculum of FFS should basically cover all the topics/techniques in the cycle of the subject, so that the participants could actually experience in the entire process in the field. In the case of the JICA CB-NRM Project, the members have experienced the procedures for introduction of the sustainable upland farming system, such as compost making, application of soil conservation measures, compost application, use of liquid fertilizer, and harvesting including collection of seeds.
d. Facilitator	The facilitator who has enough technical background in the subject as well as competent skills in facilitation should be assigned for FFS to lead the members through the hands-on training sessions. Ideally, the extension officers (or extensionists) are supposed to be the facilitators. It is, however, unrealistic that the extension officers could perform as facilitators at present, as their technical and facilitation capacities are still quite limited. Hence, the NGOs who have experienced FFSs would be the main sources of the facilitators.
e. Core members	The members who can offer his/her lands/farms for FFS and lead the members in the sessions should be selected as core members.
e. Budget allocation	FFS is not necessarily a low-budget training scheme in Timor-Leste as compared to the conventional extension method. There is a need to secure sufficient budget for the conducts of a series of FFS sessions.

Source: JICA Project Team (2015)

## **2.2 On-farm Demonstration**

Simultaneously with FFS, the on-farm demonstration approach is to be taken to facilitate the technical dissemination among communities at suco level, since FFS cannot cover all communities in suco at once. Consequently, a demonstration plot is to be developed as a venue for FFS sessions, so that the same plot can also function as a model that non-members who are not involved in FFS can observe the results of the techniques introduced in the course of FFS sessions. The following criteria should be considered in the selection of a plot for a demonstration plot.

- The plot should be accessible to many communities in aldeia;
- The plot should have characteristics similar to other farms/plots in terms of slopes, soils, and history of use; and
- An owner of the plot should agree to use the plot for training purposes and share the products from the plot among the participants in FFS.



## **2.3 Farmer-to-Farmer Extension**

Farmer-to-farmer extension is still not common in Timor-Leste, as there are less innovative farmers existing in the field. It is, however, considered that its approach would be effective in Timor, since many communities, especially those living in hilly and mountainous areas, generally tend not to instantly accept new techniques introduced by outsiders and often feel an affinity with the techniques adopted by neighboring farmers as “those applicable to their own farms.”

It is therefore expected that the techniques introduced and demonstrated through FFS sessions in the demonstration plots could be regarded as those worth applying once communities realize that the neighboring farm (i.e., demonstration plot) perform better than their own as well as other farms in suco.

## **2.4 Two-Step Extension**

One of the difficulties that farmers have faced in the application of the sustainable upland farming techniques to their own plot is a lack of laborers as some of the key techniques, such as compost production and application of soil conservation measures, are rather laborious. Thus, it is not necessarily easy for farmers participating in the FFS sessions to apply techniques that they have learned in the sessions to their own farms/plots even though they appreciate the effects of the techniques.

In order to ensure that farmers participating in the FFS sessions could apply the techniques that they have learned, especially those essential to sustainable upland farming, the JICA CB-NRM Project adopted the following two-step approach where farmers were encouraged to help each other apply the key techniques in accordance with the existing traditional collective working system named “Halosan” in the target sucos. As a result, about 80~100 % of the members applied the same techniques that they have learned in the demonstration plots to their own plots over the course of the JICA CB-NRM Project.

### Two Step Extension Approach taken by the JICA CB-NRM Project

Step	Descriptions
Step 1 (Year 1)	A FFS group composed of 20 to 40 members was formed with the establishment of a demonstration plot at each aldeia. The members of the group practiced together all the topics of sustainable upland farming in a cycle of upland crop production in the demonstration plot in the 1 <sup>st</sup> year. The 1 <sup>st</sup> year FFS in the demonstration plot was aimed at helping the members practice the sustainable upland farming techniques and understand their effectiveness in crop production. It was also agreed among the members that the demonstration plot should be used for production of improved seeds of the major staple crops (maize, sweet potato, and cassava) for members' cropping in the 2 <sup>nd</sup> year.
Step 2 (Year 2)	<p>Each group divided the members into small groups according to the proximity of their houses/farms, as they used to group themselves when they needed to help each other for farming and traditional/religious activities. In addition to the FFS sessions in the demonstration plot, the Project held several FFS sessions on the selected key topics in one of the farms in each small group, and encouraged the members of the small groups to help each other do the same things in other members' farms in accordance with the Halosan system. The following topics, which were essential to sustainable upland farming but not necessarily easy to introduce by a single family, were handled in the FFS sessions at the small group level.</p> <ul style="list-style-type: none"> <li>◆ Compost production</li> <li>◆ Delineation of contour lines</li> <li>◆ Application of soil conservation measures</li> <li>◆ Application of compost</li> <li>◆ Preparation of liquid fertilizer</li> </ul> <p>The demonstration plot used in the 1st year was again used as a venue for the 2nd year FFS at the aldeia level and the place for seed multiplication for the members.</p>

Source: JICA Project Team (2014)

## 2.5 Proposed Extension Method

It is recommended that the following integrated approach shall be taken as a principle extension method to promote and disseminate the sustainable upland farming techniques at suco level.

### Proposed Framework of Extension of the Techniques

Items	Outlines
Duration	2 years
Extension method	1 <sup>st</sup> year: Field Farmer Schools (FFSs) at the demonstration plot 2 <sup>nd</sup> year: Two-step FFSs at both demonstration and small group plots
Target group	20~30 persons in a group at aldeia level
Outline of FFSs 1 <sup>st</sup> year	<ol style="list-style-type: none"> <li>a. Select a demonstration plot which can be easily accessible to as many members of the group as possible.</li> <li>b. Develop a FFS curriculum composed of a series of hands-on training courses on the sustainable upland farming techniques.</li> <li>c. Conduct a series of hands-on training courses at the demonstration plot to enable the members to practice all the techniques necessary for sustainable upland farming and optimum production of upland crops.</li> <li>d. Help the members practice and apply the techniques to the demonstration plot in the respective hands-on training courses.</li> <li>e. In the first year, the main aims of FFSs are to: i) introduce and demonstrate the techniques; ii) give the members opportunities to practice the techniques in the field; iii) give them chances to observe the results of the techniques introduced in the demonstration plot, and iv) help them assess/analyze the techniques based on the results in the demonstration plot.</li> </ol>
2 <sup>nd</sup> year	<ol style="list-style-type: none"> <li>a. Divide the members of the group into small sub-groups according to the proximity of their houses/farms.</li> <li>b. Help the members select one farm each from the small groups where additional</li> </ol>

<b>Items</b>	<b>Outlines</b>
	<p>hands-on training courses on the selected key topics would be held.</p> <p>c. Hold the same hands-on training sessions as the 1<sup>st</sup> year curriculum arranged except those for sloping agriculture (i.e., delineation of contour lines and application of contour composting) in the demonstration plot to ensure that the members could acquire the techniques.</p> <p>d. Hold the additional hands-on training sessions on the selected key topics essential to sustainable upland farming (i.e., compost production, delineation of contour lines, application of contour composting, application of compost, and preparation of liquid fertilizer) in the selected farms of the respective small groups.</p> <p>e. Encourage the members of the small groups to help each other apply the techniques that they have practiced at the sub-group plots to the individual members' plots.</p> <p>f. The main focus of the second year's activity shall be put on encouraging the members to help each other apply the key techniques to their own farms.</p>

Source: JICA Project Team (2014)

### **3. Techniques/Skills on Sustainable Upland Farming**

#### **3.1 Overall View of the Techniques**

The members should go through or practice not only the process of growing crops but also introduction of sloping agriculture techniques. In order to enable the members to learn all the techniques, the FFSs should cover the whole cycle of the sustainable upland farming as listed below.

- i) Production of compost
- ii) Delineation of contour lines
- iii) Application of contour composting (contour canalling)
- iv) Plowing with compost application
- v) Selection of seeds/planting materials
- vi) Sowing/Planting (Line sowing/planting)
- vii) Preparation of liquid fertilizer
- viii) Weeding, mulching, and application of liquid fertilizer
- ix) Post-harvesting and storage of seeds of maize

In general, a majority of communities in hilly and mountainous areas are not familiar with the techniques listed above; therefore, the FFS should be held as the form of hands-on training to ensure that the members of the group could acquire all the techniques properly, especially in the first year.

#### **3.2 Key Techniques essential to Sustainable Upland Farming**

In the second year, the key techniques which are essential to sustainable upland farming should be handled in the selected farms of the small groups. The following techniques are considered essential to the sustainable upland farming based on the results of the JICA CB-NRM Project.

- i) Compost production
- ii) Delineation of contour lines (preparation and use of A-frames)
- iii) Application of contour composting technique
- iv) Application of compost
- v) Preparation of liquid fertilizer

#### **3.3 Application of the Techniques**

The following sections describe the objectives of the techniques, procedures for application, timeframe, and important tips to be considered in the application of the techniques.



### 3.3.1 Production of Compost

#### (1) Objective

The main objective of the technique is to produce quality organic fertilizer using materials locally available so that communities can maintain soil fertility and improve upland crop production in terms of its quality and quantity.

#### (2) Procedures for Application

The following five (5) steps shall be taken to produce quality compost.

- i) Selection of the location for a compost pit and pitting of a hole
  - ii) Collection and preparation of materials
  - iii) Piling of materials
  - iv) Maintenance of compost
- a. Selection of the location for a compost pit and pitting of a hole
- i) Identify and select the location of production of compost at the beginning. The location should be close to a source of water and a farm which compost is applied to.
  - ii) Dig a pit enough to produce the target volume of compost at the selected location. If the targeted volume is 3 ton, a pit should be 2 m long, 1.5 m wide, and 1 m deep.
  - iii) It is also advisable to make another pit which is the same size as the compost pit in the same place, to lighten the burden of turning/mixing compost during the maintenance of compost.

*The pit should be located upper part of the farm, so that compost is easy to apply.*

*The target volume of compost should be determined according to the area of farm where you apply compost. You should produce at least 2~4 ton of compost for 1 hectare if you apply about 100~200 g each to planting plots.*

*In case that soils in the site are so compacted or too hard to dig a pit, you can also make a compost frame made of bamboo. But it is not much advisable as it would be difficult to maintain the moisture contents of compost during the fermentation process.*



#### b. Collection and preparation of materials

- i) Collect the following materials.
  - ▶ Vegetative materials, such as:
    - Grasses/weeds
    - Stalks of maize or banana

- Leaves of leguminous trees (e.g., caliantra, sesbania, and gamal)
  - Coffee husk
  - ▶ Animal manure, such as
    - Cow dung
    - Goat dung
    - Chicken dropping
  - ▶ Top/black soils and ashes
  - ▶ EM (if possible) or other materials that can facilitate the fermentation process, such as
    - Tua mutin
    - Papaya flesh
- ii) Chop the vegetative materials into small pieces (several centimeters on average) at the site where a compost pit is dug.

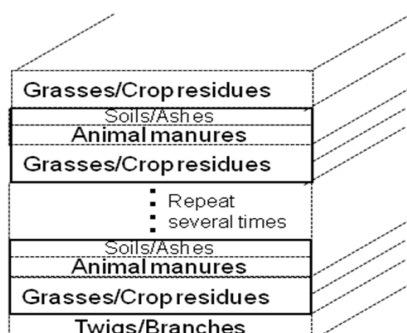
The mixture ratio of vegetative materials to animal manure should be 2:1. If you plan to produce a total of 3 ton of compost, you need collect about 2 ton of vegetative materials and 1 ton of animal manure.

You can faster the fermentation process if you use EM or tua mutin/papaya flesh, which can facilitate the process of fermentation.



c. Piling of materials

- i) Stratify the materials at a height of 5~10 cm each.
- ii) First put a layer of maize and banana stalks or other stuff rather difficult to decompose, and then put a layer of grasses/weeds and that of wet animal manure.
- iii) Cover the layer of animal manure with soils and ashes, and pour sufficient water after putting the layer of soils and ashes.
- iv) Repeat ii) and iii) alternately until you use all the materials prepared or fill up the pit.



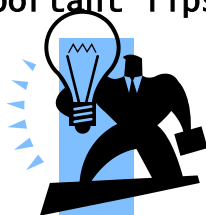
- v) In the middle of piling-up, put a hollow-out bamboo pole with holes in the center of the piled stuff for ventilation.
- vi) Pour again sufficient water on the top of the piled stuff.
- vii) Cover the piled stuff (compost) with banana leaves or plastic cover.
- viii) Build a thatch of a pit to prevent the pit from being exposed to sunlight.



d. Maintenance of compost

- i) Leave compost for 3~4 weeks as it becomes very hot during its fermentation process. Nevertheless, check the moisture contents and temperature of compost at times and regularly water compost to maintain moisture contents in compost even during the fermentation process.
- ii) When compost cools down maybe in 3~4 weeks after piling, move compost to another pit (if two pits are made in pitting) turning the inside out and the upside down to decompose all the materials evenly. If there is only one pit made, take out compost and refill the pit after mixing compost well.
- iii) Pour sufficient water while moving/refilling a pit with compost.
- iv) As compost will be reheated again, leave it cools down again for about 3~4 weeks.
- v) When the temperature of compost gets cool, do the activities ii) to iv).

### Important Tips



- ▶ You should start producing compost in May/June so that you could collect fresh grasses and weeds in the localities.
- ▶ You should be careful not to use weeds with mature seeds to reduce weeds after application.
- ▶ You should keep moisture of compost to facilitate the process of decomposition.
- ▶ If you produce compost in a compost frame, you should line walls of a frame with banana leaves to protect compost from getting dry.

### (3) Timeframe of Application

In the northern part of the country which is under the monsoon type climate with clear distinction between the wet and dry seasons, the production of compost should start in

May/June so that it can be applied to farms before sowing seeds in October/November. The standard timeframe of FFSs on production of compost is outlined below.

**Standard Timeframe of FFS on Compost Production**

<b>Activities</b>	<b>Timing</b>	<b>Duration of the Session</b>
i) Selection of the location of a compost pit and pitting	May	A half day for selection
ii) Pitting of a/ hole/s, preparation of materials, piling, and thatching	May/June	Two days for pitting, preparation of materials and piling
iii) Turn-over of compost (1 <sup>st</sup> )	July	One day for the 1 <sup>st</sup> turn-over
iv) Turn-over of compost (2 <sup>nd</sup> )	August	One day for the 2 <sup>nd</sup> turn-over

Source: JICA Project Team (2015)

### 3.3.2 Delineation of Contour Lines

#### (1) Objective

The main objective of the technique is to make contour lines using a simple device/tool made of materials locally available so that the participants/farmers could apply the sloping land agriculture techniques to their own farms.

#### (2) Procedures for Application

##### a. Making of A-frames with collection of local materials

###### i) Collect the following materials for making A-frames.

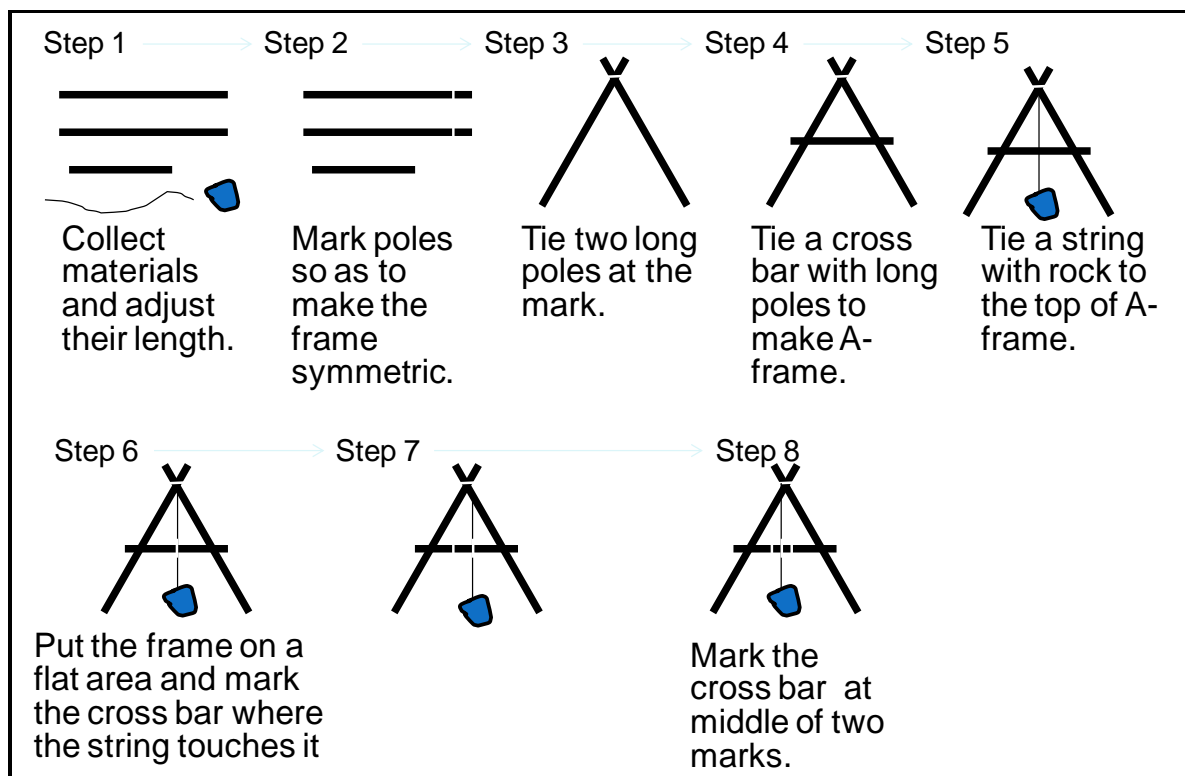
###### ► Materials needed for making an A-frame

- 2 pieces of 2 meter long wood or bamboo
- 1 piece of 1 meter long wood or bamboo
- 1 fist-sized rock
- 2 m of string or thin rope
- Nails/wires/binding strings

###### ► Tools to be used for making A-frames

- Hammer/Machete/Saw/Knife

###### ii) Make A-frames according to the following procedures.



##### b. Delineation of contour lines using A-frames

- Stick the first stake at the middle edge of a farm (such as a demonstration plot) and put the left leg of an A-frame at the first stake.
- Adjust the right leg to make the string pass through the midpoint of the crossbar and stick another stake at the right leg.

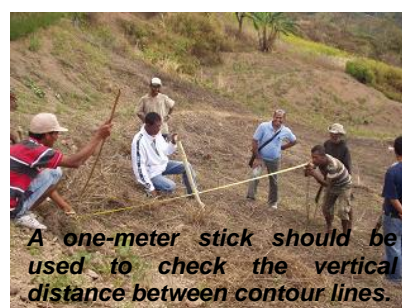
- iii) Move the A-frame to the right by placing the left leg at the stake where the right leg previously was put.
- iv) Adjust the left leg again until the string passes through the midpoint, and again stick the stake at the right leg.
- v) Follow this procedure up to the other side of a farm.
- vi) Take another point 1 meter downwards in a vertical direction in the slope using a 1 m long stick. Do the activities from i) to v) to take the contour line.
- vii) Repeat the activities i) to vi) until all the contour lines are delineated in a farm.



### Important Tips



- ▶ You should take out all grasses in a farm before using an A-frame, or you cannot delineate contour lines correctly.
- ▶ You should use a 1 m-long stick to measure the vertical interval between contour lines.



### (3) Timeframe of Application

The FFS sessions on these topics should be held according to the following timeframe.

#### Standard Timeframe of FFS on Contour Line Delineation

Activities	Timing	Duration of the Session
i) Making of A-frames with collection of local materials	July	One day for making A-frames using local materials
ii) Delineation of contour lines using A-frames	July	One or two (2) days for delineation of contour lines using A-frames

Source: JICA Project Team (2015)

### 3.3.3 Application of Contour Composting (Contour Canalling)

The following four (4) types of soil conservation measures have been introduced and demonstrated in sloping farmlands by the JICA CB-NRM Project.

- i) Contour composting / contour canalling
- ii) Bench terracing
- iii) Stone wall terracing
- iv) Vegetation strips

Each measure has advantages and disadvantages as shown below.

#### Effectiveness and Features of Soil Conservation Measures adopted in Timor-Leste

Type of measures	Applicable conditions	Effectiveness conservation	in Features (Disadvantage)
Contour composting	Gentle to steep sloping	Moderate	Easy to apply but not highly effective in prevention of surface soil erosion
Bench terracing	Moderate sloping	High	Laborious Structurally unstable when being installed in steep sloping areas
Stone wall terracing	Moderate sloping	High	Laborious Dangerous when being installed in steep sloping areas
Vegetation stripping	All types of sloping	Moderate	Time consuming until it becomes effective.

Source: JICA Project Team (2015)

The experiences of the JICA CB-NRM Project revealed that it was not easy for communities to apply bench terrace and stone wall terrace to their own plots as they required significant labor force to introduce the measures, even though they were aware of the effectiveness of the same measures in the prevention of soil erosion through trial application of those measures in the field. Vegetation stripping was also not strongly recommended as it would take time to become effective. Contour composting is considered as the recommended technique that can be introduced and applied to a wide range of areas in the country.

#### (1) Objective

The main objective of the technique is to make contour canals/ditches at an interval of 1 meter in a vertical direction in a sloping farm to prevent surface soil erosion and maintain soil fertility in a farm.

#### (2) Procedures for Application

This technique shall be introduced after delineation of contour lines in the entire part of a farm. In the application, the following steps shall be taken.

- a. Dig a canal about 50 cm wide and 30 cm deep along each contour line.
- b. Make a contour bund on the downward edge of each canal using the excavated soils.
- c. Dig diversion canals on the edges of a farm to drain excess water.



- d. Put crop residues/grasses/weeds in the canals.
- e. Plant king grasses/vetiver grasses/lemon grasses on contour bunds as hedgerows and gamal/caliandra in front of the bunds in the rainy season to strengthen the stability of contour bunds.



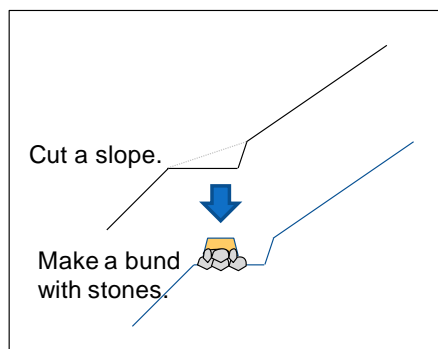
### Important Tips



- ▶ *In case that the contour bunds are fragile, wattles should be applied until hedgerows and leguminous trees grow enough to support the bunds.*
- ▶ *In case that a farm has many stones, you should use stones as bases of the bunds.*



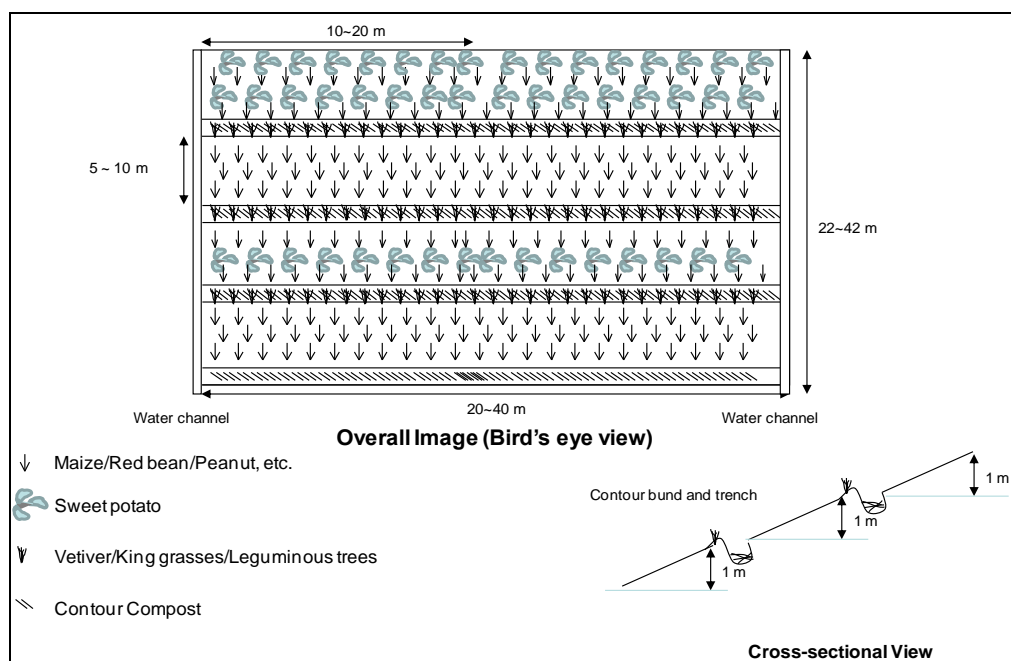
**Wattles should be applied when soils are too fragile to make bunds.**



**Stones should be used as bases of bunds.**

### (3) Standard Design of a Farm with the Technique

The standard design of a farm to be established is shown below.





### (3) Timeframe of Application

The FFS sessions on these topics should be held according to the following timeframe.

#### **Standard Timeframe of FFS on Contour Composting**

<b>Activities</b>	<b>Timing</b>	<b>Duration of the Session</b>
i) Making of contour canals and bunds	August	One day for making of contour canals and bunds
ii) Making of stone bunds or wattles (optional)	August	Additional one day for making of stone bunds or wattles
iii) Planting of hedgerows and leguminous trees	November	One day for planting of hedgerows and leguminous trees on the bunds

Source: JICA Project Team (2015)

### 3.3.4 Plowing with Compost Application

#### (1) Objective

The main objective of the technique is to plow a farm with application of compost in a proper manner so as to ensure the sufficient growth of crops.

#### (2) Procedures for Application

- a. Clear/Cut grasses in the plot in August.
- b. Plow the plot with a hoe and incorporate remnants of weeds into soils in September/October.
- c. Apply compost to a farm efficiently following the methods described below.



##### i) Line application

- Dig thin furrows (10 cm wide and 20 cm deep) along the lines where maize and other seeds are sown;
- Put compost evenly in the furrows in the site (The recommended amount of application to a 50 m-long furrow is 50 kg or two (2) sacks of compost.)
- cover compost with surface soils.



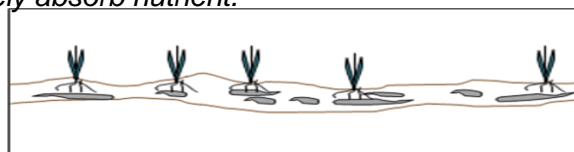
##### ii) Hole application

- Dig small holes (10~20 cm in diameter with 20 cm deep) where corn seeds are sown;
- Put compost which is equivalent to about 100~200 grams to each hole; and
- cover compost with surface soils.

#### Important Tips



- ▶ Compost should be applied at least two weeks before planting to prevent crops from nitrogen deficiency when compost is not well decomposed.
- ▶ It is important to incorporate compost into soils (under the surface) so that root systems of crops (such as maize) can effectively absorb nutrient.



#### (3) Timeframe of Application

The FFS sessions on this topic should be held according to the following timeframe.

##### Standard Timeframe of FFS on Plowing with Compost Application

Activities	Timing	Duration of the Session
i) Clearing of a farm	August	One day for clearing
ii) Plowing	September	One to two (2) day/s for plowing
iii) Application of compost	October	One to two (2) day/s for application

Source: JICA Project Team (2015)

### 3.3.5 Selection of Seeds/Planting Materials and Identification of Plots for the Improved Varieties of Maize

#### (1) Objective

The main objective of the technique is to select and collect quality seeds and planting materials of upland crops to secure high germination and ensure high crop productivity.

#### (2) Procedures for Application

##### Selection of Seeds of Maize and Beans

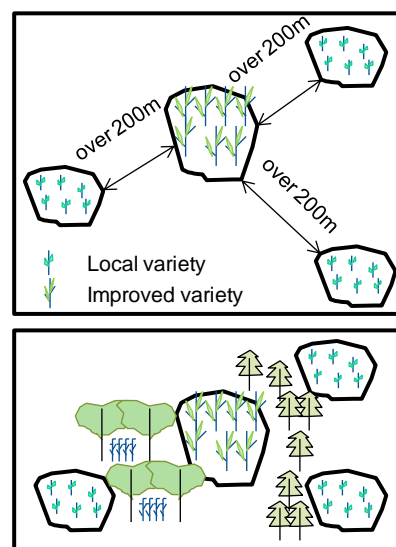
- a. Procure seeds of the improved varieties of maize (i.e., Sele and Suwan 5) from MAF or seed production farmers.<sup>1</sup>
- b. Spread seeds on a flat basket and select large and good shape grains without any insect or fungus damages (i.e., insect holes and discolored stains) one week before planting.
- c. Put them into a jerry can or a large-size plastic bottle of mineral water separately and firmly cap the container.

##### Selection of Planting Materials of Cassava and Sweet potato

- a. Procure planting materials of improved varieties of cassava and sweet potato from MAF if possible.
- b. If it is difficult to get support from MAF and planting materials need to be collected from the surrounding farms, follow the procedures described below.
  - i) Select cassavas and sweet potatoes which show vigorously growth and/or are expected to produce quality tubers;
  - iii) One day before planning,
    - Cut stems of the selected cassavas and divide them into 20 cm long sticks; and
    - Cut runners of the selected sweet potatoes, bundle them, and wrap the cut edges of runners with a wet cloth or tissue.

##### Identification of Farms where Improved Varieties of Maize are planted

- a. Identify and select farms isolated from other farms where local varieties of maize might be planted in either of the following ways:
  - i) A farm is isolated from other farms at a distance of more than 200 m; or
  - ii) A farm is surrounded by natural barriers, such as coffee plantations and forests.



<sup>1</sup> Farmers who have made contracts/arrangements with MAF on the production of improved seeds.

## Important Tips



- ▶ *Improved varieties of sweet potato and cassava can be planted in anywhere as long as they are not mixed with other varieties (local varieties) in the same plot, as they are self-pollinated types.*

### (3) Timeframe of Application

The FFS sessions on this topic should be held according to the following timeframe.

#### Standard Timeframe of FFS on Selection of Seeds and Planting Materials

Activities	Timing	Duration of the Session
i) Selection of seeds	October	A half-day for selection of seeds of maize and beans
ii) Selection of planting materials	October	One day for selection of cassavas and sweet potatoes in a farm and prepare the materials for planting
iii) Selection of farms where improved varieties of maize can be introduced	October	One day for selection and identification of farms

Source: JICA Project Team (2015)

### 3.3.6 Sowing/Planting

#### (1) Objective

The main objective of the technique is to sow and plant crops in a semi-intensive manner to improve the productivity of crops while maintaining the diversity of crops in a farm so that communities can have resilience to adverse impact caused by climate change. Specifically, this manual introduces the following crop combinations as recommendable planting models for this purpose.

**Recommendable Planting Models**

Planting model	Spacing	Remarks
1. Maize & Beans	Main crop: Maize: 1.0 m x 0.5 m Inter crop: Beans (red bean): 1.0 m x 0.3 m	Suitable for gently sloping farms and farms with bench terraces
2. Cassava & Beans	Main crop: Cassava: 1.0 m x 1.0 m Inter crop: Red beans (climbing type): 1.0 m x 0.3 m	ditto
3. Peanut	Peanut: 0.3 m x 0.3 m	ditto
4. Maize & Sweet potato/Pumpkin	Main crop: Maize: 1.0 m x 0.5 m Inter crop: Sweet potato/pumpkin: 1.0 m x 0.5 m	Suitable for sloping farms and farms with contour canalling terraces
5. Cassava & Pumpkin	Main crop: Cassava: 1.0 m x 1.0 m Inter crop: Pumpkin: 1.0 m x 0.5 m	ditto

Source: JICA Project Team (2015)

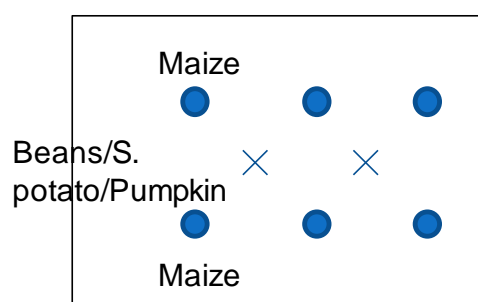
#### (2) Procedures for Application

- Determine the planting models to be introduced in a farm.
- Sow seeds according to the standard designs of the respective recommendable planting models using a scaled stick/string (such as a 1-meter-long stick/string or a stick/string with scale). The standard designs of the respective models are as follows:



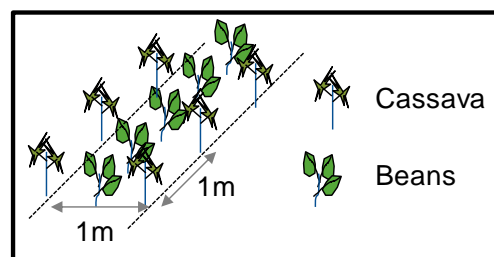
##### Maize and Beans

- Plant maize seeds in line at the distance of 1 m x 0.5 m (1 m between lines and 0.5 m between seeds in a line).
- Plant beans (e.g., soybean and red bean) along the middle lines between those of maize at the distance of 0.3 m between seeds in a line.



##### Cassava and Beans

- Plant cassava sticks in line at the distance of 1 m x 1 m (1 m between lines and 1 m between seeds in a line).



- ii) Plant beans (e.g., soybean and red bean) along the middle lines between those of cassava at the distance of 0.3 m between seeds in a line.

#### Peanut

- i) Plant peanut in line at the distance of 20 cm x 20 cm or 30 cm x 30 cm without mixing with other crops.

#### Maize and Sweet potato/Pumpkin

- i) Plant maize seeds in line at the distance of 0.7 m x 0.5 m (0.7 m between lines and 0.5 m between seeds in a line).
- ii) Plant runners of sweet potato or pumpkin along the middle lines between the lines where maize seeds are sown at the distance of 0.5 cm between runners in a line.



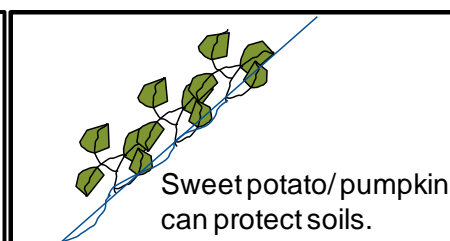
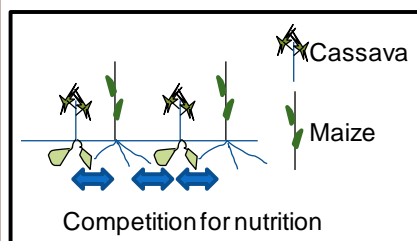
#### Cassava and Sweet potato/Pumpkin

- i) Plant cassava sticks in line at the distance of 1 m x 1 m (1 m between lines and 1 m between seeds in a line).
- ii) Plant runners of pumpkin along the middle lines between the lines where cassava sticks are planted at the distance of 0.5 cm between seeds in a line.
- c. Average volumes of seeds/planting materials of each crop without mixing with other crops.
- Maize: 25 ~ 30 kg/ha
  - Beans: 40~60 kg/ha
  - Peanut: 100 ~ 150 kg/ha
  - Cassava: 10,000 cutting/ha
  - Sweet potato: 20,000~40,000 runners/ha

### Important Tips



- ▶ Do not plant maize and cassava in the same plot as they compete with each other for soil nutrition.
- ▶ Beans (red bean/soy bean) should be mixed with maize and cassava to complement soil nutrients.
- ▶ Sweet potato and pumpkin can be used in a sloping farmland as cover crops.



### (3) Timeframe of Application

The FFS sessions on this topic should be held according to the following timeframe.

#### **Standard Timeframe of FFS on Sowing and Planting**

<b>Activities</b>	<b>Timing</b>	<b>Duration of the Session</b>
i) Sowing of seeds of maize and beans	November	One day for sowing maize and beans
ii) Planting of cassava, sweet potato / pumpkin	November / December	One day for planting cassava, sweet potato or pumpkin
iii) Sowing of peanuts	December	One day for sowing peanuts

Source: JICA Project Team (2015)

### 3.3.7 Preparation of Liquid Fertilizer

#### (1) Objective

The main objective of the technique is to make liquid fertilizer for additional fertilization using materials locally available, so as to keep crops healthy and ensure high crop productivity.

#### (2) Procedures for Application

- a. Procure or prepare a large-sized plastic bucket or drum can and clean it.
- b. Collect ingredients of fertilizer: 5-10kg of cow dung or other animal manure, 30-40kg of crop residues/grasses and leaves of leguminous trees, micro organism (tua mutin, tempe or EM), and 200 liter of water.
- c. Put a net sack filled with animal manure into a drum can. If a net sack is not available, put animal manure into a drum can directly.
- d. Put chopped crop residues/grasses and leaves of leguminous trees and micro organism (tua mutin, tempe or EM) into a drum can.
- e. Pour water until the container is filled.
- f. Cover the container to protect the contents from contamination/dilution or insects.
- g. Stir the contents with a long stick for 5 to 10 minutes every day for 2~3 weeks to facilitate the fermentation process.
- h. After 2~3 weeks fermentation process, scoop up clear water in the surface and dilute the scooped water (liquid fertilizer) with 20 times of water.
- i. Apply liquid fertilizer to maize and other crops on times (every 2~3 weeks).





## Important Tips



- ▶ Use fresh manure since fresh one has more nutrients.
- ▶ If possible, mix different types of manure. Chicken droppings are more nutritious.
- ▶ Put one (1) shovel of ashes to add minerals (especially potassium) to liquid fertilizer.

### (3) Timeframe of Application

The FFS session on this topic should be held according to the following timeframe.

#### Standard Timeframe of FFS on Preparation of Liquid Fertilizer

Activities	Timing	Duration of the Session
i) Making of liquid fertilizer	November	One day for making liquid fertilizer

Source: JICA Project Team (2015)

### 3.3.8 Weeding, Mulching, and Application of Liquid Fertilizer

#### (1) Objective

The main objective of the technique is to facilitate the growth of crops by reducing weeds in a farm and applying additional fertilizer to crops.

#### (2) Procedures for Application

- a. Weed grasses in a farm (3) weeks after planting of maize (1<sup>st</sup> weeding).
- b. Apply liquid fertilizer to maize immediate after the 1<sup>st</sup> weeding.
- c. Mulch the soil surface around crops with weeded grasses to prevent the growth of weeds and maintain soil moisture contents.
- d. Repeat weeding, application of liquid fertilizer, and mulching (items a. to c.) one (1) month after the 1<sup>st</sup> weeding (2<sup>nd</sup> weeding) and another one month after the 2<sup>nd</sup> weeding.



#### Important Tips



- ▶ Weeding is essential not only to the increase of production, but also the protection of crops from infection of pests and diseases.
- ▶ Mulching is effective in restraining the growth of weeds, protecting soil surfaces from being dried, and preventing surface soil erosion.
- ▶ If there are leguminous trees in and around a farm, use the leaves of leguminous trees as mulching materials which can function as green manure at the same time.

#### (3) Timeframe of Application

The FFS session on this topic should be held according to the following timeframe.

##### Standard Timeframe of FFS on Preparation of Liquid Fertilizer

Activities	Timing	Duration of the Session
i) 1 <sup>st</sup> weeding, mulching, and additional fertilization	December	One day for weeding, mulching, and applying liquid fertilizer
i) 2 <sup>nd</sup> weeding, mulching, and additional fertilization)	January	ditto
iii) 3 <sup>rd</sup> weeding, mulching, and additional fertilization)	February	ditto

Source: JICA Project Team (2015)

### 3.3.9 Post-harvesting and Storage of Seeds of Maize

#### (1) Objective

The main objective of the technique is to store quality seeds of maize without any damage caused by insects and fungi while storing.

#### (2) Procedures for Application

- a. After harvesting maize cobs, spread them on a plastic sheet and dry them under the sun to make its moisture contents less than 12 %.
- b. Remove small and damaged cobs and select big-cum-good shape cobs for seed collection.
- c. Shell and collect maize grains from the central parts (1/3) of the selected cobs for seeds.
- d. Put the collected maize grains into the following airtight containers depending on the volume of seeds to be stored.
  - i) Drum can for more than 100 kg of seeds.
  - ii) 5 lit of plastic jerry can for less than 5 kg of seeds
  - iii) Aqua plastic bottle for less than 1 kg of seeds



#### Important Tips



- ▶ You should not dry maize cobs hanging them on a tree but dry them under the sun to minimize its insect damage.
- ▶ When using a dram can as an airtight container, you should put a candle in a can after filling a can with corn seeds to deoxidize the container.
- ▶ Do not mix the improved maize seeds with other local seeds.

#### (3) Timeframe of Application

The FFS session on this topic should be held according to the following timeframe.

**Standard Timeframe of FFS on Preparation of Liquid Fertilizer**

Activities	Timing	Duration of the Session
i) Drying of maize cobs	April	One day for drying of maize cobs
i) Storing of maize seeds	April/May	One day for selection of cobs, collection of corn grains for seeds, and storing of seeds into airtight containers.

Source: JICA Project Team (2015)

#### 4. Standard Training Modules

The following table shows the standard training modules for the respective techniques introduced in Section 3.3. All the training courses are assumed to be conducted at the demonstration plot for FFS.

**Standard Training Module for the Techniques in FFSs**

Training course	Items	Descriptions
Compost Production	Objectives	To enable the members to produce organic fertilizer (compost) using materials locally available.
	Timeframe	<u>1st training in making compost (2 days)</u> a. Collection and chopping of materials (0.5 day/1st day) b. Pitting (0.5 day/1st day) c. Piling of materials (1 day/2nd day) <u>2nd training in maintenance of compost (1 day)</u> a. Turn-over of compost (1 day)
	Materials	Farm tools (Iron stick, machete, shovel), materials for compost (grasses, weeds, stalks, manures, soils/ashes), banana leaves, thatching materials (4 pcs of 1~2 m pole and coconut leaves)
	Expected Results	2~3 ton of compost will be produced.
Delineation of contour lines	Objectives	To enable the members to properly delineate contour lines using materials locally available.
	Timeframe and process	<u>2 days training in delineation of contour lines</u> a. Collection of materials (0.5 day/1st day) b. Framing of an A-frame (2 hours/1st day) c. Preparation of sticks (1 hours/1st day) d. Delineation of contour lines (1 day/2nd day)
	Materials (for 3 units of A-frame)	6 pcs of 2 m pole, 3 pcs of 1m pole, 3 pcs of 1.5 m string, 3 pcs of handful stones/blocks, and wires or nails
	Expected Results	Contour lines will be delineated in the demonstration plot.
Application of contour composting technique	Objectives	To enable the members to apply contour composting technique
	Timeframe	<u>2~3 days training in applying contour compost</u> a. Digging of contour canals (1 day) b. Making of contour bunds or stone bund(1 day) c. Making of wattles (optional) (1 day)
	Materials	Farm tools (iron stick, hoe, pickax, and shovel), bamboo poles for wattles
	Expected Results	Contour composts will be developed in the demonstration plot.
Plowing with compost application	Objectives	To enable the members to cultivate a farm with application of compost in a proper manner
	Timeframe	<u>2 days training in plowing with compost application</u> a. Cultivation (1 day) b. Application of compost (1 day)
	Materials	Farm tools (machete, hoe, pickax) and compost
	Expected Results	The demonstration plot is ready for planting.
Selection of seeds/ planting materials	Objectives	To enable the members to understand how to use improved seeds and select quality seeds before planting.
	Timeframe	<u>2 days training in selection of seeds &amp; plots for improved ones</u> a. Introduction of the use of improved seeds (0.5 day/1 <sup>st</sup> day) b. Selection of quality seeds of maize, beans and planting materials of cassava and other crops (0.5 day/1 <sup>st</sup> day) c. Selection of plots for improved maize (1 day/2 <sup>nd</sup> day)
	Materials	Seeds and planting materials of crops (e.g., maize, beans, cassava, etc.)
	Expected Results	Quality seeds and planting materials of major upland crops will be selected.

Training course	Items	Descriptions
Sowing/Planting	Objectives	To enable the members to sow/plant crops in line at the recommendable spaces of the respective crops
	Timeframe	<u>1<sup>st</sup> training in planting maize and beans (1 day in Nov.)</u> a. Sowing of maize by measuring the distance (0.5 day) b. Sowing of beans by measuring the distance (0.5 day) <u>2<sup>nd</sup> training in planting cassava, pumpkin, beans (1 day in Dec.)</u> a. Planting of cassava /sweet potato / pumpkin by measuring the distance (0.5 day) b. Sowing of beans by measuring the distance (0.5 day) <u>3<sup>rd</sup> training in planting peanut (1 day in Dec.)</u> a. Sowing of peanut by measuring the distance
	Materials	Seeds/planting materials 1~2 m of rope/stick with 10 cm scales
	Expected Results	Upland crops will be planted in line in a systematic manner in the demonstration plot.
Preparation of liquid fertilizer	Objectives	To enable the members to prepare liquid fertilizer using materials locally available.
	Timeframe	<u>1 day training in preparing liquid fertilizer</u> a. Collection of local materials (0.5 day) b. Mixing of materials (0.5 day) <u>2~3 weeks OJT in stirring liquid fertilizer by core members</u> a. Stirring (10 min/day x 2 ~3 weeks)
	Materials	Animal dung (2 sacks), Grasses/weeds (2 sacks), Soils (2~3 shovels), Ashes (1 shovel), and water
	Expected Results	A can of liquid fertilizer will be prepared and ready to use at the demonstration plot.
Weeding, mulching, and application of liquid fertilizer	Objectives	To enable the members to properly maintain farms to keep crops healthy and improve/stable crop productions in farms.
	Timeframe	<u>1<sup>st</sup> training in maintaining crops (1 day in Dec.)</u> a. Weeding/cultivation and mulching (0.5 day) b. Additional fertilization using liquid fertilizer (0.5 day) <u>2<sup>nd</sup> training in maintaining crops (1 day in Jan.)</u> a. Weeding/cultivation and mulching (0.5 day) b. Additional fertilization using liquid fertilizer (0.5 day) <u>3<sup>rd</sup> training in maintaining crops (1 day in Feb.)</u> a. Weeding/cultivation and mulching (0.5 day) b. Additional fertilization using liquid fertilizer (0.5 day)
	Materials	Farm tools (machete and hoe), a water can, and liquid fertilizer
	Expected Results	Crops planted in the demonstration plots will grow well and produce high yields.
Post-harvesting and storage of seeds of maize	Objectives	To enable the members to properly dry, select, and store corn grains for seeds of maize for next season's cropping.
	Timeframe	<u>1<sup>st</sup> training in drying maize (1 day in Mar./Apr.)</u> a. Spreading of maize cobs (0.5 day) b. Drying of maize (0.5 day) <u>2<sup>nd</sup> training in storing maize (1 day in Apr.)</u> a. Selection of cobs and collection of grains (0.5 day) b. Storage of grains in airtight containers (0.5 day)
	Materials	Plastic sheet, baskets, and airtight containers (drum can, jerry cans, and bottles of aqua)
	Expected Results	Quality seeds of maize for next cropping season will be properly stored.

Source: JICA Project Team (2015)

## 5. Cost Estimates

This chapter introduces how to estimate the budget required for the conduct of a series of FFS sessions at the suco or aldeia level. The cost estimation is one of the essential skills/techniques to prepare a convincing plan which can get the financial support from a source of fund. The following sections explain the ways to estimate the budgets per training session and per suco/aldeia introducing the major cost items to be considered in the estimation.

### 5.1 Estimate of Cost for Training

The major cost items for training are: i) materials used for training sessions, ii) food for the members/participants, iii) transportation cost for facilitators, iv) other miscellaneous cost, and v) cost for facilitators if external facilitators (such as NGOs) are used for training. The cost of each cost item is estimated by multiplying its quantity of the item by the unit cost. The following format can be used in the estimation.

**Format for Cost Estimation of Training Session**

Standard cost item	Quantity (a)	Unit cost (b)	Cost (a x b)
1. Materials for training (for those which cannot be collected in a village)			
2. Snack and food for the participants			
3. Transportation cost for facilitators			
4. Cost for facilitators (payment to facilitators)			
5. Other miscellaneous cost			
<b>Total cost for one training session (1+2+3+4+5)</b>	-	-	

Source: JICA Project Team (2014)

### 5.2 Estimate of Cost for Other FFSs other than Hands-on Training

After hands-on training, core and some members may need to engage in follow-up activities in the demonstration plot, as one hands-on training session may not be able to apply some of the techniques (e.g., delineation of contour lines, making of contour canals/bunds, cultivation with compost application) to all the parts of the demonstration plot. The major cost items for self-application/practice are: i) snack or food for the members, ii) transportation cost for facilitator, iii) cost for facilitators, and iv) other miscellaneous cost. The same format shown above can be used for estimation.

### 5.3 Cost Estimate per Suco

The cost for one cycle of FFS in a village is estimated by summing up the costs for all the FFS's sessions mentioned above. In case that FFS is held at aldeia level and several FFS groups are organized in a suco, the total cost should be estimated by multiplying the number of groups by the costs of the respective FFS sessions. Consequently, the following format can be used for the estimation.

**Format for Cost Estimation of Training Session in the First Year**

Standard cost item	No. of Group (a)	Unit cost (b)	Cost (a x b)
1. Hands-on training on compost production			
2. Hands-on training on contour line delineation			
3. Self-application on delineation			
4. Hands-on training on contour composting			
5. Self-application on contour composting			
6. Hands-on training in cultivation/compost application			
7. Self-application of cultivation/compost			

Standard cost item	No. of Group (a)	Unit cost (b)	Cost (a x b)
application			
8. Hands-on training in selection of seeds			
9. Hands-on training in sowing/planting			
9. Hands-on training in making liquid fertilizer			
10. Self-practice in making liquid fertilizer			
11. Hands-on training in weeding, mulching, and application of liquid fertilizer			
12. Self-practice in weeding, mulching, and application of liquid fertilizer			
13. Hands-on training in harvesting and post-harvesting			
14. Hands-on training in selection, collection and storage of seeds			
<b>Total cost for one training session (1+2+3+4+5)</b>	-	-	

Source: JICA Project Team (2014)

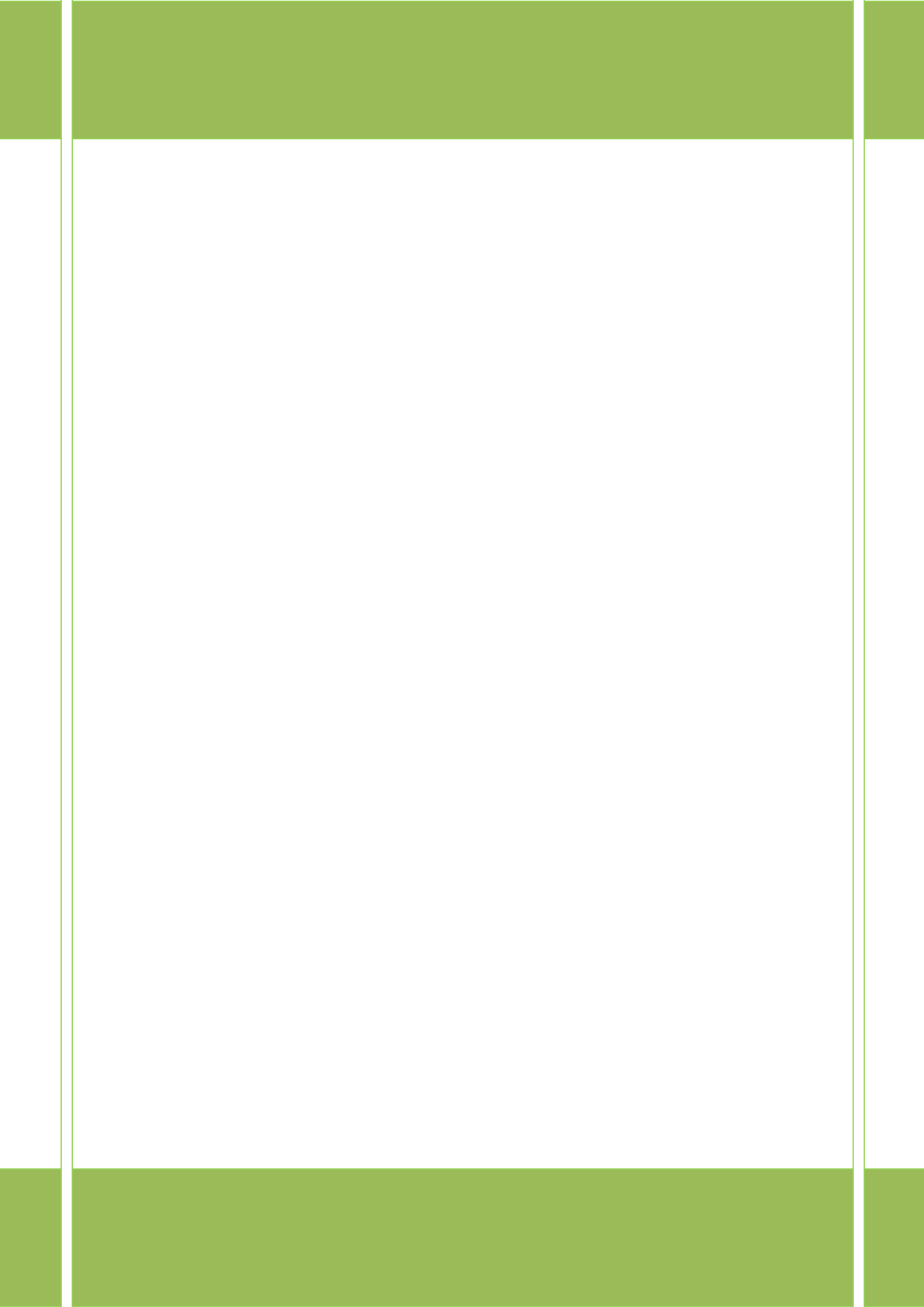
#### 5.4 Unit Costs used for Cost Estimation (as of March 2014)

To simplify the process of cost estimation, the following unit costs of the respective cost items could be used in 2014. However, these costs should be reviewed and revised periodically since the prices will be escalated as years go by.

##### Sample of Unit Costs of the Cost Items

Category	Items	Unit cost (US\$)
Materials	Farm tool (Iron stick)	US\$ 7.0/pc
	Farm tool (Machete)	US\$ 5.0/pc
	Farm tool (Hoe)	US\$ 7.0/pc
	Farm tool (Shovel)	US\$ 7.0/pc
	Animal dung	US\$ 7.5/sack (25 kg)
	Poly bag	US\$ 7.5/kg
	Drum can (from IFAD)	US\$ 25.0 /pc
	Jerry can	US\$ 5.0 /pc
Food for training	Snack (coffee and sugar)	US\$ 1.0/person
	Lunch	US\$ 4.0/person
Transportation cost for facilitators	Fuel (5 lit/trip)	US\$ 8.0/person
External facilitator	Salary and per diem	US\$ 40.0 /person
Other miscellaneous	Fee for cookers	US\$ 5.0 /person
	Stationary (flipchart, etc.)	US\$ 100.0 /suco

Source: JICA Project Team (2014)





# Manuál Tékniku CB-NRM

## Vol. 2 Promosaun To'os Foho-lolon

### Sustentável (inklui Estensaun Fini Bazeia ba

### Komunidade no Utiliza To'os Uma-hun/To'os Permanente)



#### Prepara hosi

Projetu Jestaun Rekursu Natural Sustentável Bazeia ba Komunidade  
República Democrática Timor-Leste





## LIA MAKLOKEK

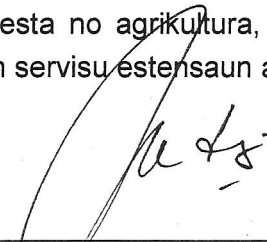
Degradasaun floresta no deforestasaun mak asuntu importante ida-ne'ebé Governu Timor-Leste (GoTL) preziza rezolve hodi atinje dezenvolvimentu sósiu-ekonómiku sustentável iha rai laran. Estudu ne'ebé hala'o iha tinan 2013 hatudu katak pelumenus 184.000 ha hosi floresta lakon ona entre tinan 2003 no 2012 no maizumenus 170.000 ha hosi floresta ho densidade nakonu hetan ona degradasaun sai floresta ho densidade uitoan iha perídu hanesan.

Jestaun Rekursu Naturál Bazeia ba Komunidade (CB-NRM) mak aprosimaun ba konservaun natureza ho rekoñese komunidade lokál sira-nia direitu atu benefisia sira hosi jestaun rekursu naturál sustentável (floresta, rai, bee, no biodiversidade) iha área ne'ebé termina ona. Ida-ne'e mak alternativu aprosimaun reguladór hosi leten mai kraik, ne'ebé seidauk efetivu iha nasaun barak, liuliu bainhira regulamentu sira labele hatán hotu mudansa sosiál, kultura no kontestu ekonómiku iha rai laran.

Projetu Jestaun Rekursu Naturál Sustentável Bazeia ba Komunidade (Projetu CB-NRM) ne'ebé implementa hamutuk hosi Japan International Cooperation Agency (JICA) no Ministériu Agrikultura e Peska (MAP), partikulármente Diresaun Nasionál Floresta no Jestaun Bacias Hidrograficas (DNFGBH), dezenvolve tiha ona mekanizmu ne'ebé la'o daudaun ba CB-NRM iha Timor-Leste. Projetu ne'e mós hasai manuál tuirmai iha kursu projetu, atu ajuda MAP hodi habelar mekanizmu ne'ebé hanesan, iha mota prinsipál sira iha rai laran.

- ◆ Manuál Operasaun ba Estabelesimentu Mekanizmu CB-NRM iha nivel Suku
- ◆ Manuál Tékniku CB-NRM
  - Vol. 1: Produsaun Ai-oan no Promosaun Kuda ai
  - Vol. 2: Promosaun Toos Rai-lolon Sustentável
  - Vol. 3: Hasa'e Rendimentu/Dezenvolvimentu Vida-moris
- ◆ Manuál ba Formasaun Konsellu Jestaun Bacias Hidrograficas

Manuál Tékniku CB-NRM sira introdús tékniku/abilidade xave ne'ebé relevante ba jestaun rai no floresta sustentável no mós dezenvolvimentu vida-moris ho prosedimentu detallu ba provizaun treinamentu prátika direktamente. Hirak-ne'e bazeia ba aprendizajen hosi esperiéncia iha terrenu; Tanba ne'e, ami, hanesan reprezentativu MAP, rekomenda tebes katak, pratikante terrenu, la'ós de'it MAP, maibé mós organizasaun seluk ne'ebé servisu iha setór floresta no agrikultura, tenke uza manuál ne'e, hanesan instrumentu matadalan ba provizaun servisu estensaun agrikultura no floresta ba komunidade lokál sira.

  
Manuel Mendes  
Diretór Nasionál

Diresaun Nasionál Floresta no  
Gestaun Bacias Hidrograficas  
(DNFGBH), MAP

Outubru 2015  
  
Raimundo Mau  
Diretór Gerál Floresta, MAP



## **Kona-ba Manuál CB-NRM**

Manuál CB-NRM sira-ne'e dezenvolve no públika hosi Projetu Konjunta JICA no MAP hanaran Jestaun Rekursu Naturál Sustentável Bazeia ba Komunitade, atu fornese ekipamentu prátiiku ne'ebé útil ba planeadór no pratikante sira iha setór floresta iha Timor-Leste, hodi fasilita sira atu proteje no maneja rekursu natural sira ho maneira ne'ebé kolaborativu no sustentável. Materiál sira-ne'e kompostu hosi tipu manuál tolu (3), hanesan hatudu iha kraik ne'e.

- i) Manuál Operasionál ba Estabelesimentu Mekanizmu CB-NRM iha Nivel Suku
- ii) Manuál Tékniku CB-NRM
  - Vol. 1: Produsaun Ai-oan no Kuda Ai
  - Vol. 2: Promosaun To'os Rai-lolon Sustentável
  - Vol. 3: Hasa'e Rendimentu/Dezenvolvimentu Vida-moris
- iii) Manuál ba Formasaun Konsellu Jestaun Bacias Hidrograficas

Manuál Operasionál ne'e mak komponente prinsipál ne'ebé espesifika prosedimentu Operasaun padraun ba introdusaun no estabelesimentu mekanizmu CB-NRM iha nivel suku. Manuál operasionál ida-ne'e dezeña atu planeadór, pratikante, no servisu hanesan peskizadór/estudante sira iha setór floresta iha Timor-Leste bele uza, liuliu sira-ne'ebé envolve iha protesau floresta, konsersaun bacias hidrograficas, no floresta komunitária iha Diresaun Nasionál Floresta no Gestaun Bacias Hidrograficas (DNFGBH).

Manuál Tékniku CB-NRM sira suplementa Manuál Operasionál, introdús tékniku no abilidade relevante sira-ne'ebé bele ajuda komidade rural, hodi bele uza no maneja rekursu naturál sira, liuliu rai no floresta, ho maneira ne'ebé produtivu maibé mós sustentável. Manuál sira-ne'e tenke uza, prinsipalmente hosi servisu estensaun terrenu sira, hanesan funsionáriu MAP munisípiu (ezemplu, funsionáriu munisípiu, estensionista, no guarda floresta sira) no mós funsionáriu ONG sira, hanesan referénsia tékniku ba sira-nia servisu iha terrenu.

Manuál ba formasaun Konsellu Jestaun Bacias Hidrograficas, introdús prosesu dezenvolvimentu kolaborasaun plataforma/kuadru servisu ba jestaun rekursu naturál sustentável iha nivel postu-administrativu ka sub-bacias hidrograficas, ne'ebé bele mós hanesan servisu baze ba espansaun mekanizmu CB-NRM iha eskala bacias hidrograficas. Tanba manuál ida-ne'etak aprosimasaun esensiál ida, hodi hadi'a governasaun ambiente iha nivel bacias hidrograficas, liu hosi hametin koordinasaun no rede servisu entre parseiru lokál sira. Manuál ida-ne'e bele uza hodi ajuda sira-ne'ebé envolve iha jestaun bacias hidrograficas.

Liután, Projetu Konjunta JICA no MAP mós dezenvolve no públika tiha ona manuál sira-ne'e iha versaun simples, atu ajuda uza na'in sira fasil halo tuir prosedimentu sira ka aplika tékniku sira-ne'ebé deskreve iha manuál sira-ne'e, iha terrenu.

Ne'e duni espera katak, manuál sira-ne'e ho sira-nia versaun simples bele serbí hanesan referénsia prátikú ba parseiru roioin iha setór floresta iha Timor-Leste.

## MANUÁL TÉCNIKU CB-NRM

### **Vol. 2: Promosaun To'os Foho-lolon Sustentável (inklui Estensaun Fini Bazeia ba Komunitade no Utilizasaun To'os Uma-hun/To'os Permanente ne'ebé Sustentável)**

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## **Vol.2 Promosaun To'os Foho-lolon Sustentável (inklui Estensaun Fini Bazeia ba Komunitade no Utiliza To'os Permanente ne'ebé Sustentável)**

### **1. Introdusaun**

#### **1.1 Rasionál hosi Tékniku**

Programa Mikro Promosaun To'os Foho-lolon Sustentável (SUFMP) ne'ebé implementa hosi projetu jestaun rekursu naturál Sustentável bazeia ba Komunitade (iha ne'e refere ba "Projeto JICA CB-NRM), introdús ona tékniku balu kona-ba agrikultura rai-lolon, no hadi'a to'os foho-lolon, ho objetivu atu demonstra sistema to'os foho-lolon sustentável ne'ebé bele fasilita komunitade lokál sira, hodi asegura produsaun ai-han báziku ne'ebé estavel, no iha parte seluk mantein produtividade rai iha to'os rai-lolon, no la estraga floresta ne'ebé eziste iha lokalidade. Iha realidade, programa ida-ne'e importante ba susesu jestaun rekursu naturál sustentável, especialmente jestaun rai sustentável, no simultaneamente asegura ai-han di'aria iha área rai-lolon no foho iha Timor-Leste.

Introdusaun no deseminasaun hosi tékniku SUFMP, espera atu kontribui ba susesu hosi objetivu planu estratéjiku MAP 2014 – 2020, especialmente programa sira tuirmai ne'e 1: Hasa'e sustentabilidade produsaun no produtividade no programa 5: Jestaun no konservasaun rekursu naturál. Seluk tan, tékniku hirak-ne'ebé introdús hosi programa mikro konsistente tebes ho komunitade lokál sira-nia nesesidade, tanba sira-nia koñesimentu ne'ebé menus kona-ba jestaun rai sustentável ho própriu, mak hanesan ne'ebé kauza produtividade ai-han ne'ebé baixu no rai nia bokur ne'ebé ladún di'ak ona iha área rai-lolon no foho. Tanba ne'e, komunitade sira iha suku tarjetu hotu-hotu ne'ebé projetu JICA CB-NRM serbisu iha programa mikro ne'ebé hili, hanesan programa prioridade ne'ebé sira rasik hakarak atu envolve iha laran.

#### **1.2 Objektivu hosi Tékniku**

Objetivu prinsipál hosi SUFMP ne'e mak, atu fasilita komunitade sira, hodi utiliza to'os rai-lolon ba produsaun ai-han báziku no ai-han sira seluk kontinuamente, sein hamenus rai nia bokur. Teknikamente, tékniku ne'e nia objetivu mak atu fasilita sira hodi:

- Aplika tékniku agrikultura rai-lolon ne'ebé fasil atu aplika, maibé efektivu ba konservasaun rai;
- Konverte sira-nia prátika halo to'os hosi to'os muda ba mai ba to'os permanente uza tékniku to'os orgánika;
- Uza variedade ne'ebé di'ak hosi ai-han báziku iha foho-lolon ho maneira ne'ebé própriu; no
- Hasa'e produtividade ai-han báziku.

#### **1.3 Objektivu hosi Manuál**

Manuál ne'e ho objetivu atu gia traballadór no planeadór sira-ne'ebé iha intensaun atu introdús tékniku to'os foho-lolon sustentável iha área rai-lolon no foho iha Timor-Leste. Especialmente, manuál ne'e tenke uza no hanesan referénsia, bainhira komunitade sira hili/determina tékniku to'os foho-lolon sustentável hanesan tékniku prioridade ba jestaun rekursu naturál sustentável iha nivel Suku. Tanba natureza hosi tékniku, Funsionáriu Floresta Munisípiu, Koordenadór no Funsionáriu Estensaun, Guarda Floresta, no Funsionáriu terrenu ONG nian, konsidera hanesan tarjetu prinsipál ne'ebé uza manuál ne'e.

## 2. Aproximasaun ba Estensaun ne'ebé Efetivu

### 2.1 Aproximasaun Eskola Agrikultór Terrenu (EAT)

Eskola Agrikultór Terrenu (EAT) mak métodu estensaun ida-ne'ebé forte liu hotu, ne'ebé uza iha nasaun dezenvolidu sira ba estensaun agrikultura. Horiuluk, métodu ne'e dezenvolve iha Ázia sudeste ba introdusaun Jestaun peste Integradu (IPM) iha tinan 1990 sira. Dezde ne'ebá, métodu ne'e dezenvolve tan ninia efetividade, no promove/aplika tiha ona ba sujietu ho eskala luan. EAT aplika métodu edukasionál la'ós-formal bazeia ba konseitu "esperimentál," partisipativu," no "sentradu ba aprendizajen".



EAT ho objetivu atu kria ambiente, ne'ebé partisipante/agrikultór sira bele aprende sujietu spesífiku liuhosi halo/pratika iha to'os fatin, halo debate ba rezultadu/observasaun, no periodikamente servisu hamutuk ho partisipante/agrikultór sira iha to'os ne'ebé hanesan. Liuhosi sesaun EAT série, partisipante/agrikultór sira bele:

- Esperiência sujietu nia síklu tomak, hanesan kuda ai-han, hakiak animál, hadi'a kondisaun rai, no produsaun merkadoria;
- Avalia no analiza situasaun atuál iha terrenu no konsidera asaun nesesáriu ne'ebé presiza foti hodi hadi'a liután; no
- Kapasita sira-nia-an rasik hodi repete tékniku/abilidade ne'ebé introdús durante kursu EAT iha sira-nia to'os rasik.

Elementu xave tuirmai tenke konsidera iha dezeńu EAT

#### Elementu xave hosi EAT

Elementu	Deskrisaun
a. Partisipante EAT	Jerálmente, EAT dezeńa ba partisipante 20-25 iha grupu ida. Iha kazu projetu JICA CB-NRM nian, grupu iha treinamentu adubu orgánika ho membru 15-40. Ideálmente, númeru hosi membru sira labele liuhosi 30.
b. Eskola terrenu	Sesaun EAT tenke hala'o iha terrenu. Iha projetu JICA CB-NRM nia okos, to'os demonstrasaun uza hanesan fatin ba EAT, ne'ebé membru sira aprende no pratika tiha tékniku série.
c. Kurríkulu EAT	Kurríkulu EAT, básikamente tenke kobre tópicu/tékniku hotu-hotu iha síklu hosi sujietu, atu nune'e, partisipante sira bele iha esperiência loloos iha prosesu hotu-hotu iha terrenu. Iha kazu projetu JICA CB-NRM nian, membru sira iha esperiência ona kona-ba prosedimentu ba introdusaun sistema halo to'os foho-lolon sustentável, hanesan halo adubu orgánika, aplikasaun konservasaun rai, aplikasaun adubu orgánika, uza adubu-been, no kolleita, inklui koleisaun fini.
d. Fasilitadór	Fasilitadór ne'ebé iha koñesimentu tékniku ne'ebé suficiente iha sujietu no mós abilidade kompetente iha fasilitasaun, tenke designa ba EAT, hodi lidera membru sira liuhosi sesaun treinamentu prátika direktamente. Ideálmente, funsionáriu estensaun (ka estensionista) mak nu'udar fasilitadór. Maski, la realístiku katak funsionáriu estensaun sira bele serbisu hanesan fasilitadór ba tempu agora, tanba sira-nia kapasidade tékniku no fasilitasaun ne'ebé sei limitadu tebes. Tan ne'e, ONG ne'ebé iha esperiência iha EAT, bele sai hanesan rekursu prinsipál hodi sai fasilitadór.
e. Membru prinsipál	Membru sira-ne'ebé bele oferese sira-nia rai/to'os ba atividade EAT no lidera membru sira iha sesaun, tenke hili hanesan membru prinsipál.

f. Alokasaun Orsamentu	EAT, la nesesáriu hanesan planu treinamentu ho orsamentu ne'ebé ki'ik iha Timor-Leste, bainhira kompara ho métodu estensaun konvensionál. Iha nesesidade atu asegura orsamentu ne'ebé suficiente hodi hala'o sesaun série EAT.
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Rekursu: Ekipa Projeto JICA (2015)

## 2.2 Aproximasaun Demonstrasaun iha To'os

Simultaneamente ho EAT, aproximasaun treinamentu iha to'os demonstrasaun prezisa atu hala'o, hodi fasilita deseminasaun tékniku iha comunidade sira iha nivel suku. Tanba EAT labele kobre comunidade hotu iha suku, dala ida de'it. Tan ne'e, to'os demonstrasaun dezenvolve hanesan fatin ba sesaun, atu nune'e to'os demonstrasaun ne'e mós hanesan modelu ba membru ne'ebé la envolve iha EAT, atu bele observa rezultadu hosi tékniku ne'ebé introdús iha kursu sesaun EAT. Kritéria tuirmai tenke konsidera bainhira halo selesaun to'os hodi sai to'os demonstrasaun.



- To'os ne'e tenke bele asesu ba comunidade barak iha aldeia;
- To'os ne'e tenke iha karakterístiku hanesan ho to'os sira seluk iha termu rai-lolon, rai, istória utilizaun to'os ne'e; no
- To'os-na'in tenke konkorda atu utiliza to'os ne'e ba objetivu treinamentu no fahe produktu hosi to'os ne'e ho partisipante sira-ne'ebé envolve iha EAT.

## 2.3 Aproximasaun Estensaun Agrikultór – ba – Agrikultór

Estensaun agrikultór-ba-agrikultór seidak komún iha Timor-Leste, tanba agrikultór inovativu sei menus iha terrenu. Maibé, konsidera katak aproximasaun ne'e sei efetivu iha Timor-Leste, tanba comunidade barak, especialmente sira-ne'ebé hela iha área rai-lolon no foho, jerálmamente haree la imediatamente simu tékniku foun ne'ebé introdús hosi ema li'ur, no dalabarak sente toman ho tékniku ne'ebé adopta hosi agrikultór viziñu hanesan “tékniku ne'ebé aplikavel ba sira-nia to'os.”

Tanba ne'e, espera katak tékniku ne'ebé introdús no demonstra liuhosi sesaun EAT iha to'os demonstrasaun bele konsidera, tanba hirak-ne'e aplika hodi halo di'ak, bainhira comunidade realiza katak sira-nia viziñu nia to'os (hanesan, to'os demonstrasaun) hatudu rezultadu di'ak liuhosi sira-nia rasik no mós to'os seluk iha sira-nia suku.

## 2.4 Aproximasaun Estensaun Etapa-Rua

Difikuldade ida-ne'ebé mak agrikultór sira infrenta iha aplikasaun tékniku to'os foho-lolon sustentável ba sira-nia to'os rasik mak, menus traballadór, tanba tékniku xave balu, hanesan produsaun adubu orgánika no aplikasaun konsersaun rai, prezisa traballadór barak. Tanba ne'e, la fasil ba agrikultór sira partisipa iha sesaun EAT hodi aplika tékniku ne'ebé sira aprende iha sesaun ne'e ba sira-nia to'os rasik, maski sira apresia beenefísiu hosi tékniku ne'ebé introdús.

Atu asegura katak agrikultór sira-ne'ebé partisipa iha sesaun EAT ne'e bele aplika tékniku ne'ebé sira aprende ona, especialmente tékniku esensial sira ba to'os foho-lolon sustentável, projeto JICA CB-NRM adopta ona aproximasaun etapa-rua tuirmai, ne'ebé bele enkoraja agrikultór sira hodi ajuda malu aplika tékniku xave tuir sistema tradisionál servisu koletivu ne'ebé eziste, hanaran “Halosan” iha suku tarjetu sira. Hanesan rezultadu, pelumenus 80-100% hosi membru sira aplika tékniku hanesan ne'ebé-sira aprende iha to'os demonstrasaun ba sira-nia to'os rasik depois kursu projeto JICA-CB-NRM.

### Aproximasaun Estensaun Etapa-rua hala'o hosi projetu JICA CB-NRM

Etapa	Deskrisaun
Etapa 1 (Tinan1)	Grupú EAT ida kompostu hosi membru 20 to'o 40 forma ona ho estabelesimentu to'os demonstrasaun iha kada aldeia ida-idak. Membru hosi grupu ne'e pratika hamutuk topiku hotu-hotu kona-ba to'os foho-lolon sustentavel iha siklu ida hosi produsaun ai-han rai-lolon nian, iha to'os demonstrasaun iha tinan dahuluk. EAT Tinan dahuluk, iha to'os demonstrasaun ho objetivu atu ajuda membru sira pratika tekniku to'os foho-lolon sustentavel, no komprende efektividade tekniku refere, hodi hasa'e produsaun ai-han. Iha mos konkordansia entre membru sira katak, to'os demonstrasaun tenke utiliza ba produsaun fini di'ak hosi ai-han baziku prinsipal (batar, fehuk-midar no ai-farina), ba membru sira ba tempu kuda iha tinan daruak nian.
Etapa 2 (Tinan 2)	Kada grupu fahe membru sira ba grupu ki'ik liutan, tuir distansia hosi sira-nia uma/to'os, tanba sira toman ona atu agrupa sira-nia an bainhira sira presiza ajuda malu iha atividade halo to'os no tradisional/religiaun. Seluk tan, ba sesaun EAT iha to'os demonstrasaun, projetu hala'o sesaun EAT balu, iha topiku xave selesionadu iha to'os ida hosi kada grupu ki'ik nian, no enkoraja membru sira hosi grupu ki'ik ne'e, atu ajuda malu halo atividade ne'ebé hanesan iha to'os membru seluk nian, tuir sistema Halosan. Topiku tuirmai ne'e esensial ba to'os foho-lolon sustentavel, maibe la fasil atu introdus hosi familia ida de'it, hala'o iha sesaun EAT iha nivel grupu ki'ik. <ul style="list-style-type: none"> <li>◆ Produsaun Adubu orgánika</li> <li>◆ Delineasaun liña-male'uk</li> <li>◆ Aplikasaun konsersasaun rai</li> <li>◆ Aplikasaun adubu orgánika</li> <li>◆ Preparasaun adubu-been</li> </ul> To'os demonstrasaun ne'ebé uza iha tinan dahuluk nafatin uza hanesan fatin ba EAT iha tinan daruak iha nivel aldeia no hanesan fatin habarak fini ba membru sira.

Rekursu: Ekpa Projeto JICA (2014)

## 2.5 Métopu Estensaun ne'ebé Propoin

Rekomenda katak aproximasaun integradu tuirmai tenke foti hanesan metodu estensaun prinsipal ida hodi promove no habelar tekniku to'os foho-lolon sustentavel iha nivel Suku.

### Kuadru Servisu hosi Tékniku Estensaun ne'ebé Propoin

Item	Liña jerál
Durasau	Tinan 2
Métodu estensaun	Tinan da-1: Eskola Agrikultór Terrenu iha to'os demonstrasaun Tinan da-2: Etapa-rua EAT iha to'os demonstrasaun no to'os grupu ki'ik
Grupú tarjetu	Ema na'in-20-30 hosi grupu ida iha nivel aldeia
Liña jerál EAT iha Tinan dahuluk	a. Se posivel, hili to'os demonstrasaun ida-ne'ebé fasil hetan asesu ba membru barak hosi grupu ne'e. b. Dezenvolve Kurríkulu EAT ne'ebé kompostu hosi kursu treinamentu pratika direktamente kona-ba tekniku to'os foho-lolon Sustentavel. c. Hala'o kursu treinamentu pratika direktamente iha to'os demonstrasaun hodi fasilita membru sira atu pratika tekniku nesésariu hotu-hotu ba to'os foho-lolon sustentavel, no produsaun otimu ba ai-han foho-lolon. d. Ajuda membru sira pratika no aplika tekniku ba iha to'os demonstrasaun iha respetiva kursu treinamentu pratika direktamente. e. Iha tinan dahuluk, Objetivu prinsipal hosi EAT mak i) introdus no demonstra tekniku, ii) fó oportunidade ba membru sira hodi pratika tekniku iha terrenu; iii) fó oportunidade ba sira atu observa rezultadu hosi tekniku ne'ebé introdus iha to'os demonstrasaun, no iv) ajuda sira avalia/analiza tekniku bazeia ba rezultadu iha to'os demonstrasaun.
Tinan daruak	a. Fahe membru sira ba sub-grupu ki'ik tuir distansia entre komunitade sira-nia uma/to'os. b. Ajuda membru sira hili kada to'os ida hosi grupu ki'ik ne'ebé tuir kursu treinamentu

Item	Liña jerál
	<p>prátika direktamente adisionál ba tópiku xave selesionadu ne'ebé sei hala'o.</p> <p>c. Hala'o sesaun treinamentu prátika direktamente hanesan arranja kurríkulu iha tinan dahuluk, esklui atividade agrikultura rai-lolon (hanesan, delineasaun liña-male'uk no aplikasaun adubu orgánika iha liña-male'uk) iha to'os demonstrasaun, hodi aseguira membru sira bele hetan tékniku sira-ne'ebé introdús.</p> <p>d. Hala'o sesaun treinamentu prátika direktamente adisionál kona-ba tópiku xave esensial selesionadu ba to'os foho-lolon sustentável (hanesan, produsaun adubu orgánika, delineasaun liña-male'uk, aplikasaun adubu orgánika iha liña-male'uk, aplikasaun adubu orgánika, no preparasaun adubu-been) iha to'os selesionadu hosi respetiva grupu ki'ik.</p> <p>e. Enkoraja membru sira hosi grupu ki'ik hodi ajuda malu aplika tékniku sira-ne'ebé pratika tiha ona iha to'os demonstrasaun sub-grupu ba membru individuál sira-nia to'os.</p> <p>f. Foku prinsipál hosi atividade tinan daruak nian tenke hatuur, atu enkoraja membru sira hodi ajuda malu aplika tékniku xave ba sira-nia to'os rasik.</p>

Rekursu: Ekipa Projetu JICA (2014)

### **3. Tékniku/Abilidade kona-ba To'os Foho-lolon Sustentável**

#### **3.1 Vizaun Jerál hosi Tékniku**

Membru sira tenke hala'o ka pratika, la'ós de'it prosesu atu kuda ai-han, maibé mós introdusaun ba tékniku agrikultura rai-lolon. Atu fasilita membru sira hodi aprende tékniku hotu-hotu, EAT tenke kobre siklu tomak hosi halo to'os foho-lolon sustentável hanesan halista tuirmai ne'e.

- i) Produsaun adubu orgánika
- ii) Delineasaun liña-male'uk
- iii) Aplikasaun adubu orgánika iha liña-male'uk (kanáliza liña-male'uk)
- iv) Fila rai ho aplikasaun adubu orgánika
- v) Selesaun ba fini/materiál kuda
- vi) Kari/kuda (kari/kuda tuir liña)
- vii) Preparasaun adubu-been
- viii) Hamoos, tau ai-tahan rahun, no aplikasaun adubu-been
- ix) Pós-kolleita no rai batar-fini

Jerálmente, Komunitade sira-ne'ebé maioria hela iha área rai-lolon no foho la familiár ho tékniku ne'ebé halista iha leten; tan ne'e, EAT tenke hala'o liuhosi forma treinamentu prátika direktamente, hodi asegura katak membru sira hosi grupu bele hetan tékniku hotu-hotu ho própriu, espesialmente iha tinan dahuluk.

#### **3.2 Tékniku Xave Esensiál ba To'os Foho-lolon Sustentável**

Iha tinan daruak, tékniku xave ne'ebé esensiál ba to'os foho-lolon sustentável mak, tenke hala'o iha to'os ne'ebé hili ona hosi grupu ki'ik sira. Tékniku sira tuirmai ne'e mak konsidera esensiál ba to'os foho-lolon sustentável bazeia ba rezultadu hosi projetu JICA CB-NRM.

- i) Produsaun adubu orgánika
- ii) Delineasaun liña-male'uk (preparasaun no utilizasaun kuadru-A)
- iii) Aplikasaun tékniku tau adubu orgánika iha liña-mele'uk
- iv) Aplikasaun adubu orgánika
- v) Preparasaun adubu-been

#### **3.3 Aplikasaun Tékniku**

Sesaun tuirmai deskreve objetivu hosi tékniku, prosedimentu ba aplikasaun, tempu, no ponta importante ne'ebé presiza konsidera iha aplikasaun tékniku sira.

### 3.3.1 Produsaun Adubu Orgánika

#### (1) Objektivu

Objetivu prinsipál hosi tékniku mak atu prodús adubu organiku ne'ebé kualidade uza materiál lokál ne'ebé disponivel, atu nune'e komunitade sira bele mantein rai nia bokur no hasa'e produsaun to'os foho-lolon, iha termu hosi ninia kualidade no kuantidade.

#### (2) Prosedimentu ba aplikasaun

Pasu 5 tuirmai tenke hala'o atu prodús adubu orgánika ho kualidade .

- i) Hili fatin ba halo adubu orgánika no ke'e rai-kuak.
  - ii) Kolesaun no preparasaun materiál sira
  - iii) Butuk materiál sira
  - iv) Manutensaun adubu orgánika
- a. Selesaun fatin ba halo adubu orgánika no ke'e rai-kuak
- i) Identifika no hili fatin ba produsaun adubu orgánika iha inísiu. Fatin ne'e tenke besik bee no to'os ne'ebé sei aplika adubu orgánika.
  - ii) Ke'e rai-kuak ne'ebé suficiente atu prodús tarjetu volume adubu orgánika iha fatin ne'ebé hili ona. Karik tarjetu volume mak tonelada 3, rai-kuak tenke ho naruk 2 m, luan 1,5, no kle'an 1 m ba rai laran.
  - iii) No mós rekomendavel atu halo rai-kuak seluk ho tamañu hanesan ho rai-kuak adubu orgánika iha sorin, atu hakmaan naha fila/kahur adubu orgánika durante manutensaun adubu orgánika.

*Rai-kuak tenke lokaliza iha parte leten hosi to'os, atu nune'e fasil hodi aplika adubu orgánika ba to'os.*

*Tarjetu volume adubu orgánika tenke determina tuir to'os nia área ne'ebé sei aplika adubu orgánika ne'e. Ita-boot tenke prodús adubu orgánika pelumenus tonelada 2-4 ba to'os ektare 1, karik ita-boot aplika 100–200 grama kada rai-kuak ne'ebé sei kuda.*

*Karik mak kondisaun rai iha to'os ne'e metin loos ka susar loos atu ke'e rai-kuak, ita-boot mós bele halo kuadru adubu orgánika hosi au hodi halo adubu orgánika. Maibé ida-ne'e ladún rekomendavel tanba sei difisil atu mantein konteúdu umidade durante prosesu fermentasaun.*



#### b. Koleksaun no preparasaun materiál

- i) Kolleita materiál sira tuirmai ne'e.
  - ▶ Materiál vejetativu, hanesan:
    - Du'ut

- Batar-kain ka hudi-kain
  - Ai-tahan hosi ai-fore (*legume*) (hanesan, *caliandra*, *sesbania*, no *gamal*)
  - Kafé-kulit
  - ▶ Fo'er hosi animál, hanesan,
    - Karau-teen
    - Bibi-teen
    - Manu-teen
  - ▶ Rai-leten/rai-metan no ahi-kadesan
  - ▶ EM (karik posivel) ka materiál seluk ne'ebé bele fasilita prosesu fermentasaun, hanesan
    - Tua-mutin
    - Ai-dila fuan
- ii) Tetak materiál vejetativu sira-ne'e ba tamañu ne'ebé ki'ik (karik to'o medida sentímetru) iha fatin ne'ebé rai-kuak hodi halo adubu orgánika ke'e ona.

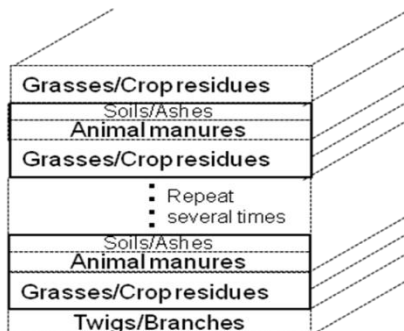
*Proporsاون mistura hosi materiál vejetativu sira ho animál-teen tenke 2:1. Karik ita-boot planu atu prodús totál adubu orgánika tonelada 3, ita-boor presiza kolleita materiál vejetativu pelumenus tonelada 2 no animál-teen tonelada 1.*

*Ita bele halo lalais prosesu fermentasaun, karik ita-boot uza EM ka tua-mutin/ai-dila tasak, ne'ebé bele fasilita prosesu fermentasaun.*



c. Butuk materiál sira

- i) Halo dalas ba materiál ida-ida ho mahar 5-10 cm ba kada dalas.
- ii) Dahuluk, tau dalas batar-kain no hudi-kain ka materiál seluk ne'ebé difisil liu atu dodok, no depois tau dalas du'ut no fo'er bokon animál nian.
- iii) Taka dalas ne'ebé tau animál fo'er, ho rai no ahi-kadesan, no rega bee ne'ebé sufisiente depois taka dalas ho rai no ahi-kadesan.
- iv) Repete ii) no iii) seluk to'o materiál sira ne'ebé prepara uza hotu ka to'o rai-kuak nakonu.





- v) iha klaran bainhira butuk hamutuk materiál iha rai-kuak, tau au ida ho kuak iha laran hanesan ventilasaun.
- vi) Rega tan bee ho suficiente iha materiál leten ne'ebé butuk ona.
- vii) Taka metin materiál ne'ebé enxe ba rai-kuak (adubu orgánika) ho hudi tahan ka plástiku.
- viii) Harii uma-mahon ida ba rai-kuak adubu orgánika ne'e hodi prevene rai-kuak adubu orgánika kona loro-manas.



d. Manutensaun adubu orgánika

- i) Rai adubu orgánika ne'e ba semana 3-4, tanba adubu orgánika ne'e sei sai manas loos durante ninia prosesu fermentasaun. Maski nune'e, observa nafatin konteúdu umidade no temperatura hosi adubu orgánika ne'e, no regulármente rega adubu orgánika ne'e hodi mantein konteúdu umidade iha adubu orgánika durante prosesu fermentasaun.
- ii) Bainhira adubu orgánika ne'e sai malirin, karik iha semana 3-4 depois enxe ba rai-kuak, muda adubu orgánika ne'e ba rai-kuak seluk (karik iha rai-kuak rua ne'ebé ke'e) fila hosi laran ba li'ur, hosi okos ba leten hodi halo materiál sira hotu dodok didi'ak. Karik ke'e rai-kuak ida de'it, ke'e sai hotu adubu orgánika, kahur filafali didi'ak no enxe fali adubu orgánika ba rai-kuak.
- iii) Rega bee ho suficiente bainhira enxe filafali adubu orgánika ba rai-kuak.
- iv) Tanba adubu orgánika sei sai manas fali, hosik hela to'o malirin pelumenus semana 3-4.
- v) Bainhira temperatura hosi adubu orgánika sai malirin, repete filafali atividade ii) to'o iv).

**Ponta importante**



- ▶ *Ita-boot tenke hahú prodús adubu orgánika iha fulan-Maiu/Juñu atu nune'e ita-boot bele kolleita du'ut matak iha lokalidade.*
- ▶ *Ita-boot tenke kuidadu hodi la uza du'ut ne'ebé iha musan tuan atu evita du'ut moris filafali depois aplikasaun.*
- ▶ *Ita-boot tenke mantein konteúdu umidade hosi adubu orgánika atu fasilita prosesu dekompozisaun.*
- ▶ *Karik ita-boot prodús adubu orgánika iha kuadru adubu orgánika, ita-boot tenke taka didin hosi kuadru ne'e ho hudi-tahan hodi proteje adubu orgánika ne'e sai maran.*

### (3) Tempu ba Aplikasaun

Iha parte nordeste hosi nasaun ne'ebé ho tipu klima *monsoon*, diferénsia entre tempu bailoron no tempu udan klaru, produsaun adubu orgánika tenke komesa iha fulan-maiu/juñu, atu nune'e bele aplika iha to'os molok kari fini iha fulan-outubru/novembru. Tempu padraun hosi EAT kona-ba Produsaun adubu orgánika nia rezumu hanesan iha kraik ne'e.

#### Tempu Padraun EAT kona-ba Produsaun Adubu orgánika

Atividade	Tempu	Durasaun hosi sesaun
i) Selesaun fatin hodi halo adubu orgánika no ke'e rai-kuak	Maiu	Loron sorin hodi halo selesaun
ii) Ke'e rai-kuak ida ka rua, preparasaun materiál sira, enxe materiál ba rai-kuak no halo uma-mahon	Maiu/Juñu	Loron rua ba ke'e rai-kuak, preparasaun materiál sira no enxe materiál ba rai-kuak
iii) Fila adubu orgánika (ba dahuluk)	Jullu	Loron ida ba fila adubu orgánika ba dahuluk nian
iv) Fila adubu orgánika (ba daruak)	Agostu	Loron ida ba fila adubu orgánika ba daruak nian

Rekursu: Ekipa Projetu JICA (2014)

### 3.3.2 Delineasaun Liña-male'uk

#### (1) Objektivu

Objektivu prinsipál hosi tékniku ne'e mak atu halo liña-male'uk uza instrumentu/ekipamentu ne'ebé simples ne'ebé halo hosi materiál lokál sira-ne'ebé disponivel, atu nune'e partisipante/agrikultór sira bele aplika tékniku agrikultura rai-lolon iha sira-nia to'os rasik.

#### (2) Prosedimentu ba aplikasaun

a. Halo Kuadru-A ho koleasaun materiál lokál sira

i) Kollecta materiál sira tuirmai ne'e hodi halo kuadru-A.

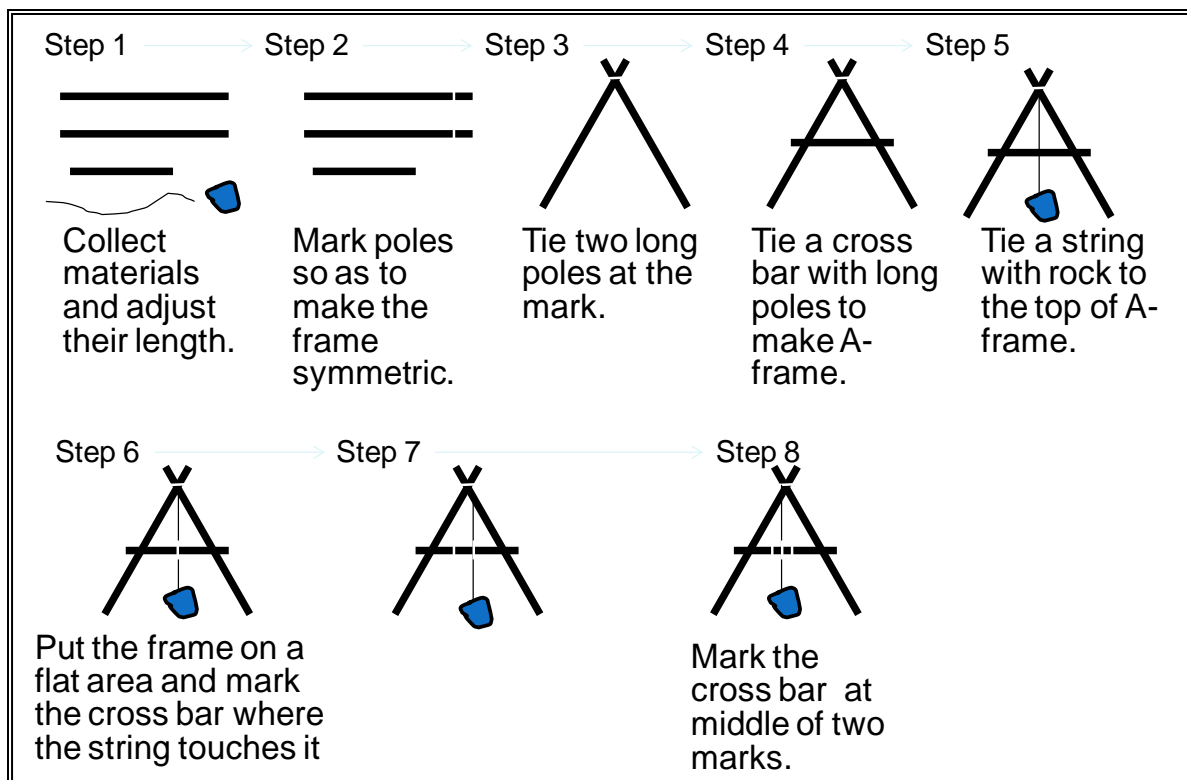
► Materiál sira-ne'ebé presiza hodi halo kuadru-A

- Ai ka au lolon 2 ho naruk metru 2
- Ai ka au lolon 1 ho naruk metru 1
- Fatuk ho tamañu liman-kumu 1
- Fiu ka tali ho naruk metru 2
- Pregu/aramé/tali-ki'ik

► Ekipamentu ne'ebé uza hodi halo kuadru-A

- Martelu/Katana/kadoo/Tudik

ii) Halo kuadru-A tuir prosedimentu tuirmai ne'e.



b. Delineasaun liña-male'uk uza Kuadru-A

i) Tidin ai-riin dahuluk iha to'os ninin parte klaran (hanesan iha to'os demonstrasaun) no tau Kuadru-A nia ain-karuk iha ai-riin dahuluk.

ii) Ajusta parte ain-loos hodi halo fiu liuhosi parte klaran hosi ai-klaran no tidin ai-riin ida seluk iha ain-loos.

- iii) Muda Kuadru-A ba parte liman-loos liuhosi tau ain parte karuk iha ai-riin ne'ebé tidin ona iha parte loos ne'ebé tidin antes.
- iv) Ajusta tan ain-karuk to'o fiu liuhosi parte klaran hosi ai-klaran, no tidin tan ai-riin ida iha parte ain-loos.
- v) Halo tuir prosedimentu ida-ne'e to'o iha to'os ninin seluk.
- vi) Foti pontu seluk, metru ida ba kraik iha diresaun vertikál iha rai-lolon uza ai-sanak ho naruk metru 1. Repete filafali atividade i) to'o v) hodi forma liña-male'uk.
- vii) Repete filafali atividade i) to'o vi) to'o liña-male'uk hotu delinea iha to'os



### Ponta Importante



- Ita-boot tenke hamoos du'ut hotu-hotu iha to'os, molok uza kuadru-A, selae ita-boot labele halo delineaun liña-male'uk ho loloos.
- Ita-boot tenke uza ai-sanak ho naruk metru 1 hodi sukat distánsia vertikál intervalu entre liña-male'uk.



### (3) Tempu ba Aplikasaun

Sesaun EAT iha tópicu hirak-ne'e tenke hala'o tuir tempu hanesan tuirmai ne'e.

#### Tempu Padraun EAT ba Atividade Delineasaun Liña-male'uk

Atividade	Tempu	Durasaun hosi sesaun
i) Halo Kuadru-A no kolesaun materiál lokál sira	Jullu	Loron ida hodi halo Kuadru-A uza materiál lokál
ii) Delineasaun liña-male'uk uza Kuadru-A	Jullu	Loron ida ka rua hodi halo delineaun liña-male'uk uza Kuadru-A

Rekursu: Ekipa Projetu JICA (2015)

### 3.3.3 Aplikasaun Adubu orgánika iha Liña-mele'uk (Kanáliza Liña-maleuk)

Konservasaun rai tipu haat (4) tuirmai introdús ka aplika no demonstra tiha ona iha to'os rai-lolon hosi atividade projetu JICA CB-NRM.

- i) Tau adubu orgánika iha liña-male'uk /Kanáliza liña-male'uk
- ii) Terrasu banku
- iii) Terrasu didin-fatuk
- iv) Tiras vejetasaun

Ida-idak iha ninia vantajen no dezvantajen hanesan hatudu iha kraik ne'e.

#### Efetividade no lala'ok hosi konservasaun Rai ne'ebé Adopta iha Timor-Leste

Tipu konservasaun	Kondisaun ne'ebé Aplikavel	Efetividade konservasaun	Dezvantajen
Tau adubu orgánika iha liña-male'uk	Rai-lolon uitoan to'o lolon liu	Natoon	Fasil atu aplika maibé ladún efetivu liu iha prevensaun erozaun rai-leten
Terrasu banku	Rai-lolon natoon	Aas	Servisu todan Estrutura la estavel bainhira instala iha área ne'ebé lolon liu
Terrasu didin-fatuk	Rai-lolon natoon	Aas	Servisu todan Perigu bainhira instala iha área ne'ebé lolon liu
Tiras vejetasaun	Tipu rai-lolon hotu-hotu	Natoon	Presiza tempu barak bele sai efetivu

Rekursu: Ekipa Projetu JICA (2014)

Esperiénsia hosi projetu JICA CB-NRM hatudu katak, la fasil ba komuidade sira atu aplika terrasu banku no terrasu didin-fatuk iha sira-nia to'os rasik, tanba sira presiza apoiu hosi ema barak hodi introdús tékniku hirak-ne'e, maski sira komprende katak efetividade hosi tékniku hanesan iha prevensaun ba erozaun rai liuhosi aplikasaun ne'ebé koko tiha ona iha terrenu. Tiras vejetasaun mós la rekomenda tebetebes, tanba presiza tempu naruk atu bele sai efetivu. Tanba ne'e tékniku tau adubu orgánika iha liña-male'uk mak konsidera hanesan tékniku ne'ebé rekomenda hodi bele introdús no aplika iha fatin barak iha nasaun ne'e.

#### (1) Objetivu

Objetivu prinsipál hosi tékniku ne'e mak, atu halo kanál liña-male'uk/bee-dalan iha intervalu metru 1 iha diresaun vertikal iha to'os rai-lolon hodi prevene erozaun rai leten no mantein rai nia bokur iha to'os.

#### (2) Prosedimentu ba aplikasaun

Tékniku ne'e tenke introdús depois delineasaun liña-male'uk iha parte hotu-hotu iha to'os laran. Iha aplikasaun etapa tuirmai tenke haktuir.

- a. Ke'e kanál pelumenus ho luan 50cm no kle'an 30cm iha kada liña-male'uk.
- b. Halo kabubun liña-male'uk iha parte kraik ninin hosi kada kanál nia uza rai ne'ebé ke'e ona.
- c. Ke'e kanál nia dalan-sees hosi to'os ninin hodi soe tiha bee ne'ebé sulin makas liu.



- d. Tau ai-han restu/du'ut iha kanál.
- e. Kuda du'ut-elefante/du'ut *vetiver*/du'ut-morin iha kabun liña-male'uk tanba lutu du'ut no *gamal/caliandra* ne'ebé kuda iha kabun oin, sei hametin kabun liña-male'uk iha tempu udan.



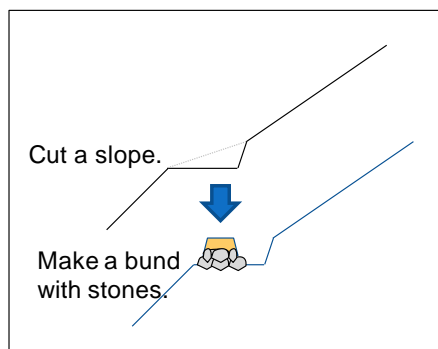
### Ponta Importante



- ▶ *Karik kabun liña-male'uk ne'e rahuk, tenke halo lutu, to'o lutu du'ut no ai-fore moris di'ak, hodi suporta kabun ne'e.*
- ▶ *Karik to'os ne'e iha fatuk barak, ita-boot tenke uza fatuk sira-ne'e hanesan baze hosi kabun.*



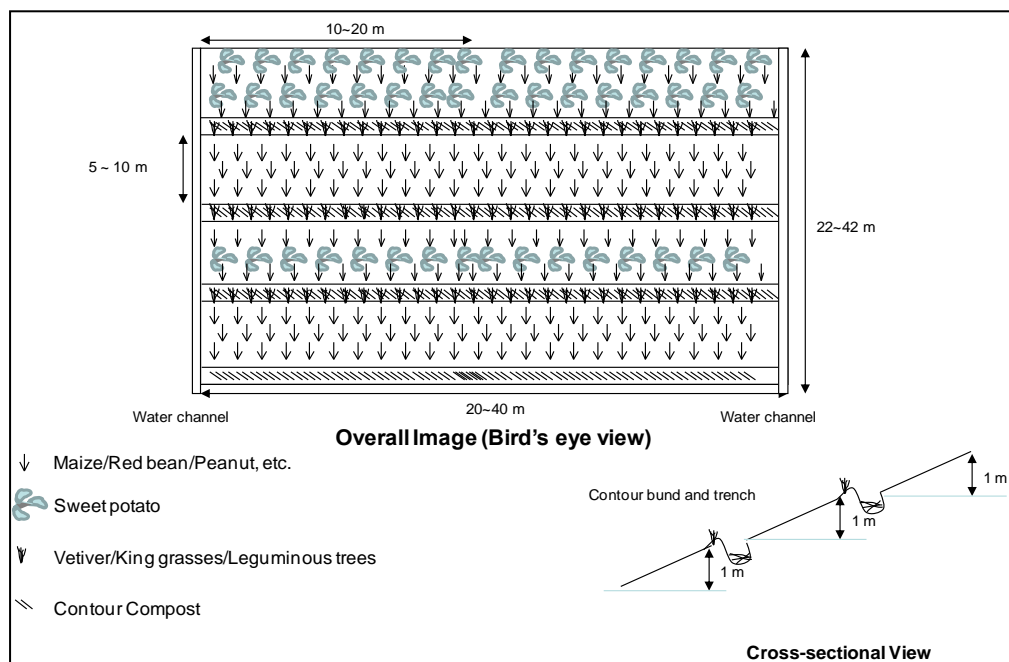
*Lutu ki'ik tenke aplika bainhira rai ne'e rahuk liu atu halo kabun.*



*Fatuk tenke uza hanesan baze ba kabun.*

### (3) Dezeñu Padraun hosi To'os ho Tékniku ne'e

Dezeñu padraun hosi to'os ne'ebé sei estabelese mak hanesan hatudu iha kraik ne'e.



### (3) Tempu ba aplikasaun

Sesaun EAT kona-ba tópiku sira-ne'e, tenke hala'o tuir tempu hanesan tuirmai ne'e.

#### Tempu padraun EAT ba atividade tau adubu orgánika iha liña-male'uk

Atividade	Tempu	Durasaun hosi sesaun
i) Halo kanál liña-male'uk no kabubun	Agostu	Loron ida hodi halo kanál liña-male'uk no kabubun
ii) Halo kabubun fatuk ka lutu ki'ik (opcionál)	Agostu	Loron ida adisionál hodi halo kabubun fatuk ka lutu ki'ik
iii) Kuda du'ut no ai-fore hametin rai	Novembru	Loron ida hodi kuda du'ut no ai-fore hametin rai iha kabubun

Rekursu: Ekipa Projeto JICA (2015)

### 3.3.4 Fila rai ho Aplikasaun Adubu orgánika

#### (1) Objektivu

Objetivu prinsipál hosi tékniku ne'e mak atu fila rai iha to'os ho aplikasaun adubu orgánika ho maneira ne'ebé própriu, atu nune'e aseguira kreximentu ai-han ho suficiente.

#### (2) Prosedimentu ba Aplikasaun

- a. Hamoos du'ut iha to'os iha fulan-agostu.
- b. Fila rai ho enxada hodi inkorpora du'ut sira nia restu ba rai iha fulan-setembru/outubru
- c. Aplika adubu orgánika ba to'os ho eficiente tuir métodu ne'ebé deskreve iha kraik ne'e.



##### i) Aplikasaun iha Liña

- Ke'e rai-kuak ki'ik (ho luan 10cm no kle'an 20cm) tuir liña ne'ebé batar no fini seluk ne'ebé kuda.
- Tau adubu orgánika ho di'ak iha rai-kuak ki'ik iha liña ne'ebé ke'e ona (kuantidade adubu orgánika ne'ebé rekomenda ba aplikasaun rai-kuak liña ho naruk 50m mak 50kg ka adubu orgánika saku rua)
- Taka adubu orgánika ho rai-leten.



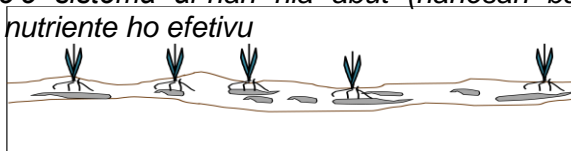
##### ii) Aplikasaun iha Rai-kuak

- Ke'e rai-kuak ki'ik (ho diámetru 10-20cm no kle'an 20cm) ne'ebé batar kuda ba;
- Tau adubu orgánika ne'ebé ekivalente ho pelumenus 100-200 grama ba kada rai-kuak; no
- Taka adubu orgánika ho rai-leten.

#### Ponta importante



- ▶ *Adbu orgánika tenke aplika pelumenus semana rua molok tempu kuda hodi prevene ai-han hosi defisiénsia nitrojénio.*
- ▶ *Importante atu inkorpora adubu orgánika ho rai (iha rai-okos) atu nune'e sistema ai-han nia abut (hanesan batar) bele absorve nutriente ho efetivu*



#### (3) Tempu ba Aplikasaun

Sesaun EAT sira kona-ba tópiku ne'e tenke hala'o tuir tempu tuirmai ne'e.

##### Tempu Padraun EAT ba atividade Fila rai ho Aplikasaun Adubu Orgánika

Atividade	Tempu	Durasaun hosi sesaun
i) Hamoos to'os	Agostu	Loron ida ba hamoos to'os
ii) Fila rai	Setembru	Loron ida to'o rua (2) ba fila rai
iii) Aplikasaun adubu orgánika	Outubru	Loron ida to'o rua (2) ba aplikasaun

Rekursu: Ekipa Projetu JICA (2015)



### 3.3.5 Selesaun Fini no Materiál atu Kuda no Identifikasaun To'os hodi Kuda Variedade Batar-fini Di'ak

#### (1) Objetivu

Objetivu prinsipál hosi tékniku ne'e mak atu hili no kolleita fini ho kualidade no materiál atu kuda hosi espesie ai-han rai-lolon nian atu aseguara jerminalasaun ne'ebé aas no mós aseguara produtividade ai-han ne'ebé aas.

#### (2) Prosedimentu ba Aplikasaun

##### Selesaun batar fini no fore fini

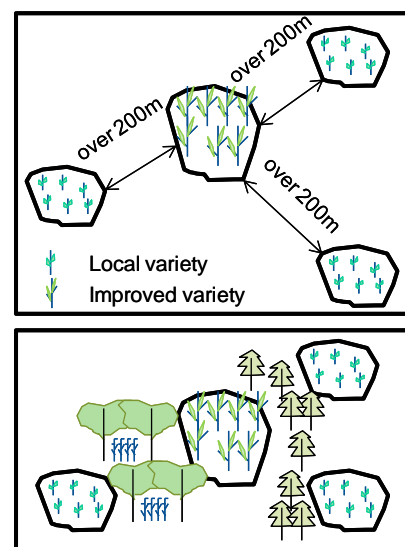
- Prokura fini hosi batar ho variedade fini di'ak (hanesan, sele no suwan 5) hosi MAP ka produsaun fini hosi agrikultór.<sup>1</sup>
- Naknahe fini sira iha balde kabelak leten no hili fini ne'ebé boot no forma di'ak, la hetan estragu hosi insetu ruma ka kulat (Ezemplu, fini ne'ebé kuak ka kór metan) semana ida molok kuda.
- Rai fini sira-ne'e iha jerikán ka ákua botir plástiku boot ida no taka metin ho masa/ákua matan.

##### Selesaun materiál atu kuda hosi Ai-farina no Fehuk-midar

- Prokura materiál atu kuda hosi variedade ai-farina no fehuk-midar fini di'ak hosi MAP se posivel.
- Karik difisil atu hetan suporta hosi MAP, no materiál hodi kuda sira-ne'e preziza kolleita hosi to'os hale'u sira, haktuir prosedimentu ne'ebé deskreve iha kraik ne'e.
  - Hili ai-farina no fehuk-midar ne'ebé hatudu kreximentu ne'ebé di'ak no/ka espera atu prodús isin ne'ebé iha kualidade di'ak;
  - Loron ida antes kuda,
    - Tesi ai-farina kain sira-ne'ebé hili ona no tesi ho naruk 20cm; no
    - Tesi fehuk-midar kain ne'ebé hili ona, hikas halo futun, no falun kain tutun ho hena bokon.

##### Identifikasaun ba to'os ne'ebé batar variedade fini di'ak kuda

- Identifika no hili to'os ne'ebé izoladu hosi to'os sira seluk ne'ebé mak batar variedade fini lokal karik sei kuda hela, hanesan maneira tuirmai ne'e:
  - To'os ida-ne'ebé izoladu hosi to'os sira seluk ho distánsia liuhosi metru 200; ka
  - To'os ida-ne'ebé hale'u ho baliza naturál, hanesan plantasaun kafé no floresta.



<sup>1</sup> Agrikultór sira-ne'ebé halo ona kontratu/Arranjamentu ho MAP ba Produsaun Fini di'ak.

## Ponta importante



- ▶ *Variedade fehuk-midar no ai-farina fini di'ak bele kuda iha ne'ebé de'it, bainhira la mistura ho variedade seluk (variedade lokál) iha to'os ne'ebé hanesan, tanba variedade sira-ne'e tipu ai-han ne'ebé bele halo polinasaun rasik.*

### (3) Tempu ba Aplikasaun

Sesaun EAT iha tópicu ne'e tenke hala'o tuir tempu tuirmai ne'e.

#### Tempu Padraun EAT ba Selesaun Fini no materiál ne'ebé kuda

Atividade	Tempu	Durasaun
i) Selesaun fini	Outubru	Loron sorin ba selesaun fini-batar no fore
ii) Selesaun materiál atu kuda	Outubru	Loron ida ba selesaun ai-farina no fehuk-midar iha to'os no prepara materiál sira-ne'e hodi bele kuda
iii) Selesaun to'os ne'ebé batar variedade fini di'ak bele introdús	Outubru	Loron ida ba selesaun no identifikaun to'os

Rekursu: Ekpa Projetu JICA (2015)

### 3.3.6 Kari/Kuda Fini

#### (1) Objektivu

Objetivu prinsipál hosi tékniku ne'e mak atu kari no kuda ai-han ho maneira semi-intensivu hodi hadi'a produtividade ai-han, iha tempu hanesan, mantein diversidade ai-han iha to'os, atu nune'e komunitade sira bele iha reziliénsia atu kontra impaktu ne'ebé kauza hosi mudansa klimátika. Especialmente, manúal ne'e introdús kombinasau ai-han tuirmai tanba rekomendavel hanesan módelu kuda ai-han ba objetivu ida-ne'e.

**Modelu kuda ai-han rekomondavel**

Módelu kuda ai-han	Espasu	Observasaun
1. Batar & Fore	Ai-han prinsipál: batar: 1 m x 0,5m Ai-han kuda kahur: Fore (koto-mean): 1m x 0,3m	Apropriadu ba to'os ne'ebé ladún lolon no to'os ne'ebé iha terrasu banku
2. Ai-farina & Fore	Ai-han prinsipál: Ai-farina: 1m x 1m Ai-han kuda kahur: Koto-mean (tipu nani iha ai-leten): 1m x 0,3m	Apropriadu ba to'os ne'ebé ladún lolon no to'os ne'ebé iha terrasu banku
3. Fore-rai	Fore-rai: 0,3 m x 0,3 m	Apropriadu ba to'os ne'ebé ladún lolon no to'os ne'ebé iha terrasu banku
4. Batar & fehuk-midar/ Lakeru	Ai-han prinsipál: Batar: 1 m x 0,5 m Ai-han kuda kahur: Fehuk-midar/Lakeru: 1 m x 0,5 m	Apropriadu ba to'os rai-lolon no to'os ne'ebé iha terrasu liña-maleuk ho kanál
5. Ai-farina & Lakeru	Ai-han prinsipál: Ai-farina: 1m x 1m Ai-han kuda kahur: Lakeru: 1 m x 0,5 m	Apropriadu ba to'os rai-lolon no to'os ne'ebé iha terrasu liña-maleuk ho kanál

Rekursu: Ekipa Projeto JICA (2015)

#### (2) Prosedimentu ba Aplikasaun

- Determina modelu kuda ai-han ne'ebé sei introdús iha to'os.
- Kari fini tuir dezeńu padraun hosi respetiva ne'ebé rekomendavel ba modelu kuda ai-han uza eskala ai-sanak/fiu (hanesan ai ai-sanak/fiu ho naruk metru 1 ka ai-sanak/fiu ho eskala). Dezeńu padraun ba modelu respetiva plantasaun mak hanesan tuirmai.

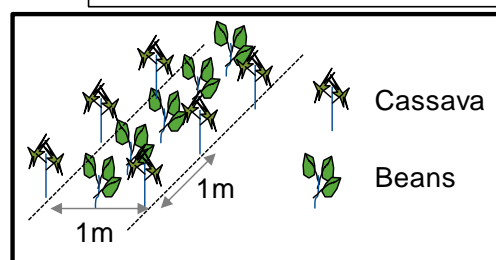
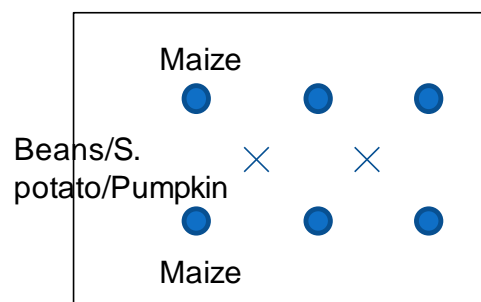


#### Batar no Fore

- Kudar batar-fini iha liña ho distánsia 1m x 0,5m (metru 1 entre liña no metru 0,5 entre fini iha liña).
- Kuda fore (ezemplu, fore-keli no koto-mean) iha batar klaran ho distánsia meter 0,3 entre fini iha liña.

#### Ai-farina no Fore

- Kuda ai-farina kain tuir liña ho distánsia 1 m x 1 m (1 m entre liña no 1 m entre fini



iha liña).

- ii) Kuda fore (ezemplu forekeli no koto-mean) tuir liña klaran entre ai-farina sira ho distánsia 0,3 m entre fini iha liña.

#### Fore-rai

- i) Kuda fore-rai iha liña ho distánsia 20 cm x 20 cm ka 30 cm x 30 cm sein kahur ho ai-han seluk.



#### Batar no Fehuk-midar/Lakeru

- i) Kuda batat-fini tuir liña ho distánsia 0,7 m x 0,5 m (0,7 m entre liña no 0,5 m entre fini iha liña).
- ii) Kuda fehuk-midar kain ka lakeru tuir liña klaran entre batat-fini ne'ebé kuda tiha ona ho distánsia 0,5 m entre fehuk-midar kain iha liña.



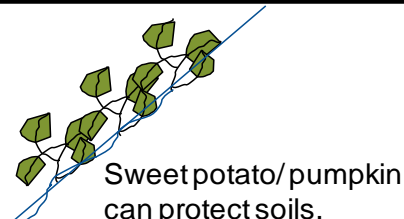
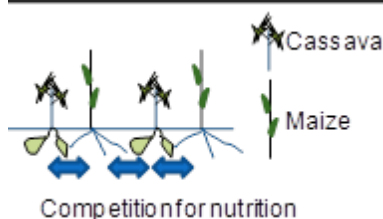
#### Ai-farina no Fehuk-midar/Lakeru

- i) Kuda ai-farina kain tuir liña ho distánsia 1 m x 1 m (1 m entre liña no 1 m entre fini iha liña).
- ii) Kuda fini lakeru tuir liña iha liña klaran entre ai-farina kain ne'ebé kuda ona ho distánsia 0,5 m entre fini iha liña.
- c. Volume média fini/materiál atu kuda hosi kada ai-han sein kahur ho ai-han sira seluk.
- Batat: 25-30 kg/ektare
  - Fore: 40-60 kg/esktare
  - Fore-rai: 100-150 kg/ektare
  - Ai-farina: 10.000 kain/ektare
  - Fehuk-midar: 20.000-40.000 kain/ektare

### **Ponta Importante**



- ▶ *Labele kuda-batat no a-farina iha liña hanesan tanba ai-han sira-ne'e kompete malu hodi hetan nutrisaun hosi rai.*
- ▶ *Fore (koto-mean/fore-keli) tenke kuda kahur ho batat no ai-farina hodi komplementa nutrisaun rai.*
- ▶ *Fehuk-midar no lakeru bele kuda iha to'os rai-lolon tanba ai-han taka rai/cover crops.*



### (3) Tempu ba Aplikasaun

Sesaun EAT iha tópiku ida-ne'e tenke hala'o tuir tempu tuirmai ne'e.

#### **Tempu Padraun FEAT ba Kari no Kuda Ai-han**

<b>Atividade</b>	<b>Tempu</b>	<b>Durasaun hosi sesaun</b>
i) Kari batar no fore fini	Novembru	Loron ida ba kari batar no fore
ii) Kuda Ai-farina, fehuk-midar / lakeru	Novembru /Dezemburu	Loron ida ba kuda ai-farina, fehuk-midar ka lakeru
iii) Kari Fore-rai	Dezemburu	Loron ida ba kuda fore-rai

Rekursu: Ekipa Projetu JICA (2015)

### 3.3.7 Preparasaun Adubu-been

#### (1) Objektivu

Objetivu prinsipál hosi tékniku ne'e mak atu halo adubu-been hanesan adubu adisionál uza materiál ne'ebé disponivel iha lokalidade, atu nune'e bele mantein ai-han moris saudavel no asegura produtividade ai-han ne'ebé aas.

#### (2) Prosedimentu ba aplikasaun

- a. Prokura ka prepara balde plástiku ho tamañu boot ka bidón no hamoos didi'ak.
- b. Kollaita ingrediente hodi halo adubu: karau-teen ka fo'er hosi animál seluk 5-10kg, restu ai-han /du'ut no ai-tahan hosi ai-fore 30-40kg, mikro organizmu (tua mutin, *tempe* ka EM), no bee litru 200 .
- c. Enxe saku laran ho animál fo'er no hatama ba bidón laran. Se karik la iha saku, bele tau animál fo'er direktamente ba bidón laran.
- d. Hatama restu ai-han/du'ut no ai-fore nia tahan ne'ebé tetak ona no mikro organizmu (tua mutin, *tempe* ka EM) ba iha bidón laran.
- e. Enxe bee to'o bidón nakonu.
- f. Taka bidón hodi proteje adubu hosi kontaminaun /hamihis ka insetu sira.
- g. Kedok adubu-been ho ai-sanak ba minutu 5 to'o 10 loron-loron durante semana 2-3 hodi fasilita prosesu fermentasaun.
- h. Depois prosesu fermentasaun semana 2-3, kuru sai adubu-been moos hosi bidón leten no kahur adubu been ne'e ho bee-moos dala 20. (1:20).
- i. Aplika adubu-been ne'e ba batar no ai-han seluk tuir tempu (kada semana 2-3).



## Ponta Importante



- ▶ *Uza animál fo'er ne'ebé sei fresku, animál fo'er fresku ne'e nutriente barak liu.*
- ▶ *Se posivel, kahur animál fo'er oioin. Manu-teen iha nutrisaun barak liu.*
- ▶ *Aumenta ahi-kadesan kanuru rai ida (1) hodi aumenta minerál sira (especialmente potásiu) ba adubu-been.*

### (3) Tempu ba Aplikasaun

Sesaun EAT kona-ba tópiku ida-ne'e tenke hala'o tuir tempu tuirmai ne'e.

#### Tempu Padraun EAT ba Preparasaun adubu-been

Atividade	Tempu	Durasaun hosi sesaun
i) Halo adubu-been	Novembru	Loron ida hodi halo adubu-been

Rekursu: Ekipa Projetu JICA (2015)

### 3.3.8 Hamoos Du'ut, Tau Ai-tahan Rahun, no Aplikasaun Adubu-been

#### (1) Objektivu

Objektivu prinsipál hosi tékniku ne'e mak atu fasilita kreximentu ai-han liuhosi redús du'ut iha to'os no aplika adubu adisionál ba ai-han sira.

#### (2) Prosedimentu ba Aplikasaun

- Hamoos du'ut iha to'os semana 3 depois kuda batar (hamoos du'ut ba dahuluk).
- Aplika adubu-been imediatamente ba batar depois hamoos du'ut ba dahuluk.
- Tau ai-tahan rahun iha rai leten hale'u ai-han ne'ebé kuda ho du'ut ne'ebé hamoos ona hodi prevene du'ut moris filafali no mantein umidade rai nian.
- Repete filafali hamoos du'ut, aplikasaun adubu-been, no tau ai-tahan rahun (item a to'o c) fulan ida depois hamoos du'ut ba dahuluk (hamoos du'ut ba daruak) no fulan ida fali depois hamoos du'ut ba daruak.



#### Ponta importante



- ▶ *Hamoos du'ut esensial, la'ós de'it atu hasa'e produsaun, maibé mós hanesan protesaun ba ai-han hosi infesaun peste no moras.*
- ▶ *Tau ai-tahan rahun mak efetivu hodi halo kleur kreximentu du'ut, proteje rai hodi sai maran, no prevene rai leten hosi erozaun.*
- ▶ *Se karik ai-fore iha to'os no hale'u to'os, uza ai-fore nia tahan hanesan materiál ba ai-tahan rahun, ne'ebé iha tempu hanesan bele mós funsiona hanesan adubu-matak*

#### (3) Tempu ba Aplikasaun

Sesaun EAT kona-ba tópiku ida-ne'e tenke hala'o tuir tempu tuirmai ne'e.

#### Tempu Padraun EAT ba Hamoos Du'ut, Tau Ai-tahan Rahun no Aplikasaun Adubu-been

Activities	Timing	Duration of the Session
i) Hamoos du'ut ba dahuluk, tau ai-tahan rahun no aplikasaun adubu-been	Dezemburu	Loron ida ba hamoos du'ut, tau ai-tahan rahun no aplikasaun adubu-been
ii) Hamoos du'ut ba daruak, tau ai-tahan rahun no aplikasaun adubu-been	Janeiru	Loron ida ba hamoos du'ut, tau ai-tahan rahun no aplikasaun adubu-been
iii) Hamoos du'ut ba datoluk, tau ai-tahan rahun no aplikasaun adubu-been	Fevreiru	Loron ida ba hamoos du'ut, tau ai-tahan rahun no aplikasaun adubu-been

Rekursu: Ekipa Projetu JICA (2015)



### 3.3.9 Pós-Kolleita no Rai Batar-fini

#### (1) Objektivu

Objektivu importante hosi tékniku ne'e mak atu rai fini batar ne'ebé qualidade no laiha estragu hosi insetu ka kutun ruma bainhira rai fini

#### (2) Prosedimentu ba aplikasaun

- a. Depois kolleita batar-fulin, nahe batar iha plástiku kabelak no habai iha loro-manas hodi hamenus konteúdu bee, ki'ik liuhosi 12%
- b. Hasai batar-fulin ki'ik no ne'ebé hetan estraga no hili batar-fulin boot no di'ak ba koleasaun fini.
- c. Hasai no hili batar-musan hosi batar-fulin parte klaran (1/3) hosi batar-fulin ne'ebé hili ona ba fini.
- d. Rai batar-musan ne'ebé kolleita ona ba fatin rai fini ne'ebé anin labele tama, depende volume fini ne'ebé rai.
  - i) Bidón ba fini ne'ebé liuhosi 100 kg.
  - ii) Jerikán liter 5 ba fini ne'ebé menus hosi 5kg
  - ii) Masa ákua ba fini ne'ebé menus hosi 1kg



#### Ponta importante



- ▶ *Labele habai batar ho maneira tara de'it iha ai-leten, maibé habai iha loro-manas hodi minimiza estragu hosi insetu.*
- ▶ *Bainhira uza bidón hanesan fatin rai fini ne'ebé anin labele tama, ita-boot tenke rai lilin ida iha bidón laran depois enxe nakonu atu bele deoxidize bidón ne'e.*
- ▶ *Labele kahur fini-di'ak ho fini-lokál*

#### (3) Tempu ba Aplikasaun

Sesaun EAT kona-ba tópiku ida-ne'e, tenke hala'o tuir tempu tuirmai ne'e.

#### Tempu Padraun EAT ba Pós-kolleita no Rai Batar-fini

Atividade	Tempu	Durasaun hosi sesaun
i) Habai batar-fulin	Abríl	Loron ida ba habai batar-fulin
i) Rai batar-fini	Abríl/Maiu	Loron ida ba sesaun batar-fulin, koleasaun batar-musan ba fini, no rai batar-fini ba fini-fatin ne'ebé anin labele tama.

Rekursu: Ekípa Projetu JICA (2015)

#### 4. Módulu Treinamentu Padraun

Tabela tuirmai hatudu módulu treinamentu padraun ba respetiva tékniku ne'ebé introdús iha sesaun 3.3. Kursu treinamentu hotu-hotu asume sei hala'o iha to'os demonstrasaun ba EAT.

##### Módulu Treinamentu Padraun ba Tékniku sira EAT nian

Kursu treinamentu	Item	Deskrisaun
Produsaun adubu orgánika	Objetivu	Atu fasilita membru sira hodi prodús adubu orgánika uza materiál lokál ne'ebé disponivel.
	Tempu	<u>Treinamentu loraun dahuluk: halo adubu orgánika (loron 2)</u> a. Kolesaun no tetak materiál (loron sorin/loron dahuluk) b. Ke'e rai-kuak (loron sorin/loron dahuluk) c. Nahe materiál ba rai kuak (loron 1/loron daruak) <u>Treinamentu loraun daruak: manutensaun adubu orgánika (loron 1)</u> a. Fila adubu orgánika (loron 1)
	Materiál	Ekipamentu iha to'os (ai-suak, katana, kanuru-rai), materiál ba adubu orgánika (du'ut, fo'er restu, animál-fo'er, rai/ahi-kadesan), hudi-tahan, materiál seluk (ai-riin ho naruk 1-2 m, lolon 4 no nuu-tahan)
	Rezultadu ne'ebé espera	Adubu orgánika tonelada 2-3 sei prodús.
Delineasaun liña-male'uk	Objetivu	Atu fasilita membru sira hodi halo liña-male'uk ho própriu uza materiál lokál ne'ebé disponivel.
	Tempu no prosesu	<u>Treinamentu loraun 2-3: halo delineasaun liña-male'uk</u> a. Kolesaun materiál (loron sorin/loron dahuluk) b. Halo kuadru-A (oras 2/loron dahuluk) c. Preparasaun ai-sanak (oras 1/loron dahuluk) d. Delineasaun liña-male'uk (loron 1/loron daruak)
	Materiál (ba unidade 3 Kuadru-A)	Ai-riin lolon 6 ho naruk 2m, ai-riin lolon 3 ho naruk 1m, Tali pedasuk 3 ho naruk 1,5m, Fatuk 3 ho tamañu boot hanesan liman-kumu, no arame ka pregu.
	Rezultadu ne'ebé espera	Liña-male'uk sei delineadu iha to'os demostrasaun.
Aplikasaun tékniku tau adubu orgánika iha liña-male'uk	Objetivu	Atu fasilita membru sira hodi aplika tékniku tau adubu orgánika iha liña-male'uk.
	Tempu	<u>Treinamentu loraun 2-3: aplika tau adubu orgánika iha liña-male'uk</u> a. Ke'e kanál liña-male'uk (loron 1) b. Halo kabubun ka fatuk iha liña-male'uk (loron 1) c. Halo lutu-ki'ik (opcionál) (loron 1)
	Materiál	Ekipamentu iha to'os (ai-suak, karau-dikur, enxada no kanuru-rai), au hodi halo lutu.
	Rezultadu ne'ebé espera	Liña-male'uk ho adubu orgánika iha sei dezenvolve iha to'os demonstrasaun.
Fila rai ho aplikasaun adubu orgánika	Objetivu	Atu fasilita membru sira hodi kultiva to'os ho aplikasaun adubu orgánika ho maneira ne'ebé própriu.
	Tempu	<u>Treinamentu loraun 2: fila rai ho aplikasaun adubu orgánika</u> a. Kultivasaun (Loron 1) b. Aplikasaun adubu orgánika (loron 1)
	Materiál	Ekipamentu ba to'os (katana, karau-dikur, enxada) no adubu orgánika
	Rezultadu ne'ebé espera	To'os demonstrasaun pruntu atu kuda.
Selesaun fini/materiál atu	Objetivu	Atu fasilita membru sira atu hodi komprende oinsá atu uza fini di'ak no hili fini ho kualidade antes kuda.

Kursu treinamentu	Item	Deskrisaun
kuda	Tempu	<u>Treinamentu loron 2: selesaun fini &amp; to'os demonstrasaun hodi kuda fini di'ak</u> a. Introdusaun hodi uza fini di'ak (loron sorin/loron dahuluk. b. Selesaun fini ne'ebé kualidade hosi batar, fore no ai-farina no ai-han seluk (loron sorin/loron dahuluk. c. Selesaun to'os demonstrasaun hodi kuda fini di'ak (loron sorin/loron daruak)
	Materiál	Fini no materiál ai-han atu kuda (ezemplu, batar, fore, ai-farina, nst.)
	Rezultadu ne'ebé espera	Fini ho kualidade no materiál atu kuda iha maioria to'os foho-lolon sei hili.
Kari/Kuda	Objectivu	Atu fasilita membru sira hodi kari/kuda ai-han tuir liña iha espasu ne'ebé rekomenda hosi respetiva ai-han.
	Tempu	<u>Treinamentu dahuluk: kuda batar no fore (loron 1 iha fulan-novembru)</u> a. Kuda batar ho sukat distánsia ne'ebé rekomenda (loron sorin) b. Kuda fore ho sukat distánsia ne'ebé rekomenda. (loron sorin) <u>Treinamentu daruak: kuda ai-farina, lakeru, fore (loron 1 iha fulan-dezembru)</u> a. Kuda Ai-farina kain/fehuk-midar/lakeru ho sukat distánsia ne'ebé rekomenda (loron sorin) b. Kuda fore ho sukat distánsia ne'ebé rekomenda (loron sorin) <u>Treinamentu datolu: kuda fore-rai (loron 1 iha fulan-dezembru)</u> a. Kuda fore-rai ho sukat distánsia ne'ebé rekomenda
	Materiál	Fini/materiál atu kuda Tali/ai-sanak ho naruk 1-2 m ho eskala 10 cm
	Rezultadu ne'ebé espera	Ai-han foho-lolon sei kuda tuir liña ho maneira sistemátiku iha to'os demonstrasaun
Preparasaun adubu-been	Objetivu	Atu fasilita membru sira hodi prepara adubu-been utiliza materiál lokál ne'ebé disponivel
	Tempu	<u>Treinamentu loron ida: prepara adubu-been</u> a. Kolesaun materiál lokál (loron sorin) b. Kahur materiál (loron sorin) <u>OJT semana 2-3, dulas adubu-been hosi membru prinsipál</u> a. Kedok (10 min kada loron x semana 2-3)
	Materiál	Animál fo'er (saku 2), du'ut (saku 2), rai (kanuru 2-3), ahi-kadesan (kanuru 1), no bee
	Rezultadu ne'ebé espera	Adubu-been bidón ida sei prepara no prontu atu uza iha to'os demonstrasaun.
Hamoos du'ut, tau ai-tahan rahun, no aplikasaun adubu-been	Objetivu	Atu fasilita membru sira mantein to'os ho própoi atu ai-han sira-ne'e moris di'ak no hasa'e produsaun ai-han iha to'os.
	Tempu	<u>Treinamentu dahuluk: manutensaun ai-han (loron 1 iha fulan-dezembru)</u> a. Hamoos/fila rai no tau ai-tahan rahun (loron sorin) b. Aplika adubu-been adisionál (loron sorin) <u>Treinamentu daruak: manutensaun ai-han (loron 1 iha fulan-janeiru)</u> a. Hamoos du'ut/fila rai no tau ai-tahan rahun (loron

Kursu treinamentu	Item	Deskrisaun
		<p>sorin)</p> <p>b. Aplika adubu-been adisionál (loron sorin)</p> <p><u>Treinamentu datoluk: manutensaun ai-han (loron 1 iha fulan-fevreiru)</u></p> <p>a. Hamoos/Fila rai no tau ai-tahan rahun (loron sorin)</p> <p>b. Aplika adubu-been adisionál (loron sorin)</p>
	Materiál	Ekipamentu iha to'os (katana no karau-dikur), bidón, no adubu-been
	Rezultadu ne'ebé espera	Ai-han ne'ebé kuda iha to'os demonstrasaun sei moris di'ak no prodús rezultadu ne'ebé aas
Pós-kolleita no rai batar-fini	Objetivu	Atu fasilita membru hodi hamaran, hili, no rai batar-fini ho própriu ba tempu kuda tuirmai
	Tempu	<p><u>Treinamentu dahuluk: hamaran batar (loron 1 iha fulan-marsu/Abríl)</u></p> <p>a. Loke batar-fulin (loron sorin)</p> <p>b. Habai batar (loron sorin)</p> <p><u>Treinamentu daruak: rai batar (loron 1 iha fulan-abril)</u></p> <p>a. Selesaun batar-fulin no koleasaun batar-musan (loron sorin)</p> <p>b. Rai batar-fini iha fatin ne'ebé anin labele tama (loron sorin)</p>
	Materiál	Plástiku kabelak, raga, no fatin ne'ebé anin labele tama iha laran (bidón, jerikán, no botir ákuá)
	Rezultadu ne'ebé espera	Batar-fini ho kualidade ba tempu kuda tuirmai sei rai ho própriu.

Rekursu: Ekipa Projetu JICA (2015)

## 5. Estimasaun Kustu

Kapítulu ida-ne'e introdús oinsá atu halo estimasaun orsamentu ne'ebé presiza hodi hala'o sesaun EAT série iha nivel suku ka aldeia. Estimasaun kustu hanesan tékniku/abilidade esensiál ida hodi prepara planu konvinsente ne'ebé bele hetan apoiu finansiál hosi doador fundus sira. Sesaun tuirmai esplika dalan atu halo estimasaun orsamentu ba kada sesaun treinamentu no ba kada suku/aldeia liuhosi introdús kustu item prinsipál ne'ebé presiza konsidera bainhira halo estimasaun.

### 5.1 Estima Kustu ba Treinamentu Prátika Diretamente

Item kustu prinsipál ba treinamentu mak i) materiál sira-ne'ebé uza ba sesaun treinamentu, ii) hahán ba membru/partisipante sira. iii) kustu transportasaun ba fasilitador, iv) kustu seluk-seluk tan, no v) kustu ba fasilitador karik uza fasilitador esternál (hanesan ONG) ba treinamentu. Kustu hosi kada kustu item estimadu liuhosi multiplika kuantidade item ba kada kustu unidade. Formatu tuirmai bele uza bainhira halo estimasaun.

**Formatu Estimasaun Kustu Sesaun Treinamentu**

Kustu item padraun	Kuantidade (a)	Kustu unidade (b)	Kustu (a x b)
1. Materiál sira ba treinamentu (sasán sira-ne'ebé la iha suku)			
2. Merenda no hahán ba partisipante sira			
3. Kustu transportasaun ba fasilitador			
4. Kustu ba fasilitador (Pagamentu ba fasilitador)			
5. Kustu seluk-seluk tan			
<b>Total Kustu ba Sesaun Treinamentu ida (1+2+3+4+5)</b>	-	-	

Rekursu: Ekipa Projeto JICA (2014)

### 5.2 Estima Kustu ba EAT seluk la'ós Treinamentu Prátika Diretamente

Depois treinamentu prátika diretamente, Membru prinsipál no membru balu sira seluk karik sei presiza envolve iha atividade kontinuasaun iha to'os demonstrasaun, tanba sesaun treinamentu prátika diretamente ida karik sei labele aplika tékniku balu (Ezemplu, delinaesaun liña-male'uk, halo kanál/kabubun liña-male'uk, Fila rai ho aplikasaun adubu orgánika) ba parte hotu-hotu iha to'os demonstrasaun. Kustu item prinsipál ba pratika/aplika rasik mak: i) merenda no hahán ba membru sira, ii) kustu transportasaun ba fasilitador, iii) pagamentu ba fasilitador, no iv) kustu seluk-seluk tan. Formatu hanesan hatudu iha leten bele uza ba estimasaun kustu ne'e.

### 5.3 Estima Kustu ba Kada Suku

Kustu ba síklu ida ba EAT iha suku ida estimadu liuhosi soma kustu hosi sesaun EAT hotu-hotu mensiona iha leten. Karik EAT hala'o iha nivel aldeia no grupu hosi EAT balu organiza iha suku, total kustu tenke estimadu liuhosi halo multiplikasaun número grupu ba kustu hosi respetiva sesaun EAT. Tanba ne'e, formatu tuirmai bele uza hodi halo estimasaun.

**Formatu ba Estimasaun Sesaun Treinamentu iha Tinan dahuluk**

Item kustu padraun	No. Grup (a)	Kustu unidade (b)	Kustu (a x b)
1. Treinamentu prátika diretamente kona-ba produsaun adubu orgánika			
2. Treinamentu prátika diretamente kona-ba delineaun liña-male'uk			

Item kustu padraun	No. Grupu (a)	Kustu unidade (b)	Kustu (a x b)
3. Aplikasaun rasik kona-ba delineasaun liña-male'uk			
4. Treinamentu prátika direktamente kona-ba halo liña-male'uk ho adubu orgánika			
5. Aplikasaun rasik kona-ba halo liña-male'uk ho adubu orgánika			
6. Treinamentu prátika direktamente kona-ba fila rai/aplikasaun adubu orgánika			
7. Aplikasaun rasik kona-ba fila rai/aplikasaun adubu orgánika			
8. Treinamentu prátika direktamente kona-ba selesaun fini			
9. Treinamentu prátika direktamente kona-ba kari/kuda fini			
9. Treinamentu prátika direktamente kona-ba halo adubu-been			
10. Prátika rasik halo adubu-been			
11. Treinamentu prátika direktamente kona-ba hamoos du'ut, tau ai-tahan rahun, aplikasaun adubu-been			
12. Prátika rasik hamoos du'ut, tau ai-tahan rahun no aplikasaun adubu-been			
13. Treinamentu prátika direktamente kona-ba kolleita no pós-kolleita			
14. Treinamentu prátika direktamente kona-ba selesaun, kolesaun no rai fini			
<b>Total Kustu ba sesaun treinamentu ida (1+2+3+4+5)</b>	-	-	

Rekursu: Ekipa Projeto JICA (2014)

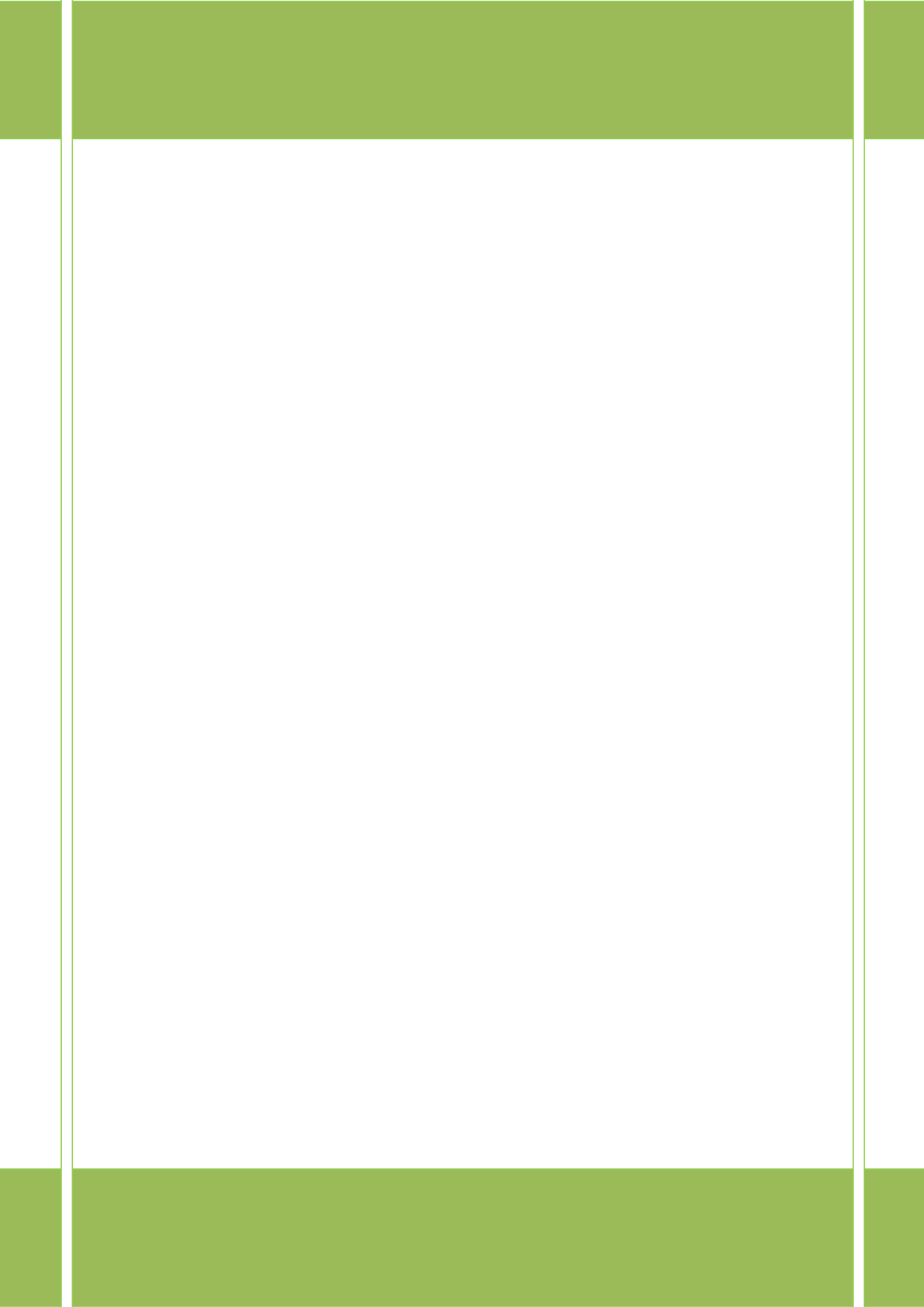
#### 5.4 Kustu Unidade ne'ebé Uza ba Estimasaun Kustu (iha Marsu 2014)

Atu simplifika prosesu estimasaun kustu, kustu unidade tuirmai hosi respetiva kustu item ne'ebé uza iha tinan 2014. Maski, kustu sira-ne'e tenke reeve filafali periodikamente tanba presu sasán sira-ne'e sei tau tuir tinan ne'ebé la'o hela.

##### Amostra Kustu Unidade hosi Kustu Item

Kategoria	Item	Kustu Unidade (US\$)
Materiál	Ekipamentu iha to'os (Ai-suak)	US\$ 7,0/kada 1
	Ekipamentu iha to'os (Katana)	US\$ 5,0/kada 1
	Ekipamentu iha to'os (Enxada)	US\$ 7,0/kada 1
	Ekipamentu iha to'os (Kanuru-rai)	US\$ 7,0/kada 1
	Animál teen	US\$ 7,5/saku (25 kg)
	Polybag	US\$ 7,5/kg
	Bidón (hosi IFAD)	US\$ 25,0 /kada 1
	Jerikán	US\$ 5,0 /kada 1
Hahán ba Treinamentu	Merenda (Kafé no masin-midar)	US\$ 1,0/ema 1
	Hahán meudia	US\$ 4,0/ema 1
Kustu transportasaun ba fasilitadór	Kombustível (litru 5/la'o)	US\$ 8,0/ema 1
Fasilitadór Esternál	Saláriu no <i>per diem</i>	US\$ 40,0 /ema 1
Kustu seluk-seluk tan	Kustu ba ema te'in	US\$ 5,0 /ema 1
	Estasionáriu (suratahan boot, nst.)	US\$ 100,0 /Suku

Rekursu: Ekipa Projeto JICA (2014)



# CB-NRM Technical Manual

## Vol. 3: Income Generating/Livelihood Development



Prepared by

**The Project for Community-Based Sustainable Natural Resource  
Management in the Democratic Republic of Timor-Leste**



From  
the People of Japan





## FOREWORD

Forest degradation and deforestation is one of the critical issues that the Government of Timor-Leste (GoTL) needs to tackle to achieve sustainable socio-economic development in the country. The study made in 2013 shows that approximately 184,000 ha of forest has disappeared between 2003 and 2012 and around 170,000 ha of dense forest has been degraded into sparse canopy forests for the same period.

Community-Based Natural Resource Management (CB-NRM) is an approach to nature conservation by recognizing the rights of local communities to benefit from sustainable management of natural resources (forests, lands, water, and biodiversity) within a designated area. This is an alternative to a top-down regulatory approach, which has not been necessarily effective in many countries, especially when the regulations do not fully cope with the changes in social, cultural, and economic contexts in the countries.

The Project for Community-Based Sustainable Natural Resource Management (the CB-NRM Project) jointly implemented by the Japan International Cooperation Agency (JICA) and the Ministry of Agriculture and Fisheries (MAF), particularly the National Directorate of Forest and Watershed Management (NDFWM), has developed an operative mechanism for CB-NRM in Timor-Leste. The same project has also issued the following manuals over the course of the project to help MAF expand the same mechanism in major river basins in the country.

- ◆ Operation Manual for Establishment of the CB-NRM Mechanism at the Village Level
- ◆ CB-NRM Technical Manuals
  - Vol. 1: Seedling Production and Tree Planting Promotion
  - Vol. 2: Sustainable Upland Farming Promotion
  - Vol. 3: Income Generating/Livelihood Development
- ◆ Manual for Formation of a Watershed Management Council

The CB-NRM Technical Manuals introduce key techniques/skills relevant to sustainable land and forest management as well as livelihood development along with the detailed procedures for provision of hands-on training. They are based on learning from experiences in the field; therefore, we, as representatives of the MAF, strongly recommend that the manuals should be widely used by field practitioners of not only MAF but also other organizations working in the forestry and agriculture sectors as a guiding tool for provision of agriculture and forestry extension services to local communities.



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Manuel Mendes

National Director of National  
Directorate of Forest and Watershed  
Management (NDFWM), MAF

October 2015



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Raimundo Mau

General Director of Forestry, MAF

## **About the CB-NRM Manuals**

The CB-NRM Manuals have been developed and published by the JICA and MAF Joint Project named the Community-Based Sustainable Natural Resource Management to provide practical and useful tools for planners and practitioners in the forest sector in Timor-Leste to enable them to protect and manage natural resources in a collaborative and sustainable manner. There are three (3) types of manuals as shown below.

- i) Operation Manual for Establishment of the CB-NRM Mechanism at the Village Level
- ii) CB-NRM Technical Manuals
  - Vol. 1: Seedling Production and Tree Planting
  - Vol. 2: Sustainable Upland Farming Promotion
  - Vol. 3: Income Generating/Livelihood Development
- iii) Manual for Formation of the Watershed Management Council

The Operation Manual is the main document which spells out the standard operation procedures for introduction and establishment of the CB-NRM mechanism at the village level. It is designed for use by planners, field practitioners, and researchers working/studying in the forest sector in Timor-Leste, especially those who engage in forest protection, watershed conservation, and community forestry in the National Directorate of Forest and Watershed Management (NDFWM).

The CB-NRM Technical Manuals supplement the Operation Manual by introducing relevant techniques and skills which can help rural communities use and manage natural resources, especially lands and forests, in a productive and sustainable manner. They will be used mainly by field extension workers (such as MAF municipal staff: namely, municipal officers, extension officers, and forest guards) and NGO staff, as technical references for their field works.

The Manual for Formation of the Watershed Management Council introduces the process to develop a collaboration platform/framework for sustainable natural resource management at the sub-municipal or sub-watershed level, which can also lay groundwork for expansion of the CB-NRM mechanism on watershed scale. As one of the key approaches to improvement of environmental governance at the watershed level by enhancing coordination and networking among local stakeholders, this manual can be of help for those who engage in watershed management.

Furthermore, the JICA and MAF Joint Project has also developed and issued simplified versions of those manuals to help users in the field easily follow the procedures or apply the techniques described in the manuals.

It is hoped that these manuals with their simplified versions will serve as practical references for a wide range of stakeholders in the forest sector in Timor-Leste.

## CB-NRM Technical Manual

### Vol. 3: Income Generating / Livelihood Development

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**List of Attachments (stored in the CD attached to this manual)**

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Attachment-2	A Sample of Seasonal Calendar
Attachment-3	Agriculture Resources (Vegetables, Fruits, and Other Commercial Products in Timor-Leste)
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Attachment-5	Basic Marketing Knowledge and Skills
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## **Vol.3: Income Generating and Livelihood Development (IG/LD)**

### **1. Introduction**

#### **1.1 Rationale for the Techniques**

Improvement of livelihoods of local communities is one of the essential activities to reduce human pressure on forest resources in rural areas since many of them have heavily relied on forest and forest-related natural resources for their livelihoods. In particular, the well designed resource-based income generating/livelihood development (IG/LD) activities can not only lessen the human pressure on forest and natural resources by providing alternative livelihoods to local communities, but also contribute to building of a mechanism that would encourage them to protect and manage natural resources in a sustainable manner on their own initiatives.

At the same time, IG/LD techniques would highly meet local communities' needs, as they could develop alternative sources of cash income or reduce losses or expenses in the daily life. It is also worth noting that IG/LD support could build the capacities and skills of women and enhance their self-belief simultaneously over the course of the activities.

#### **1.2 Objectives of the Techniques**

The main objective of the income generating and livelihood improvement (IG/LD) techniques is to enable local communities, especially women, to use their natural and agricultural resources for improving their livelihoods, possibly developing an alternative source of income. Specifically, the techniques aim to enable them to:

- assess potentials of existing natural and agricultural resources available in the localities for livelihood development;
- produce marketable products made of existing natural and agricultural resources or long-life food made of perishable food by using food processing techniques;
- reduce living expenses by introduction of simple techniques/tools/equipment;
- promote processed products to sell them to major markets in Dili; and
- manage earnings from IG/LD activities in a transparent manner.

#### **1.3 Objectives of the Manual**

This manual aims to guide field practitioners and planners who intend to introduce IG/LD techniques in rural areas in Timor-Leste, specifically targeting MAF Municipal Officers in the relevant technical fields, Extension Coordinators, and technical staff of NGOs and relevant projects supported by MAF Development Partners, to name a few.

As the CB-NRM Information Kit<sup>1</sup> prepared in 2015 introduces a wide range of IG/LD options which could be applied by local communities in Timor-Leste, the emphasis of the manual is put on the introduction of key IG/LD techniques, especially food processing techniques, referring the results of the IG/LD support done by the JICA CB-NRM Project, so that the users of the manual could deepen the understanding of the processes of and procedures for introducing IG/LD techniques in the local settings with some important tips.

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<sup>1</sup> The CB-NRM Information Kit which compiles the existing techniques and skills useful for CB-NRM prepared by the JICA CB-NRM Project in July 2015.

## 2. Approaches to Effective Transferring of Techniques

### 2.1 Hands-on Training and Follow-up On-the-Job Training (OJT)

Hands-on training is one of the training methods to give trainees opportunities to practice and learn techniques through the following steps during the hands-on training course.

i) Observation of demonstration by a trainer

Trainees first observe the demonstration made by a trainer to grasp the process and have a clear image of the final product.

ii) Imitation of techniques with guidance from a trainer

After the demonstration done by a trainer, trainees would imitate the process that they observed with the technical assistance from a trainer. By doing so, trainees are expected to learn the process of and procedures for producing products. Trainees should be given sufficient time and opportunities for them to practice techniques in the course of training.

It is advisable to give opportunities for trainees to continuously practice techniques as OJT so that they could fully acquire the same. In follow-up OJT, core members who have learned techniques in the hands-on training course might be able to be trainers or mentors for other trainees. Furthermore, OJT could be good opportunities for such members who have learned techniques to improve and upgrade their skills.

Some important elements considered for effective hands-on training and OJT are summarized below.

**Important Elements for Effective Hands-on Training and OJT on IG/LD**

Elements	Descriptions
a. Participants in training	A training course should be designed for not more than 10 participants in principle to maintain the effectiveness of the training course. In case the number of participants is expected to be more than 10, at least two (2) trainers should be allocated for the course.
b. Venue of training	In principle, the center of the village, such as suco office or aldeia office, should be used as a venue for training since the majority of trainees are accessible to such places; hence, they do not feel a sense of impartiality in selection of the venue.
c. Trainers / Facilitators	A resource person or trainer should be hired from external sources or found among technical officers of the National Directorate of Agribusiness since the majority of extension officers are not familiar with IG/LD techniques, especially food processing techniques. Extension officers should collaboratively work with the trainer to learn the process so that they could help trainees/local communities practice techniques in the follow-up OJT.
d. Target groups	Women in communities should be the targets of training courses as the majority of IG/LD activities would directly relate to women's domestic tasks, such as food processing, handcrafting, etc.
d. Monitoring	The hygiene conditions and quality of final products should be checked periodically in the course of OJT on food processing techniques to maintain the quality of products.
e. Training opportunities	Sufficient number of hands-on training and OJT courses should be arranged so that trainees/local communities could properly apply techniques and produce quality products.

Source: JICA Project Team (2015)

## 2.2 Resource-based

“Resource-based” is one of the crucial concepts that could make IG/LD activities at the village level sustainable, as it might not be easy for local communities to continue any activity that requires materials to be procured from outside sources. Hence, IG/LD activities in a village should be based on resources available in its locality. Due attention should be paid to not only natural resources but also cultural and human resources.

## 2.3 Participatory

Topics for hands-on training should be selected by trainees/local communities in a participatory manner, so that they could accept and apply the techniques without hesitation. It is, therefore, important to involve them in the entire processes of introduction of IG/LD techniques (i.e., i) assessment of existing resources available in the locality; ii) examination and prioritization of potential/possible IG/LD activities; iii) practice of techniques in hands-on training and OJT, and iv) evaluation of the results of the activities) to enable them to evaluate the necessity of IG/LD activities properly and at the same time enhance a sense of ownership of the same.

## 2.4 Women Centric

Women should be the main target group of IG/LD support, since the majority of the IG/LD activities, especially food processing-typed ones, directly relate to women’s daily tasks. IG/LD activities would also be good opportunities to involve women in the framework of CB-NRM since other CB-NRM activities, such as seedling production, tree planting, and sloping land agriculture, are rather male-centered activities.

## 2.5 Continuous Coaching

It is unrealistic to expect that trainees/local communities could fully learn and acquire IG/LD techniques only by having a set of hands-on training course. Continuous training and coaching are indispensable for ensuring that they could be capable enough to operate IG/LD activities using techniques introduced in the training course.

## 2.6 Framework to Transfer Techniques

The following table shows the overall framework and procedures for transferring techniques/skills of introducing IG/LD activities selected by trainees/communities.

**Proposed Framework of Transferring of Techniques**

Items	Outlines
Duration	2 years
Extension method	Hands-on training and Follow-up OJT
Target group	10 trainees or women/group or aldeia
Activities planned in the 1 <sup>st</sup> year	<ul style="list-style-type: none"> <li>a. Assess existing resources available in the locality and select potential IG/LD activities based on the availability of resources in a participatory manner.</li> <li>b. Develop a training curricula composed of hands-on training courses on the selected potential IG/LD activities.</li> <li>c. Conduct hands-on training courses at suco office to provide opportunities for trainees/women to practice techniques relating to the selected IG/LD activities.</li> <li>d. Help them continue to practice the techniques at the aldeia level after the training courses.</li> <li>e. Help them evaluate the results of the activities and check if any of the IG/LD activities should be replaced with any other options in the 2<sup>nd</sup> year training curricula.</li> </ul>



Items	Outlines
Activities planned in the 1 <sup>st</sup> year	<ul style="list-style-type: none"><li>a. Conduct hands-on training courses at suco office to help trainees/women recapture the process and techniques needed for the selected IG/LD activities.</li><li>d. Hold OJT courses on IG/LD activities to help trainees/women improve the quality of products for sales.</li><li>c. Encourage them to help each other practice the techniques in OJT courses.</li><li>d. Help them sell their products to major buyers in Dili or other markets.</li><li>d. Hold a training course and provide daily coaching on financial management of the group.</li></ul>

Source: JICA Project Team (2015)

### **3. Process of Introduction of Potential IG/LD Activities**

#### **3.1. Overall View**

Introduction of potential IG/LD activities should involve trainees/women in the whole process from selection of potential IG/LD activities to operations and management of the same in addition to provision of hands-on training/OJT on specific topics, so that trainees/women could continue the same with a sense of ownership and enjoy benefits from the activities. Hence, the process of introduction of potential IG/LD activities should be composed of the following steps.

- 1) Assessment of resources available in the locality and selection of potential IG/LD activities
- 2) Hands-on training/OJT on potential IG/LD activities (food processing techniques)
- 3) Hands-on training/OJT on potential IG/LD activities (other techniques)
- 4) Assistance in marketing products and managing a small scale enterprise

Food processing-typed IG/LD activities are the typical options of the resource-based approach. The food processing techniques aim to preserve perishable food for a long period of time and/or add values to local products so that they could be sold at markets in Dili. On the other hand, other IG/LD activities are not necessarily based on existing resources, but focus on building up skills that would help them reduce living expenses and possibly run a small-scale enterprise using a simple technique or tool/equipment.

Needless to say, marketing is one of the crucial aspects to enable trainees/women to benefit from IG/LD activities. In particular, promotion of products and negotiations with buyers are essential for effective marketing.

Due consideration should also be given to financial management in the operations of IG/LD activities to ensure the continuous operations. Among others, bookkeeping is requisite for sound operations of a business as it is the basis for assessments of costs and benefits of a business and benefit sharing among women/communities who engage in a business.

## 3.2 Assessment of Resources in the Locality and Selection of Potential IG/LD Activities

### 3.2.1 Resource Inventory

#### (1) Objective

The main objective of an inventory of resources available in the locality is to help trainees/women assess natural, customary and human resources existing in a village and identify useful ones for IG/LD options.

#### (2) Procedures for Application

The following Participatory Rural Appraisal (PRA) tools shall be used for assessment of existing resources in a village.

- i) Resource mapping
  - ii) Seasonal calendar
  - iii) Resource assessment by group discussion
- a. Resource mapping (Please refer **Attachment-1: Methods of Resource Mapping and Seasonal Calendar** for more detail.)
- i) Organize a meeting with trainees/women and other communities and explain the purpose of the meeting.
  - ii) Select a proper place for preparing a resource map in consultation with village leaders.
  - iii) Ask them to show the major resources and land marks of a village, such as river, roads, mountains, and village boundaries, by depicting them on a large-sized paper or putting/using materials locally available (chalks, stones, twigs, leaves, etc.) on ground.
  - iv) Ask them to show other major land marks, such as settlement, water sources, church, school, suco office, and sacred subjects on the paper or ground in the same manner.
  - v) Ask them to add information on land uses (e.g., forests with density and species, coffee plantations, areas for shifting cultivation, permanent farms with crops, grassland, and grazing land) and other natural resources (places for collection of firewood, honey, tua mutin, and other products) on the paper or ground in the same manner.
  - vi) Organize a small group (less than 10 members) and conduct a short observation walk to validate and observe land uses and available resources.
  - vii) Reflect any information collected by the field validation to the resource map prepared.
  - viii) Transcribe the resource map and all the information added to the map into a flipchart.
- b. Seasonal calendar (Please also refer **Attachment-1: Methods of Resource Mapping and Seasonal Calendar**.)
- i) Prepare a blank format for a seasonal calendar composed 14 columns (1 column for name of resources, 12 columns for month, and the last one for remarks) and lines as

- many as major resources available in a village. (**Attachment-2** shows a sample of seasonal calendar.)
- ii) Fill names of natural and agriculture resources in lines in the format.
  - iii) Tick or mark the columns of months when such natural and agricultural resources are harvested.
  - iv) In case any of natural resources are planted by communities, take notes in the column of remarks.
- c. Resource assessment
- i) Make a list of resources (natural, cultural, and human resources) existing in a village based on the results of the sessions described above.
  - ii) Discuss possible uses of the identified resources for production of processing foods and other types of IG/LD activities.
  - iii) Assess and discuss the volume/prevalence of resources that can be used for IG/LD.
  - iv) Identify the potential food processing-type IG/LD activities.

### (3) Preparation of materials

The following materials should be prepared for the meeting.

- ▶ Flipcharts
- ▶ Felt-type pens with several colors
- ▶ Pens and pencil
- ▶ Masking tape

### (4) Timeframe of training

This meeting shall be held prior to selection of potential IG/LD activities. The standard timeframe of the meeting is shown below.

**Standard Timeframe of Resource Inventory**

Activities	Timing	Duration of the Session
i) Resource mapping	Beginning of introduction	One day
ii) Seasonality bar chart	Beginning of introduction	One day
iii) Selection of activities	Beginning of introduction	One day

Source: JICA Project Team (2015)

### (5) Further references

Lists of agricultural and natural resources existing in Timor-Leste are shown in the following attachments annexed in this manual. The same attachments give some ideas on how to use the respective resources.

**Attachment 3: Agricultural Resources (Vegetables, Fruits and Other Commercial Products in Timor-Leste)**

**Attachment 4: Natural Resources (Medicinal Plants in Timor-Leste)**

### **3.2.2 Selection of Potential IG/LD Activities**

#### (1) Objective

The main objective of this session is to help trainees/women select potential IG/LD activities in a participatory manner considering applicability, potential impact, sustainability, and affordability of the initial costs of the activities.

#### (2) Procedures for Selection of Potential IG/LD Activities

Potential IG/LD activities shall be selected in the following manners and steps.

- i) Make a list of potential resources with possible future uses based on the results of the resource inventory.
- ii) Explain the following evaluation criteria for selection of potential IG/LD activities.

##### **Evaluation Criteria for Selection of IG/LD Activities**

<b>Criteria</b>	<b>Point of discussions</b>
Applicability	Possibility of applying techniques used for production of processed products
Impact	Estimated number of household who might be able to benefit from techniques/skills introduced for production of processed products
Sustainability	Volume of and accessibility to resources used for production
Marketability	Possibility of marketing of processed products
Affordability	Estimated costs of start-up and operations of potential IG/LD activities.

Source: JICA Project Team (2015)

- iii) Prepare the following matrix in a flipchart and ask trainees/women to evaluate potential IG/LD activities in terms of evaluation criteria using 3 or 5 rating system.

Activities	Applicability	Impact	Sustainability	Marketability	Affordability

- iv) Help them assess the respective criteria properly giving them necessary information for assessment, e.g., difficulty in application of techniques, marketability of products, and estimated costs for initial operations.
- v) Prioritize potential IG/LD activities based on the results of the previous session.
- vi) Select 3~5 priority activities in the list based the results of discussion.

#### (3) Preparation of materials

The basic stationary, namely flipcharts, fet-type pens, and masking tapes, should be prepared for the meeting.

#### (4) Timeframe of training

The standard timeframe of the meeting is shown below.

##### **Standard Timeframe of Resource Inventory**

<b>Activities</b>	<b>Timing</b>	<b>Duration of the Session</b>
i) Evaluation of options	After resource inventory	Half a day
ii) Selection of priority options	After resource inventory	Half a day

Source: JICA Project Team (2015)

### 3.3 Hands-on Training/OJT on Potential IG/LD Activities (Food Processing Products)

This section introduces the process of and procedures for introduction of key food processing techniques. The main aim of food processing is to convert i) perishable crops/resources into long-life foods and/or ii) less valuable crops/resources in the raw into value-added/marketable products. The following four (4) methods are employed for processing crops and natural resources into long-life/valuable foods.

**Four Methods of Food Processing**

Processing method	Techniques	Process	Products
Drying method	Sun dry	Dry food materials to reduce water content to less than 13% to suppress propagation of bacteria.	Dried fruits, dried vegetables, dried herbs, dried nuts, dried spices, dried fishes, dried meat and their powder
Heating method	Heating	Heat food materials packed in a can/bottle/poly bag to sterilize it by heat.	Canned food, bottled food and packed food
Soaking method	Salted Syrupped Pickled	Soak food materials in salted/syrupped/pickling water.	Salted vegetables, salted fish, syrupped fruits, jam and pickles
Frying method	Frying	Fry food materials in oil to reduce water content and convert them into crisp and flavored chips for marketing.	Chips of fruits and root crops

Source: JICA Project Team (2015)

Among other things, this manual introduces the following five (5) products made by using the drying, soaking, and frying methods as they are rather easy to apply even under the current circumstances of rural areas in Timor-Leste.

- a. Drying            Herbal tea  
                         Dried sweet potato
- b. Soaking         Salted vegetables  
                         Pickled vegetables
- c. Frying:           Cassava Chips

### 3.3.1 Drying Method: Herbal Tea Production

#### (1) Objective

The main objective of the technique is to enable trainees/women to produce herbal tea made of plants and leaves locally available, which can be marketed in Dili or exported to other countries as a healthy food.

#### (2) Procedures for Application

The following four (4) steps shall be taken to produce herbal tea.

##### a. Collection of healthy leaves

- i) Collect healthy leaves from trees and medicinal/herbal plants in clean areas, which are far from kitchen, toilet, and animal pen.
- ii) Select healthy leaves and remove dirty, insect-eaten, diseased and oddly-shaped parts of leaves.

##### b. Cleaning and sorting of collected leaves

- i) Wash leaves well to remove dirty matters, such as mud, sand, worms, and eggs of insects.
- ii) Check the size and color of leaves and remove bad ones.
- iii) Wipe up water well on leaves.
- iv) Cut leaves to uniform their size for faster infusion if necessary.

##### c. Drying of leaves

- i) Spread leaves on a mesh tray to dry them evenly.
- ii) Cover the tray with a black cloth to protect leaves from being exposed to direct sunshine to avoid discoloring.
- iii) Dry leaves for 1 week. Keep the tray under the roof during the night and when it rains.

##### d. Sorting out of leaves and packing with labeling

- i) Put dried leaves on a white paper to check their color, size and dryness and sort out the leaves which meet the quality standard from those below the standard.
- ii) Pick ten (10) dried leaves among the quality ones and make tea using them (Put them in a cup, pour hot water and wait for 3 minutes with a lid.).
- iii) Check the color of leaves and tea water and tasting it with a clean spoon.
- iv) Weigh and segment them in small portions for packing.
- v) Pack them into poly-bags or other packages.



*Kitchen, toilet and animal pen are generally unhygienic and sources of bacterium and viruses.*

*Quality control should be kept in mind from collection of leaves.*

*Contamination of foreign matters should be avoided, e.g., hair, threads, weeds, insects, stems, nails, stones, sands, and mud.*



- vi) Seal the bags with a sealer or using a candle.
- vii) Label the bags with product information (e.g., the name and quantity of product, date of manufacture, producers' name, expiration date, and lot number).
- viii) Store the packed herbal tea in a clean stocker with dry silica gel.

### Important Tips



- ▶ *Not process herbal tea when you are sick to avoid contact of bacteria with herbal tea.*
- ▶ *Use only healthy leaves to produce quality tea.*
- ▶ *Moisture content in dried leaves should be less than 10%.*
- ▶ *Check if they can be easily crushed when grabbing some of them.*

### (3) Materials, instruments and outfits used for production

- ▶ **Raw materials of herbal tea:**  
Leaves of daretta (Indian pennywort), mint, lime, avocado, guava, basil (holy basil), shell ginger, and/or lemon grass
- ▶ **Instruments:**
  - 1 unit of washing bowl for cleaning
  - 2 units of drainer baskets
  - 2 units of metal plates as drying trays
  - 2 units of poly net for spreading leaves
  - Drying stand made of wood poles (4 leg poles and 4 beams/sticks)
  - 1 sheet of black cloth to cover the drying stand
- ▶ **Materials for packaging:**  
Poly bags, packages, labels, candles/sealer (1 unit), stocker, and silica gel
- ▶ **Outputs:**  
Aprons, head caps, masks and poly gloves for trainees

### (4) Timeframe of training

In the northern part of the country which has clear distinction between the wet and dry seasons, the first hands-on training course should be held in May/June as it is easy for trainees/women to find leaves and also dry them. Sorting out of dried leaves and packing should be held 2~7days after the session for collection, washing, and drying.

#### Standard Timeframe of Herb Tea Production (4 times)

Activities	Timing	Duration of the Session
i) Collection of leaves, washing, and drying	May/June	One day
ii) Sorting out of leaves, and packing with labeling	May/June	Half a day

Source: JICA Project Team (2015)

### Important Tips



- ▶ *It is advisable to conduct at least 4-times training so that trainees/women could acquire the techniques/skills.*
- ▶ *Herbal tea can be produced all year round if weather permits.*



### 3.3.2. Drying Method: Dried Sweet Potato Production

#### (1) Objective

The main objective of the technique is to enable trainees/women to convert sweet potato into a long-life food which can also be consumed as snack in a family.

#### (2) Procedures for production

The following four (4) steps shall be taken to produce dried sweet potato.

##### a. Making of a drying stand with a tray

- i) Procure a drying stand with a dry tray using wooden/bamboo poles, a metal plate, and a poly net.



##### b. Washing and cutting-off of dirty parts.

- i) Select firm sweet potatoes with smooth surface among those procured.
- ii) Wash sweet potatoes well in water to remove mud.
- iii) Cut dirty parts off.



##### c. Steaming

- i) Steam sweet potatoes in a steamer until they became tender.
- ii) Peel the steamed sweet potatoes' skins manually while they are still hot.
- iii) Slice the peeled sweet potatoes into 8-9 mm pieces after they get cool.



##### d. Drying

- i) Spread the sweet potatoes on a mesh tray.
- ii) Dry them by exposing them to sunshine for two (2) days to produce semi dried sweet potatoes or one week for fully-dried type.

#### Important Tips



- ▶ Peel skins of sweet potatoes when they are still hot, otherwise it is difficult to remove skins since they adhere to flesh of sweet potato when they get cool.
- ▶ Cut the peeled sweet potatoes when they get cold. It is difficult to slice them smoothly when they are still hot because they are tender and fragile.
- ▶ Do not produce dried sweet potato during the rainy season as they get easily rotten or moldy.

e. Packing and labeling

- i) Select quality dried sweet potatoes in terms of shape, color and dryness.
- ii) Weigh the selected potatoes.
- iii) Put them into poly-bags.
- iv) Seal the poly-bags with a candle or tape.
- v) Label the bags with product information (i.e., name of product, ingredients, quantity, date of production, date of expiration, and producer's name).



(3) Materials, instruments and outfits used for production

- ▶ Raw materials:  
Purple or orange colored sweet potatoes are preferable to make the final product colorful and attractive.
- ▶ Instruments:
  - 2 units of large-sized bucket, 2 units of washing bucket, 2 units of drainer, and 5 pieces of washing brush for washing
  - 1 unit of cooking stove and 1 unit of steamer for steaming
  - Several units of hand knife or hand-made slicer (4 board frames with fishing lines) for slicing
  - 2 units of drying tray made of metal plate and poly net, 1 unit of drying stand, and 1 unit of insect net for drying
- ▶ Materials for packaging:  
Poly bags, packages, labels, candles/sealer (1 unit), 1 unit of scale and 1 unit of stocker
- ▶ Outputs:  
Aprons, head caps, masks and poly gloves for trainees

(4) Timeframe of Application

Hands-on training on this topic should be held in the dry season since dried sweet potatoes can be easily molded if they are produced during the rainy season.

**Standard Timeframe of Hands-on Training on Dried Sweet Potato Production**

Activities	Timing	Duration of the Session
i) Building of a drying tray and drying stand	July	One day
ii) Processing of dried sweet potatoes	July	One day
iii) Packing and labeling	July	One day

Source: JICA Project Team (2015)

### 3.3.3. Soaking Method: Salted Vegetable Production (Long Period Soaking)

#### (1) Objective

The main objective of this technique is to enable trainees/women to preserve perishable vegetables for a long period using a traditional technique with some additional arrangements. There is also a possibility that the product might be marketed in Dili if a certain amount of the products could be stably produced in a village.

#### (2) Procedure of application

The following three (3) steps shall be taken to produce salted vegetables in the marketable form.

##### a. Washing and slicing of vegetable

- i) Select fresh vegetables.
- ii) Cut off their roots and remove dirty parts.
- iii) Wash vegetables well with water to remove dirty matters and worms.
- iv) Dry vegetables for half a day to one day to reduce the moisture contents in leaves.

##### b. Salting and pickling

- i) Place the semi-dried vegetable in a big poly-bag put in a big bucket.
- ii) Put salt in between leaves of the vegetables and pour water in the poly bag.
- iii) Close up the top of the poly bag and press the poly bag by foot until it becomes less flexible.
- iv) Open the poly bag and add a pinch of chili and one spoonful of turmeric powder in the bag.
- v) Close up the top of the bag loosely and place weight stones on the bag to pickle vegetables.
- vi) Cover the container with an insect net to prevent the vegetables from insect contamination.
- vii) Put the container in a cool and dark place to keep the vegetables pickled for two (2) to three (3) months.
- viii) Check the condition of the vegetables once a week and remove excessive water when necessary.

##### c. Packing and labeling for marketing

- i) Take the salted vegetables from the bucket and measure out them by 200 gram.
- ii) Put the measured vegetables (200 gram) each into poly bags and tie the top of the poly bags.



- iii) Label the poly bags with production information (i.e., name of product, ingredients, quantity, date of production, date of expiration, and producer's name).
- iv) Keep them in a cool and dark place until they are marketed.

### (3) Materials and instruments

- ▶ Raw materials and ingredients:
  - Mustard /other leafy vegetables
  - Salt
  - Chili and turmeric powder
- ▶ Instruments for salting and pickling
  - 2 units of container/big bucket
  - 1 piece of poly bag (45 L)
  - 2 pieces of weight stone
  - 1 piece of sponge
- ▶ Packaging and labeling:
  - Poly bags for packing
  - Label
  - Tape/rubber band for tying and labeling

### (4) Timeframe of Application

Hands-on training on this topic should be held according to the following timeframe.

#### Standard Timeframe of Hands on Training on Salted vegetable (long period pickling)

Activities	Timing	Duration of the Session
i) Washing, drying, salting and pickling	May	Two days
ii) Quality checking, packing and labeling	August	One day

Source: JICA Project Team (2015)

### Important Tips



- ▶ Put an insect net to prevent the infestation of maggot, or the product get easily damaged.
- ▶ Any leafy vegetables can be used for salted vegetables. Those with thick leaves are more suitable for pickling.
- ▶ Apply much salt if the shelf life of the products needs to be prolonged, but wash them with water to desalinate when eating.

### 3.3.4. Soaking Method: Pickled Vegetable Production (Short Period Soaking)

#### (1) Objective

The main objective of this technique is to enable trainees/women to produce pickled vegetables made of chayote (Lakeru mutin) using a simple technique for a short period of time. Although the shelf life of the products is shorter than that of the salted vegetables introduced in the previous section (section 3.3.3), the products might be rather suitable for marketing as they can be produced in a short cycle.

#### (2) Procedure of application

The following three (3) steps shall be taken to produce salted chayote.

- a. Washing and slicing of chayote before pickling
  - i) Select fresh and young (green) chayote.
  - ii) Peel skins of chayote (use poly gloves for protection of skin of hand.)
  - iii) Slice chayote in 3 mm pieces and cut them in evenly sized pieces (3 cm long and 3cm wide).
- b. Preparation of ingredients mixed with chayote
  - i) Wash and slice unpeeled limes in 3mm pieces.
  - ii) Peel skins of washed pineapple/papaya and slice it in 3 mm pieces.
  - iii) Cut chili in pieces and remove its seeds.
- c. Salting and pickling
  - i) Prepare salted water by mixing 100 g of salt with 1 little of water.
  - ii) Soak sliced chayote in salted water for 30 minutes.
  - iii) Mix the ingredients with 0.5 lit of water, 1 tablespoonful of salt and 2 tablespoonfuls of brown sugar (if available).
  - iv) Wash salted chayote with water and drain it well.
  - v) Soak chayote in the mixture of ingredients with crushed ginger and garlic.
  - vi) Pickle chayote for one day.
- d. Packing and labeling for selling
  - i) Put pickled chayote into poly-bags and measure out them by 200 g.



- ii) Put pickled water into the poly bags to keep chayote fresh.
- iii) Tie the top of the poly bags with tape or rubber bands.
- iv) Label the poly bags with production information (i.e., name of product, ingredients, quantity, date of production, date of expiration, and producer's name).
- v) Keep them in a cool and dark place until they are marketed.



### (3) Materials and instruments

- ▶ Raw materials and ingredients:
  - Chayote (Lakeru mutin)/other fruit vegetables
  - Ginger and garlic
  - Salt
  - Fruits (apple, pineapple, papaya, guava)/Sugar
- ▶ Instruments for salting and pickling
  - 2 units of container/big bucket with a lid
  - 2 units of drainer
- ▶ Packaging and labeling:
  - Poly bags for packing
  - Label
  - Tape/rubber bands for tying and labeling
- ▶ Outputs:
  - Aprons, head caps, masks and poly gloves for trainees

### (4) Timeframe of application

The hands-on training on this topic should be held according to the following timeframe.

#### Standard Timeframe of Hands on Training on salted vegetable (short period pickling)

Activities	Timing	Duration of the Session
i) Slicing chayote, salting and pickling	June	One day
ii) Packing and labeling	June	Half a day

Source: JICA Project Team (2015)

### Important Tips



- ▶ Use slices of fruits to add sweetness and color to pickled chayote.
- ▶ Use garlic and ginger to add flavor to pickled chayote.
- ▶ This method can also be applicable to leafy vegetables.

### 3.3.5 Cassava Chips Production

#### (1) Objective

The main objective of this technique is to enable trainees/women to process local farm products (cassava and other tuber crops) into value-added and long-life processed food (chips) which can be marketed in Dili.

#### (2) Procedure of application

The following nine (9) steps shall be taken to produce marketable cassava chips.

- a. Washing and peeling of skins of cassava
  - i) Wash cassava with a brush in water to remove mud from tubers.
  - ii) Cut/remove dirty parts from tubers.
  - iii) Peel skins of cassava with a knife/peeler.
  - iv) Wash peeled cassava well until their surface is not sticky.
- b. Slicing of cassava
  - i) Slice washed cassava into thin (1 mm) pieces with a slicer. (Variable thickness of sliced cassava would result in nonuniform texture/hardness.)
  - ii) Remove sliced cassava which are thick and deformed.
- c. Pre-treatment to improve color and texture of cassava chips
  - i) Put 3 kg of sliced cassava into 5 lit of water mixed with 1 spoonful of salt and 1/2 spoonful of lime (calcium hydroxide)(ahu in Tetum).
  - ii) Soak sliced cassava into the mixed water for 10 minutes.
- d. Washing and drying of sliced cassava
  - i) Wash sliced cassava five (5) times with water and put them in a drainer to drain water.
  - ii) Spread sliced cassava on a big mesh tray.
  - iii) Dry sliced cassava by exposing them to sunshine for 10 minutes.
- e. Preparation of seasonings and toppings

<Lime and chili flavor >

  - i) Remove seeds of chili and slice them in small pieces.



- ii) Pound dried lime leaves and mix them with sliced chili and salt.

<Garlic and pepper flavor>

- i) Ground pepper and salt in a stone grinder.
- ii) Slice garlic horizontally.
- iii) Fry sliced garlic in heated oil (170°C-185°C) in a big pan until their color turns golden.
- iv) Take them out from oil and put them on a kitchen paper.



f. Frying of sliced cassava

- i) Heat 2 liter of cooking oil in a frying pan until the oil becomes 170 °C-185°C.
- ii) Put sliced cassava into heated oil. Do not put many sliced cassava at once, or the temperature of oil would lower and chips would become not crispy.
- iii) Stir and fry sliced cassava until their color turns light brown (golden).
- iv) Scoop chips with a metal net drainer and spread them on a open paper on a tray to cool down chips.



g. Seasoning and topping

- i) Pour seasoning powder using a tea strainer before chips get cold.
- ii) Mix round chips by hand with gloves to coat chips with seasoning powder fully.
- iii) Add topping on seasoned chips.



h. Weighing and packing of chips

- i) Measure out chips by the volume decided in advance for packing.
- ii) Put them into packages before they absorb moisture.
- iii) Pack and seal the packages by a candle or sealer.



i. Labeling

- i) Label the package with production information (i.e., name of product, ingredients, quantity, date of production, date of expiration, and producer's name)

(3) Materials and instruments

- ▶ Raw materials and ingredients:
  - Cassava



- Cooking oil
- Ahu (limestone powder)
- Seasonings (salt, chili, garlic, pepper, dried lime leaves)
- ▶ Instruments:
  - 1 unit of wash tub/ bucket and 1 unit of knife/peeler for washing and peeling of cassava)
  - 1 unit of slicer for slicing
  - 1 unit of drainer and 1 unit of mesh tray for washing and drying of sliced cassava
  - 1 unit of stove, 1 unit of frying pan, and 1 unit of metal mesh drainer for frying
  - 1 unit of grinder, 1 unit of pounder, and 1 unit of tea strainer for preparation of seasonings and topping
  - 1 unit of scale for packaging
- ▶ Packaging and labeling:
  - Packages (Aluminum bags)
  - Label
  - Sealer
- ▶ Outputs:
  - Aprons, head caps, masks and poly gloves for trainees

#### (4) Timeframe of application

The hands-on training on this topic should be held according to the following timeframe.

##### Standard Timeframe of Hands on Training on cassava chips production

Activities	Timing	Duration of the Session
i) Slicing of cassava, frying and seasoning/topping	October	One day
ii) Packing and labeling	October	One day

Source: JICA Project Team (2015)

#### Important Tips



- ▶ *Select and use quality cassava tubers.*
- ▶ *Do not waste ingredients and materials to save expenses for production.*
- ▶ *Produce chips under hygienic conditions.*
- ▶ *The same techniques can be applied to production of chips of other root/tuber crops, such as sweet potatoes, taros, kontas and arrow roots.*

### 3.4 Hands-on Training/OJT on Potential IG/LD Activities (Other Activities)

Handcrafting (e.g., weaving, carving, and ceramic art) and home manufacturing (e.g., sewing, brick making, and carpentering) are other IG/LD activities than food processing which local communities can possibly engage in. The main aim of such techniques is to use skills, sometime crafting techniques, to i) produce some value-added goods/commodities made of materials locally available and/or ii) repair or mend daily commodities to reduce daily expenses. Among other things, this section introduces the sewing technique as an example of IG/LD activities that women in local communities can easily introduce and smoothly accept. In fact, other techniques might take more time for local communities/women to acquire the same until they could earn cash income from the activities.

#### 3.4.1 Sewing Techniques

##### (1) Objective

The main objective of this technique is to enable trainees/women to mend and make clothes using a sewing machine.



##### (2) Procedure of application

The following four (4) steps shall be taken to sew clothes.

- a. Making of a pattern of clothes.
  - i) Make a pattern of a clothes/dress.
  - ii) Trace the pattern on a cloth with a chalk.
- b. Cutting of a cloth
  - i) Cut the cloth along with the drawn lines with a scissors and make parts of a clothes/dress. (Leave some seam allowance when cutting the cloth.)
  - ii) Attach the parts to each other with marking pins.
- c. Baste and fitting of a clothes
  - i) Baste the parts roughly.
  - ii) Fit/Adjust the basted clothes to/with a person who put it.
- d. Sewing of a clothes
  - i) Sew the parts together after re-basting the clothes according to the adjustments made.
  - ii) Remove basting thread.
  - iii) Press the clothes with an iron for finishing.



##### (3) Materials and instruments

- ▶ Materials
  - Cloth
  - Tread

- Sewing patterns (Pattern papers)
- Basting thread
- ▶ Instruments:
  - 1 unit of sewing machine
  - 1 set of needles
  - 1 set of marking pin
  - 1 unit of scissors
  - 1 box of basting chalk
  - 1 unit of iron

#### (4) Timeframe of application

The hands-on training on this topic should be held according to the following timeframe.

##### Standard Timeframe of Hands on Training on Sewing (2 times)

Activities	Timing	Duration of the Session
i) How to use sewing machine	December	One day
ii) Pattern making and cutting	December	One day
iii) Basting/fitting	December	One day
iv) Sewing	December	One day
v) Finishing	December	One day

Source: JICA Project Team (2015)

#### Important Tips



- ▶ *There is a need to hold at least two (2) sets of the training course so that trainees/women can acquire sewing techniques/skills to make a clothes/dress. They should first learn to sew a simple product, such as head kerchief/table cloth in the first course, and then could learn to make a clothes/dress in the second courses.*
- ▶ *Check the condition of a sewing machine after use of the machine. In particular, remove waste threads, clear cotton dust, and oil the sewing machine, especially parts of movement.*
- ▶ *Check and collect needles after use of the machine to prevent injury.*

### **3.5 Assistance in Marketing of Products and Operations and Management of IG/LD Activities**

Even though trainees/women could acquire techniques/skills through hands-on training and OJT arranged/held as described in the previous sections, it would still be difficult for them to earn cash income unless they could market their products/commodities. It is, therefore, important for them to gain knowledge and skills of marketing their products/commodities. Moreover, proper financial management is crucial for sound and sustainable operations of any IG/LD activities. In particular, bookkeeping including record keeping is a requisite skill to be learnt/acquired by anyone/any group who intends to run a small scale enterprise using IG/LD techniques.

In this connection, this section introduces and describes:

- i) how to promote IG/LD products/commodities for marketing; and
- ii) how to manage cash earnings gained by IG/LD activities.

In addition to operation and management of IG/LD activities, this section also introduces a micro credit scheme as one of the options to utilize profits gained by IG/LD activities to directly contribute to improving the economic status of trainees/women, because there is a possibility that some IG/LD activities might be able to earn cash income as shown in the village where the JICA CB-NRM Project has supported. In fact, the same village has operated the micro credit scheme to effectively utilize the earnings from the IG/LD activities for improvement of livelihoods of local women.

### **3.5.1 Promotion of Products**

#### **(1) Objective**

The main objective of this technique is to enable trainees/women to promote their products/commodities so that they could sell the same to major markets in Dili.

#### **(2) Procedure of application**

The following are the key activities to be taken for promotion of a product/commodity.

- a. Assessment and development of product's information
  - i) Discuss among trainees/women sales points to be stressed in marketing the product/commodity, such as key features of the product, potential positive effects, a history/story of the product, and any local characteristic relating to the product.
  - ii) Make an advertisement material, such as a leaflet and pop advertisement for the product, which describes the sales points of the product/commodity.
- b. Participation in an exhibition held in Dili
  - i) Check the schedule of exhibitions to be held in Dili (e.g., the exhibition of local products) and discuss whether or not they take part in any of the exhibitions.
  - ii) Make a schedule to participate in the exhibition/s.
  - iii) Select members who will participate in the exhibition/s.
  - iv) Arrange a transportation mean, accomodation, and cash necessary for any expenses to attend the exhibition/s.
  - v) Prepare advertisement materials (e.g., leaflet and pop advertisement) developed under item a.
  - vii) Attend the exhibition/s with advertisement materials and promote/sell the product to guests in the exhibition/s.
  - viii) Manage the sales in the exhibition/s properly.
  - ix) Report the results of the exhibition/s to other trainees/women when the persons who attend the exhibition/s come back to a village.
- c. Promotion of the product directly to major buyers (markets) in Dili
  - i) Prepare advertisement materials developed under item a.
  - ii) Select members who visit major buyers in Dili.
  - iii) Arrange a transportation means, accomodation, and cash necessary for any expenses for promotion.
  - iv) Arrange meetings with major buyers.
  - v) Promote the product explaining the sales points in the meetings with buyers.
  - vi) Negotiate terms for the delivery of the product to buyers, if possible.
- d. Negotiations with buyers
  - i) Estimate the production and marketing costs based on the amount of ingredients and other materials (e.g., packages and labels).

- ii) Set up the selling price based on the production and marketing costs estimated.
- iii) Negotiate with buyers about the price.
- iv) Discuss the mode and conditions of the payment to be made by the buyer.

### (3) Materials

- Materials for promotion (e.g., hands-outs)
- Cardboard paper for POP
- Paper for leaflet
- Felt type pens (several colors)
- Note and pen

### (4) Timeframe of application

The hands-on training on this topic should be held according to the following timeframe.

**Standard Timeframe of Hands on Training on Promotion of Products**

Activities	Timing	Duration of the Session
i) Assessment and development of product's information (OJT)	September	Half a day
ii) Participation in an exhibition (OJT)	October	Two days
iii) Visit to the buyers for direct promotion (OJT)	December	Two days
iv) Negotiations with buyers (OJT)	When necessary	Half a day~One day

Source: JICA Project Team (2015)

### Important Tips



- ▶ Fully understand the sales points of the product prior to the promotion.
- ▶ Prepare an attractive advertisement material with a history/story of the product.
- ▶ Start the negotiation with the price rather higher than the price set up to secure some room for negotiations. (Do not offer the price lower than the selling price.)
- ▶ Preferably exchange a written agreement with the buyer on the sale of the products.

- ▶ Issue an invoice whenever delivering the products to buyers.
- ▶ Keep records of production, delivery, and payment collected periodically.

The following attachments annexed in this manual could further explain the necessary marketing skills and how to make as materials.

**Attachment-5: Basic Marketing Knowledge and Skills**

**Attachment-6: How to Make POPs**

**Attachment-7: How to Make a Leaflet**

### 3.5.2 Bookkeeping

#### (1) Objective

The main objective of this technique is to enable trainees/women who are responsible for management of earnings to keep books of account in a proper manner.

#### (2) Procedure of application

The following steps shall be taken to let woman's group understand bookkeeping.

- a. Basic knowledge of bookkeeping
  - i) Explain the necessity and importance of bookkeeping to the participants.
  - ii) Explain the structure of an account book and how to record data in an account book.
  - iii) Ask the participants to practice data entry and calculate the balance between income and expenditures using a pre-made exercise with a format
- b. Cost and profit analysis
  - i) Explain the major cost and profit items.
  - ii) Explain other types of costs, such as variable costs, fixed costs and mixed costs.
  - iii) Explain how to set up the selling price of product based on costs.
  - iv) Ask the participants to calculate the production cost and set the selling price using a pre-made exercise with a format

#### (3) Materials

- Flipcharts and felt-type pen
- Premade formats transcribed in flipcharts and hands-outs
- Pens and notes

#### (4) Timeframe of application

The hands-on training on this topic should be held according to the following timeframe.

#### Standard Timeframe of Hands on Training on bookkeeping (2 days x 2 times)

Activities	Timing	Duration of the Session
i) Basic knowledge of bookkeeping	January & June	Two day
ii) Costs and profits analysis	January & June	Two day

Source: JICA Project Team (2015)

#### Important Tips



- ▶ Take enough time to enable the participants to understand the costs and benefits.
- ▶ Give due attention to visible (direct) costs and invisible (indirect) costs when setting the price.

A manual on bookkeeping and sample forms are given in the following attachments.

**Attachment-8: Guideline for Training in Bookkeeping**

**Attachment-9: A Form of Cashbook**

**Attachment-10: A Form of Sales Record**

**Attachment-11: A Form of Stock Record**

### **3.5.3 Micro Credit using Earnings from Operations of IG/LD Activities**

#### **(1) Objective**

The main objective of this technique is to enable a group of trainees/women which has earned cash income from IG/LD activities to use the savings for the operations of a micro credit scheme for trainees/women who engage in IG/LD activities.

#### **(2) Procedure of application**

The following three (3) steps shall be taken to help the group decide how to use earnings from IG/LD activities and start the operations of a micro credit scheme for improvement of the economic conditions of trainees/women who engage in IG/LD activities.

- a. Discussion on how to use the earnings in a group
  - i) Help trainees/women discuss the status of savings and the major sources of income of the group.
  - ii) Help them assess how the group has earned the savings and spent the same over the course of the operations of IG/LD options.
  - iii) Help them calculate the necessary amount for the operations of IG/LD options.
  - iv) Facilitate their discussion on how to use the savings/earnings explaining the possible uses, such as i) continuation of the operations of existing IG/LD options, ii) future expansion of any other IG/LD options, iii) micro credit, iv) distribution of savings, and iv) deposit in the group .
  - v) Help them decide how to use the earning/savings.
- b. Finalization of rules on microcredit
  - i) Facilitate their discussion on the basic rules on the micro credit scheme, such as eligibility, guarantee, pay-back period, interest, and upper limit of a loan.
  - ii) Help them develop draft rules on the scheme based on the results of the discussion above.
  - iii) Introduce to them a passbook and a form to be used for a contract on a loan showing samples of both documents (passbook and loan contract form) and help them understand the necessity of the same.
  - iv) Help them select members of the management committee (chair person, secretary, accountant/redcord keeper, and treasurer) and discuss roles and responsibilities of the committee and its members.
  - v) Help them discuss and finalize the by-laws of the scheme.
- c. Assistance in the operations of the micro credit scheme
  - i) Provide daily coaching to the management committee to enable them manage and operate the micro credit scheme in a proper and transparent manner.
  - ii) Monitor the repayment made by trainees/women who borrow money from the earnings/savings from time to time and help the management committee remind the borrowers of repayment of the loans.

#### **(3) Materials**

- Flipcharts and felt-type pen



- Pens and notes
- A sample of passbook
- A sample of a loan contract form
- Draft rules and regulations with roles and responsibilities of the committee

#### (4) Timeframe of application

The hands-on training on this topic should be held according to the following timeframe.

##### **Standard Timeframe of Discussion on the Use of the**

Activities	Timing	Duration of the Session
i) Discussion on how to use the earnings in a group	February	One day for explanation and discussion
ii) Discussion and finalization on rules on microcredit	March	One day for discussion
iii) Assistance in the operations of the micro credit	-	Periodical monitoring during the operations

Source: JICA Project Team (2015)

### **Important Tips**



- ▶ *Allocate sufficient time to discuss how to use the savings/earnings and rules on the micro credit, as they could affect the operations and management of IG/LD activities.*

The sample handouts and manuals that can be used for the discussions are attached to this manual.

**Attachment-12: Guideline for Discussion on Group Savings**

**Attachment-13: A Sample Form of Passbook**

**Attachment-14: Guideline for Discussion on Use of Earnings**

**Attachment-15: A Sample of Rules and Regulations of a Micro Credit Scheme**

**Attachment-16: A Sample of Loan Contract Form**

#### 4. Standard Training Modules

The following table shows the standard training modules for the respective techniques introduced in Sections 3.2 to 3.5. All the training courses are assumed to be held at the center of suco (suco office).

**Standard Training Module for the Techniques**

Training course	Items	Description
Resource inventory	Objectives	To help trainees/women assess existing resources useful for IG/LD activities.
	Timeframe	<u>1<sup>st</sup> session: Resource mapping (1.5 days)</u> a. Introduction and resource mapping (0.5 day) b. Field observation (transect walking) (0.5 day) c. Finalization of a resource map (0.5 day) <u>2<sup>nd</sup> session: Seasonal calendar (1.0 day)</u> a. Introduction and identification of resources and farming activities (0.5 day) b. Discussion on the seasonality of resources and activities (0.5 day) <u>3<sup>rd</sup> session: Resource assessment (1.0 day)</u> a. Introduction and recapturing of the previous sessions (0.2 day) b. Listing of potential resources and discussion of possible uses of the resources (0.5 day) c. Identification of potential IG/LD activities (0.3 day)
	Materials	Flipcharts, Felt-type pens, Masking tapes, Notes, and Pens
	Expected outputs	List of potential IG/LD options
	Selection of potential IG/LD activities	Objectives
Herbal tea production	Timeframe	a. Introduction and explanation of the process and method of evaluation (0.2 day) b. Evaluation of potential IG/LD activities (0.5 day) c. Selection of priority IG/LD activities (0.3 day)
	Materials	Flipcharts, Felt-type pens, Masking tapes, Notes, and Pens
	Expected outputs	List of priority IG/LD activities
Dried sweet potato	Objectives	To enable trainees/women produce herbal tea made of plants and leaves available in the locality.
	Timeframe	<u>1<sup>st</sup> session: Collection, washing, and drying (1 day)</u> a. Collection and sorting (0.25 day) b. Washing (0.25 day) c. Drying (0.5 day) <u>2<sup>nd</sup> session: Sorting out and packing with labeling (1.0 day)</u> a. Quality check, packing, and labeling (The 2 <sup>nd</sup> session should be held 1 week after the 1 <sup>st</sup> session.)
	Materials	Raw materials: leaves of dareta, lime, avocado, etc. Instruments: washing bowl, drainer, drying tray, poly net, drying stand, black cloth, poly bags, and labels
	Expected outputs	Women can produce herbal tea made of plants/leaves naturally grown in the locality using a simple technique.
Dried sweet potato	Objectives	To help trainees/women produce dried sweet potato as a long-life food using sweet potato harvested in the locality.
	Timeframe	<u>1<sup>st</sup> session: Washing, steaming, and drying (1.0 days)</u> a. Washing and cleaning (0.25 day) b. Steaming (0.25 day) c. Drying (0.5 day) <u>2<sup>nd</sup> session: Packing and labeling (1.0 day)</u> a. Packing and labeling (1.0 day)

Training course	Items	Description
		(The 2 <sup>nd</sup> session should be held 3 days after the 1 <sup>st</sup> session.)
	Materials	Raw materials: sweet potatoes Instruments: steamer, slicer, drying stand with tray, insect net, poly bags, and labels
	Expected outputs	Women can produce dried sweet potatoes which can be stored for a long period of time.
Salted vegetables (long period)	Objectives	To help trainees/women preserve perishable vegetables for a long period in the form of salted vegetables.
	Timeframe	<u>1<sup>st</sup> session: Washing, drying, salting, and pickling (2.0 days)</u> a. Washing, drying, and salting (1.0 day) b. Re-salting and pickling (1.0 day) <u>2<sup>nd</sup> session: Quality checking, packing and labeling (1.0 day)</u> a. Packing and labeling (1.0 day) (The 2 <sup>nd</sup> session should be held 2~3 months after the 1 <sup>st</sup> session.)
	Materials	Raw materials: mustards (mode metan) Instruments: large-sized container, big poly bag, insect net, heavy stone, poly bags, and labels
	Expected outputs	Women can produce quality salted vegetables using the traditional techniques with some modifications.
Salted vegetables (short period)	Objectives	To help trainees/women produce pickled vegetables using a simple techniques for a short period of time.
	Timeframe	<u>1<sup>st</sup> session: Washing, slicing, salting, and pickling (1.0 days)</u> a. Washing, removing skin & seeds, and slicing (0.5 day) b. Salting and pickling (0.5 day) <u>2<sup>nd</sup> session: Packing and labeling (1.0 day)</u> a. Packing and labeling (1.0 day) (The 2 <sup>nd</sup> session should be held 1 week after the 1 <sup>st</sup> session.)
	Materials	Raw materials: chayote, garlic, fruits, chili, salt, sugar, and water Instruments: container, drainer, cutting board, knife, rubber band, poly bags, and labels
	Expected outputs	Women can produce quality pickled vegetables using a simple technique.
Chips making	Objectives	To enable trainees/women to produce long-life and value-added products (flavored chips) made of local products, such as cassava and kontas.
	Timeframe	<u>1<sup>st</sup> session: Washing, peeling, slicing, and frying (1.0 day)</u> a. Selection, washing, and peeling of cassava (0.2 day) b. Slicing, pre-treatment, and drying (0.3 day) c. Frying (0.5 day) <u>2<sup>nd</sup> session: Frying, seasoning, and packing (1.0 day)</u> a. Repeating of the activities of the 1 <sup>st</sup> session (0.5 day) b. Preparation of seasoning and topping (0.1 day) c. Seasoning and topping (0.2 day) d. Packing (0.2 day)
	Materials	Raw materials: tuber crops (e.g., cassava, kontas, and sweet potato) Instruments: slicer, big frying pan, oil strainer, spread tray, poly bags/aluminum bags, and labels
	Expected outputs	Women can produce quality chips made of local products, such as cassava and other tubers, which can be sold at major markets in Dili.
Sewing	Objectives	To enable trainees/women to make clothes and utensils using a sewing machine.
	Timeframe	<u>1<sup>st</sup> training course: Practice of sewing (5.0 days)</u>

Training course	Items	Description
		<p>a. How to use a sewing machine (1.0 day)</p> <p>b. Practice of sewing (4.0 days)</p> <p><u>2<sup>nd</sup> training course: Making of a clothes/dress (5.0 day)</u></p> <p>a. How to make a dress pattern (1.0 day)</p> <p>b. Cutting (0.5 day)</p> <p>c. Sewing (3.5 days)</p>
	Materials	Sewing machine, cloth, threads, sewing pattern, and ciseaux
	Expected outputs	Women can mend their clothes and/or make a dress/clothes with a sewing machine.
Promotion of products	Objectives	To enable trainees/women or a group of them to take promotion activities necessary to sell their products in Dili and other markets.
	Timeframe	<p><u>1<sup>st</sup> session: Development of product's information (1.0 day)</u></p> <p>a. Discussion on sales points of the product (0.5 day)</p> <p>b. Making of an draft advertisement material (0.5 day)</p> <p><u>2<sup>nd</sup> session: Participation in exhibition (2.0 day)</u></p> <p>a. Discussion on the participation in an/ exhibition/s (scheduling, selection of members, and arrangements needed) (1.0 day)</p> <p>b. Participation in an exhibition held in Dili (1.0 day)</p> <p><u>3<sup>rd</sup> session: Visit to buyers for direct promotion (2.0 day)</u></p> <p>a. Preparation of advertisement materials and discussion on the visits to buyers for promotion (scheduling, selection of members, and arrangements needed) (1.0 day)</p> <p>b. Visit to buyers for promotion (1.0 day)</p> <p><u>Negotiations with buyers (OJT)</u></p> <p>a. Discussion on the negotiation price</p> <p>b. Visit to a/ buyer/s for negotiations</p>
	Materials	Cardboards, papers, felt-type pens/markers, notes, and pens
	Expected outputs	Women are able to learn the needs/demands of major buyers so that they could identify the necessary improvements to be made in their product. At the same time, they are expected to learn the process and necessary actions to be taken for promotion of the product.
Bookkeeping	Objectives	To enable trainees/women or a group of them to keep books of account with records of costs, profits, account receivables, and stock of the product.
	Timeframe	<p><u>1<sup>st</sup> session: Basic knowledge of bookkeeping (2.0 days)</u></p> <p>a. Basic knowledge of bookkeeping (0.5 day)</p> <p>b. Exercise of bookkeeping (0.5~1.0 day)</p> <p>c. Exercise in calculation of a balance between costs and profits (0.5~1.0 day)</p> <p><u>2<sup>nd</sup> session: Cost and profit analysis (1.0 day)</u></p> <p>a. Explanation of costs and profits (0.5 day)</p> <p>b. Explanation of how to set up the selling price (0.5 day)</p> <p>c. Exercise in calculation of the production cost and the selling price (1.0 day)</p>
	Materials	Flipcharts, premade formats for exercises, hands-outs, felt-type pens, masking tapes, notes, and pens.
	Expected outputs	Women or a group of women can manage their earnings/savings as well as assets in a proper and transparent manner.
Micro credit using earnings from IG/LD activities	Objectives	To enable trainees/women or a group of them to decide how to use their earnings/savings gained from IG/LD activities to benefit trainees/women who engage in the activities.
	Timeframe	<u>1<sup>st</sup> session: Discussion on how to use the earnings (1.0 day)</u>

Training course	Items	Description
		<p>a. Discussion on status of savings and major sources of income (0.25 day)</p> <p>b. Assessment of earnings and expenditures over the course of IG/LD activities (0.25 day)</p> <p>c. Calculation of necessary amount for operations of IG/LD activities (0.25 day)</p> <p>d. Discussion on how to use earnings/savings (0.25 day)</p> <p><u>2<sup>nd</sup> session: Discussion on rules of micro credit scheme (1.0 day)</u></p> <p>a. Discussion on rules of a micro credit scheme and develop a draft rules of the scheme (0.5 day)</p> <p>b. Introduction and explanation of forms and systems of the scheme (0.2 day)</p> <p>c. Selection of members of a management committee and discussion on roles and responsibilities of the members (0.3 day)</p> <p><u>3<sup>rd</sup> session: Finalization of rules and by-laws of the scheme (1.0 day)</u></p> <p>a. Discussion on and finalization of roles and responsibilities of the members (0.3 day)</p> <p>b. Finalization of the rules and by-laws of the scheme (0.7 day)</p>
	Materials	Flipcharts, hands-outs, felt-type pens, masking tapes, notes, and pens.
	Expected outputs	Women or a group of them can decide how to utilize their earnings/savings in an effective and efficient manner and develop rules and by-laws of the micro credit scheme.

Source: JICA Project Team (2015)

## 5. Cost Estimates

This chapter introduces how to estimate the budget necessary to hold a series of training courses and discussions at the suco or aldeia level. The estimation of cost is one of the essential skills/techniques to prepare a convincing plan which can get the financial and administrative support from top management. The following sections explain the ways to estimate the budgets per session as well as per suco/aldeia introducing the cost items to be considered in the estimation.

### 5.1 Estimate of Cost for Training

The major cost items for training course/meeting are: i) materials used for a session, ii) food for the members/participants, iii) transportation cost for a/ facilitator/s, iv) other miscellaneous cost, and v) cost for a/ facilitator/s if external a/ facilitator/s is/are hired/used for a session. Each cost item is estimated by multiplying the quantity of the item by the unit cost. The following format can be used for the estimation.

**Format for Cost Estimation of Training Session**

Standard cost item	Quantity (a)	Unit cost (b)	Cost (a x b)
1. Materials for training (for those which cannot be collected in a village)			
2. Snack and food for the participants			
3. Transportation cost for facilitators			
4. Cost for facilitators (payment to facilitators)			
5. Other miscellaneous cost			
<b>Total cost for one training session (1+2+3+4+5)</b>	-	-	

Source: JICA Project Team (2015)

### 5.2 Estimate of Cost for Self-practices/OJT

Aside from hands-on training, the members will engage in self-application/practice of IG/LD techniques by themselves as OJT at the aldeia level with the technical assistance of facilitators. The major cost items for self-practice/OJT are: i) snack or food for the participants, ii) transportation cost for a/ facilitator/s, iii) cost for a/ facilitator/s, and iv) other miscellaneous cost. The same format shown above can be used for estimation.

### 5.3 Cost Estimate per Suco

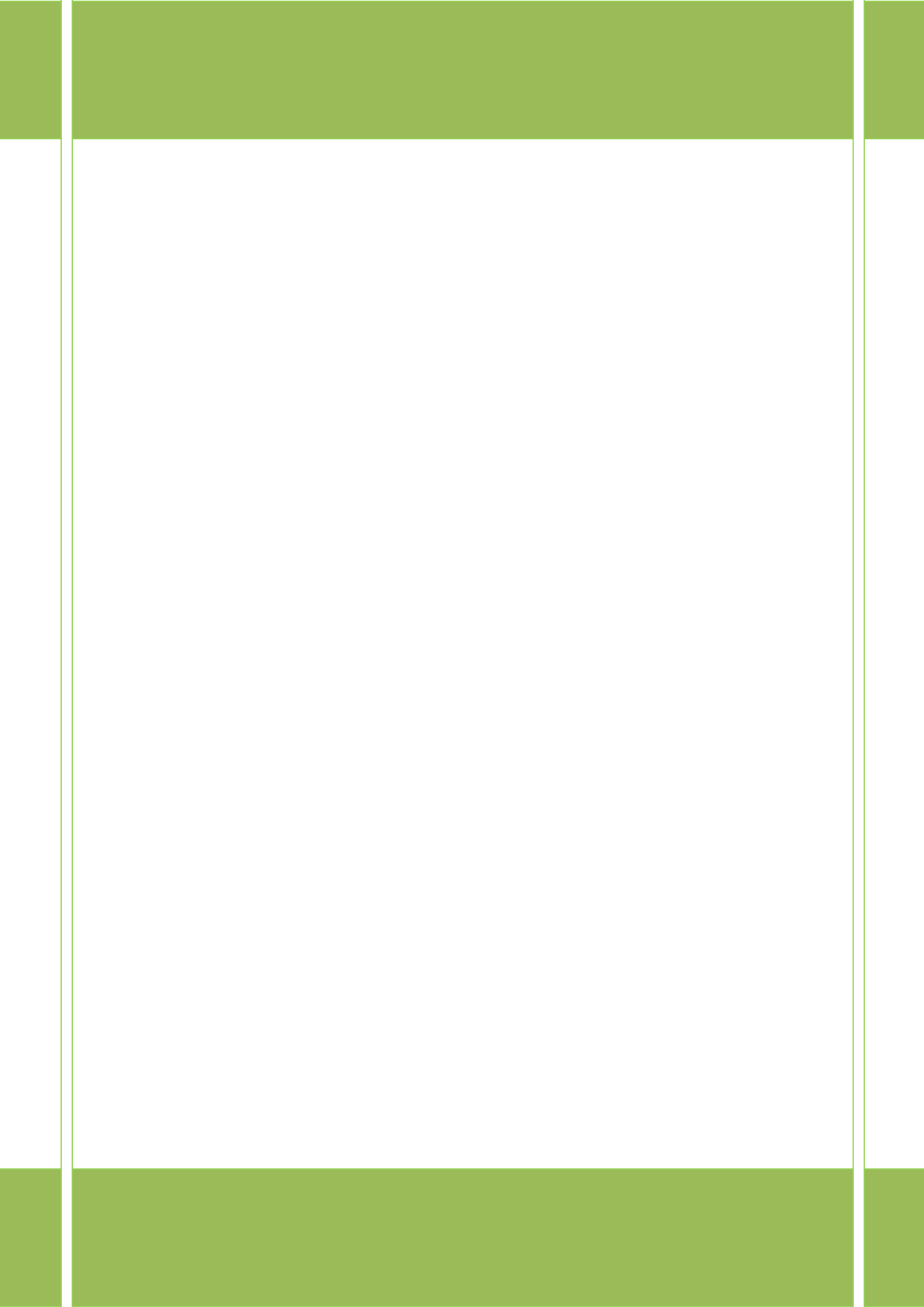
The cost for one cycle of IG/LD training curricula in a village is estimated by summing up the costs for all the training sessions/meetings described above. In case that sessions are held at the aldeia level, the costs of the respective sessions should be multiplied by the number of aldeias in a suco to estimate the cost at the suco level. Consequently, the following format can be used for the estimation.

**Format for Cost Estimation of Training Session in the First Year**

Standard cost item	No. of Group (a)	Unit cost (b)	Cost (a x b)
1. Resource inventory and selection of potential IG/LD options			
2. Hands-on training in producing product A			
3. OJT in producing product A			
4. Hands-on training in producing product B			
5. OJT in producing product B			
6. Hands-on training in producing product C			
7. OJT in producing product C			
8. Hands-on training in sewing			
9. OJT in sewing			

<b>Standard cost item</b>	<b>No. of Group (a)</b>	<b>Unit cost (b)</b>	<b>Cost (a x b)</b>
10. Hands-on training in promotion of products			
11. Hands-on training in bookkeeping			
12. Discussion on use of earnings/savings			
<b>Total cost for training sessions per suco</b>	-	-	

Source: JICA Project Team (2015)





## Attachment-1 Methods of Resource Mapping and Seasonal Calendar

### How to find out the materials for processing

The objective of this manual is to improve the capacity of mainly woman's group for income generating and livelihood improvement activities by accumulating their knowledge and experiences through building on their existing skills and resources. Therefore, when starting an income generating and livelihood development activity, knowing the capacity and constraints of the people and the environment in which they live is crucial. This part of the manual includes some exercises that the group facilitator (Extensionist/NGO staff) can do together with the people in the village to learn more about their skills and knowledge, their village, and their resources. In this manual, we put stress on how to find out resources.

#### 1. Village resource map - What is growing where?

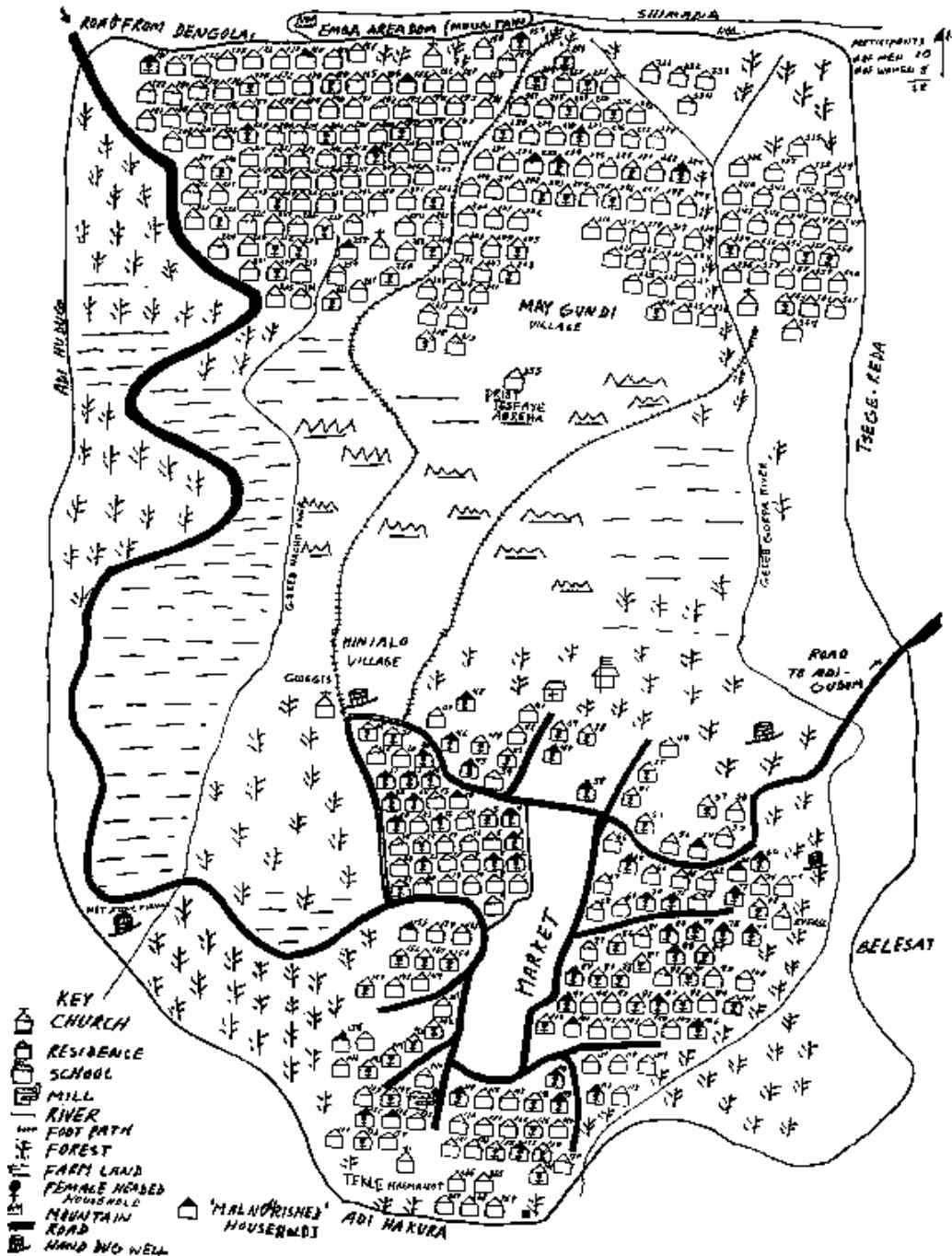
You can find out what grows where in the village by drawing with the natural/cultivated resources on a *village resource map*. This map shows the different natural/cultivated resources such as trees, shrubs, herbs, fruits and vegetables found in the vicinity. The map indicates the resources' characteristics in the village (e.g. natural resources, reproducible natural resources, cultivated resources and etc.). Resource mapping is best carried out at the beginning of the appraisal, and can provide you with the information you may need for other appraisals, such as *reproduction* and *processing*.

#### Objectives

- To visualize what is growing where.
- To learn about the natural and cultivated resources by trees, shrubs, herbs and etc. and understand the certain characteristics.
- To learn about the different natural/cultivated resources and how people use them.
- To identify the plant, facilitator or farmers can refer to resource inventories (natural and cultivated resources) with photos which are attached with the guideline.

## Prepare original resource map

Example of a village resource map<sup>1</sup>



Social map of Hiniato Kuset, Hintalo Tabia (including nutrition mapping)

<sup>1</sup> FAO project: "Improving Household Food Security and Nutrition in Northern Shewa (Amhara region) and Southern zone (Tigray region), Ethiopia"

## Who is this exercise for?

Depending on the local situation, you may want to do this exercise in separate groups of men and women to increase participation or with other groupings of people. In Timor-Leste, women tend to refrain talking in front of men. It is better to divide groups to men and women to promote free and voluntary remarks.

## Steps

1. *Ask the participants to draw a map of the village*, showing all households. For orientation it will be helpful first to draw roads and significant landmarks of the village such as rivers and springs.
2. *Ask the participants to also show institutions and places* that offer some kind of social service or which are popular places to meet (e.g. schools, churches, health service center, local administration office, village leaders, kiosk, village community center, etc.).
3. *Ask to depict cultivated area, forest area and animal grazing area on the map.*
4. *Ask the group to indicate where distinguishable trees and herbs are.* Make sure that everybody has the same understanding.
5. *When someone has given an answer, ask the others whether they agree, disagree or want to add something.* Encourage discussion throughout the exercise.

## Materials needed

Large sheet of paper, resource inventories (Natural and cultivated), pencils and color markers

If drawing on the ground, find a soft ground and use sticks, stones, leaves, bottle caps, beans, or any other local materials for symbols. Make sure to copy the map on large paper afterwards.

## 2. Seasonality – When is it available?

After identifying natural/cultivated resources that has potential to utilize for income generating activity, make a list of resources. Then you shall find out when the natural/cultivated resources are available. You shall make a **bar chart** for each resource since it would directly influence on production. This exercise can help you characterize the seasonality of production and start a discussion on what factors are important determinants of production. Seasonality bar chart is

best carried out immediately following resource mapping in order to be able to understand physical location of resources (specific trees and herbs) and link to seasonality of production.

## Objectives

- To identify and understand where and when each resource is available.
- To identify and understand when and how each resource can be preserved.
- To identify and understand when each resource can be sown if it is possible.

## Steps

1. *Make a list of potential natural/cultivated resources that has potential for income generating activity.*
2. *Ask the participants to draw a bar chart, showing availability of each resource. For orientation it will be helpful first to draw columns with resource name and 12 months.*

Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

3. *Ask the participants to fill the name in the column of **Name** identified natural/cultivated resources that are written in village resource map.*

Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cassava												
Dareta												
Kontas												

4. *Ask to draw a line with a ruler in **available months***

Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Cassava	—————												
Dareta	—————												
Kontas			—————										





Attachment 3.1: Agriculture Resources (Vegetables, Grains, Beans and Sea Weeds in Timor-Leste)

	Tetun	Indonesian	English	Scientific name	Use
Fruit vegetables					
1	Tomate	Tomat	Tomato	<i>Lycopersium esculentum</i> Mill.	Paste, dried fruit
2	Berinjela	Terong, Terung	Eggplant	<i>Solanum melongena</i> L.	Paste, dried fruit
3	Kaha, Pepinu(Pipinu)	Mentimun, Ketimun	Cucumber	<i>Cucumis sativas</i> L.	Pickles
4	Pateka mutin	Sewangica	Cucumber	<i>Cucumis sativas</i> L.	Pickles
5	Ai manas	Cabe, Cabai	Chilli	<i>Capsicum annum</i> L.	Paste, dried chili
6	Kumus	Pement	Sweet pepper	<i>Capsicum annum</i> L.	Puree, pickles
7	Lakeru	Labu kuning	Pumpkin	<i>Cucurbita moschata</i> Duch.	Paste, puree
8	Baria	Paria, Pare	Bitter Gourd	<i>Momordica charantia</i> L.	Fried, dried chips
9	Patola	Oyong	Angled loofah	<i>Luffa acutangula</i> Roxb.	Astringent from stem sap
10	Patola	Oyong	Loofah,Sponge gourd	<i>Luffa cylindrica</i> Roem.	Astringent from stem sap
11	Okura	Koni, Bendi	Okura	<i>Abelmoshus esculentus</i> Moench	Pickles
12	Lakeru Lilin	Labu air	Bottle gourd	<i>Lagenaria siceraria</i> Standley	Juice
13	Babuar	Baligo, Kundur	Wax gourd, White gourd	<i>Benincasa fispida</i> Cogn.	Syrupped, pickles, juice
14	Lukeru Mutin,Jepang	Labu siam, Jepang	Chayote	<i>Sechium edule</i>	Pickles
15	-	Paria belut	Snake gourd	<i>Trichosanthes cucumerina</i>	Chips
16	Babuar lotuk		Melon	<i>Cucumis melo</i> L.	Puree
17	Pateka	Semangka	Water melon	<i>Citrullus lanatus</i>	Juice
18	Pateka mutin	Semangka putih			Juice, syrupped
19	Koto mean	Kacang gude	Pigeon pea	<i>Cajanus cajan</i> Millsp.	Paste, syrupped, canned
20	Koto-nurak, Tunis, Turis	Kacang buncis	Kidney bean, common bean	<i>Phaseolus vulgaris</i> L.	
21	Ervilla	Kacang kapri	Snow pea	<i>Pisum sativum</i>	
22	-	Kacang botor	Winged bean	<i>Psophocarpus tetragonobus</i> DC.	Fried chips
23	Fore-tali	Kacang panjang	Yard long bean	<i>Vigna sinensis</i> var. <i>sesquipedalis</i> L.	
24	Koto moruk	Kacang besar	Scarlet runner bean	<i>Phaseolus coccineus</i> L.	
25	Favas	Kacang babi	Broad bean	<i>Vicia fava</i>	Fried chips, dried beans
26	Uhi		Aerial yam	<i>Dioscorea bulbifera</i> L.	Powder

## Attachment 3.1: Agriculture Resources (Vegetables, Grains, Beans and Sea Weeds in Timor-Leste)

	Tetun	Indonesian	English	Scientific name	Use
Flower Vegetables					
27	Kori	kol kembang, kol bunga, kubis bunga	Cauliflower	<i>Brassica oleracea</i> L.	Pickles
28	Kori Italia	Brokoli	Italian Broccoli	<i>Brassica oleracea</i> var. <i>italica</i> Plen	
29	-		Garlic flower	<i>Allium sativum</i> L.	
30	-	Antung pisang	Banana flower	<i>Musa sapientum</i>	
31	-	Turi	Sesbania flower	<i>Sesbania Grandiflora</i>	Powder
32	Ai-dila funan	Bunga pepaya	Papaya flower	<i>Carica papaya</i> L.	
Leafy Vegetables					
33	Repollu	Kubis, Kol	Cabbage	<i>Brassica oleracea</i> L.	Pickles
34	Modo Mutin	Sawi putih	Chinese cabbage	<i>Brassica campestris</i> L.	Pickles
35	Modo Mutin	Sawi putih	Chinese white cabbage	<i>Brassica rapa</i> L.	Pickles
36	Modo metan	caisim	Leaf mustard	<i>Brassica juncea</i> Czern.et Coss.	Pickles
37	Alfase	Daun Selada	Lettuce	<i>Lectuca sativa</i> L.	
38	Kobi Tahan		Chinese cale	<i>Brassica oleracea</i> L.	
39	Lis tahan	Kucai	Chinese chive	<i>Allium tuberosum</i> Roxb.	
40	Salsa	Selederi	Celery	<i>Apium graveolens</i> L.	Powder
41	Agriaun	Salada Air, Selada air	Watercress	<i>Nasturtium officinate</i>	
42	Kankun	Kangkung	Swamp cabbage	<i>Ipompea aquatica</i>	
43	Bayaun	Bayam	Slender amaranth	<i>Amaranthus gracilis</i>	
44	-	Daun ubi jalar	Sweet potato sprout	<i>Ipompea batatas</i> Lam.	
45	Lakeru	Labu kuning	Pumpkin	<i>Cucurbita moschata</i> Duch.	
46	Markisa/Markujas	Daun markisa	Passion fruit	<i>Passiflora foetida</i> L.	
47	Babasa tahan		Ivy gourd	<i>Coccinia indica</i> Wight et Arnott	Pickles
48	Ai farina	Daun ubi kayu	Cassava leaf	<i>Manihot esculenta</i> L.	
49	-	Daun pepaya	Papaya leaf	<i>Carica papaya</i> L.	Juice, dried leaves, powder
50	Fore-mungu	Tauge	Mung bean sprout	<i>Phaseolus radiatus</i>	



Attachment 3.1: Agriculture Resources (Vegetables, Grains, Beans and Sea Weeds in Timor-Leste)

	Tetun	Indonesian	English	Scientific name	Use
<b>Attachment 1-3: Root Vegetables</b>					
51	Ai farina	Ubi kayu	Cassava	<i>Manihot esculenta</i> L.	Fried chips, starch
52	Talas	Talas	Taro	<i>Colocasia esculenta</i> Schott	Fried chips, starch
53	Fehuk-midar	Ubi jalar	Sweet potato	<i>Ipomoea batatas</i> Lam.	Fried chips, starch
54	Fehuk-ropa	Kentang	Potato	<i>Solanum tuberosum</i>	Fried chips, starch
55	Kumbili	Ubi kemali	Greater Yam	<i>Dioscorea alata</i> L.	Starch, powder
56	-	-	Wild yam	<i>Dioscorea tamarisciflora</i> P.etB.	Starch, powder
57	Singomas	Sengkuang/Bungkuan	Yam bean	<i>Pachyrrhizus erosus</i> L.	Fried chips
58	Same	-	Arrow root, Kuzu	<i>Pueraria lobata</i> Lour.	Starch
59	Ai-raruut, Taros metan	Talas hitam	Arrowroot, Black Javanese s ente	<i>Maranta arundinacea</i> L.	Fried chips, starch
60	-	Lobak	White radish	<i>Raphanus sativas</i>	Dried, pickles
61	Senoura	Wortel	Carrot	<i>Daucus carota</i>	Pickles
62	Kontas	-	Edible Canna	<i>Canna edulis</i> Ker.	Fried chips, starch
63	Liis	Bawang Bombay	Onion	<i>Allium cepa</i>	Chips, starch
64	Liis-mean	Bawang merah	Shallot	<i>Allium ascalonicum</i> L.	Pickles
65	Liis-asu, Liis-mutin	Bawang putih	Garlic	<i>Allium sativum</i> L.	Pickles, powder, paste
66	Maek	Pasak bumi, Tutup	Elephant foot yam	<i>Amorphosphallus</i> sp.	Fried chips, pickles
<b>Herbs and Spices</b>					
67	Ruku fuik	Kemangi	Holy Basil	<i>Ocimum sanctum</i> Linn	Condiment, herbal tea
68	Ruku	-	Thai basil	<i>Ocimum basilicum</i> Sims.	Condiment, herbal tea
69	Kumis kucing	Kumis kucing	Cat whiskers	<i>Orthosiphon stamineus</i> Benth	Condiment, herbal tea
70	Pimenta Tahan	Ketumbar	Coriander	<i>Coriandrum sativum</i> L.	Condiment, herbal tea, spice
71	-	Adas	Fennel	<i>Foeniculum vulgare</i> Mill L.	Condiment, herbal tea, spice
72	-	Adas sowa	Dill	<i>Anethum graveolens</i> L.	Condiment, herbal tea, spice
73	-	-	Anise	<i>Pimpinella anisum</i> L.	Condiment, herbal tea, spice
74	Pimenta	Lada	Pepper	<i>Piper nigrum</i>	Spice, medicine
75	Aimanas ai leten	Karuk	Wild betel, Leaf bush	<i>Piper sarmentosum</i> Roxb.et Hunter	Condiment, spice, medicine
76	Ortelaun, Ortelán, Karudu, Kandolar	Janggat	Mint	<i>Mentha cordifolia</i> Opiz.	Condiment, herbal tea
77	-	Po'o	Cool mint	<i>Mentha arvensis</i> L.	Condiment, herbal tea
78	Dareta	Pegaga(n)	Indian penny wort	<i>Centella asiatica</i>	Condiment, herbal tea
79	Du'ut-morin	Serai	Lemon grass	<i>Cymbopogon citratus</i> Stapf.	Condiment, herbal tea
80	Hedan, Boro	Pandan	Pandan, Screw pine	<i>Pandanus amaryllifolius</i> Roxb.	Condiment, medicine
81	-	-	Roselle , Indian sorrel , Jamaica sorrel	<i>Hibiscus sabdariffa</i> L.	Herbal tea
82	Kinur	Kunyit	Turmeric	<i>Curcuma domestica</i> Valetton	Spice, medicine
83	Lankuas	Laos, Lenngkuas	Galangal	<i>Languas galanga</i> L.	Condiment, medicine
84	Ai lia	Jahe, Halia	Ginger	<i>Zingiber officinale</i> Rosc.	Condiment, medicine
85	-	Kepulaga, Kardamunggu	Cardamon	<i>Elettaria cardamomum</i>	Spice, medicine
86	-	Chengkeh	Clove	<i>Syzygium aromaticum</i>	Spice, medicine
87	Baunilla	Panili	Vanilla	<i>Vanilla fragrans</i>	Flavoring, cosmetics

Attachment 3.1: Agriculture Resources (Vegetables, Grains, Beans and Sea Weeds in Timor-Leste)

	Tetun	Indonesian	English	Scientific name	Use
<b>Grains</b>					
88	Hare(plant) , Foos(grain)	Padi(plant) , Beras(grain)	Rice	<i>Oryza sativa</i> L.	Flour, alcohol
89	Foos-belit	Ketan	Sweet rice	<i>Oryza sativa</i> L.	Flour, alcohol
90	Terig		Wheat	<i>Triticum aestivum</i>	Flour
91	Batar	Jagung	Corn, Maize	<i>Zea mays</i> L.	Flour, canned, paste, popcorn
92	Batar ainaruk		Sorghum	<i>Sorghum bicolor</i> Moench	
93	Lena	Wijen, Bijan	Sesame	<i>Sesamum indicum</i> L.	Paste
<b>Beans</b>					
94	Fore-rai	Kacang tanah	Peanut	<i>Arachis hypogaea</i> L.	Paste, fried, roasted
95	Ervilla	Kacang kapri	Snow pea	<i>Pisum sativum</i>	Paste, fried
96	Fore-keli	Kacang kedelai	Soy bean	<i>Glycine max</i>	Powder, tofu, tempe, roasted
97	Tunis	Kacang turis	pigeon pea	<i>Cajanus cajans</i>	
98	Fore-mungu	Kacang hijau	Mung bean	<i>Phaseolus radiatus</i>	Sprout, paste, powder, noodle
99	Fore-metan	Kacang tunggak	Cow pea	<i>Vigna sinensis</i> Savi et Hassk.	Paste
100	Koto-nurak, Tunis, Turis	Kacang buncis	Kidney bean, common bean	<i>Phaseolus vulgaris</i> L.	Paste, syrugged, canned
101	Koto moruk	Kacang besar	Scarlet runner bean	<i>Phaseolus coccineus</i> L.	Syrugged
102	Koto moruk	Kacang besar	Scarlet runner bean	<i>Phaseolus coccineus</i> L.	Canned
103	Favas	Kacang babi	Broad bean	<i>Vicia fava</i>	Roasted
<b>Others</b>					
104	Audubun nurak	Rebung	Bamboo shoot	<i>Bambusa spp., Phyllostachys spp.</i>	Salted, pickles
105	Kabura	Paku, Pakis	Edible fern	<i>Pteridium aquilinum</i>	Salted, dried
106	Kulat	Jamur	Mushroom		Salted, dried
107	Akar	Sagu	Sago palm	<i>Metroxylon spp.</i>	Flour, starch, sago pearl
<b>Sea weeds</b>					
108	Budu tasi	Anggur Laut	Sea weed	<i>Caulerpa racemosa</i>	Salted
109	Budu tasi	Agar-agar	Red algae, Graceful Red Weed	<i>Gracilaria</i>	Dried
110	Budu tasi	Agar-agar	Cottoni	<i>Kappaphucus alvarezii</i> Doty	Dried

## Attachment 3.2: Agriculture Resources (Fruits and Other Commercial Products in Timor Leste)

	Tetun	Indnesian	English	Scientific name	Use
Fruits					
111	Sabraka, Saburaka	Jeruk	Tangerine orange	<i>Citrus sinensis</i>	Juice, marmalade, peel
112	Sabraka-midar	Jeruk manis, Lemau manis	Mandarin orange	<i>Citrus aurantiaca</i> , <i>Citrus reticulata</i> var.	Juice, canned
113	Derok-lotuk, Sabraka-lotuk	Jeruk nipis	Lime	<i>Citrus aurantifolia</i> Christm. et Panz.	Juice, paste, peel
114	Sabraka-masiin	Jeruk limun	Lemon	<i>Citrus limon</i> L.	Juice, paste, peel
115	Sabraka-kiik	Jeruk limau	Calamondin	<i>Citrofortunella mitis</i>	Juice
116	Derok-fahi-inur	Jeruk purut	Kaffir lime	<i>Citrus hystrix</i> A.DC	Juice, paste
117	Jambua	Jeruk bali	Pomelo	<i>Citrus grandis</i> Osbeck	Juice, syrugged peel
118	N/A	N/A	Kumquat	<i>Fortunella japonica</i>	Syrugged
119	Hass/Haas	Manga	Mango	<i>Mangifera indica</i>	Dried, puree, pickles
120	Hudi	Pisang	Banana	<i>Musa sapientum</i>	Fried chips, dried
121	Ananás, Ai-nanás	Nanas	Pineapple	<i>Ananas Comosum</i> Merr.	Juice, jam, dried
122	Goiabas	Jambu biji	Guava	<i>Psidium guajava</i> L.	Juice, puree
123	Abokat, Abokati	Advokat, Apokat	Avocado	<i>Persea americana</i> Mill.	
124	Durian	Durian	Durian	<i>Durio zibethinus</i>	Pickles
125	Mangis	Manggis, Manggistan	Mangostine	<i>Garcinia mangostana</i> Linn.	Syrugged, canned
126	Rambutan	Rambutan	Rambutan	<i>Nephelium lappaceum</i>	Syrugged, canned
127	Jambu-laun	Jamubu air	Java apple	<i>Syzygium samarangense</i> MARRY	
128	Uhak	Jambu merah	Rose apple	<i>Syzygium jambos</i>	
129	-	Mengkudu, Bengkudu	Indian mulberry	<i>Morinda citrifolia</i>	Juice, medicine
130	Ai-ata nona, Ai-nona, Nona	Buah nona, Srikaya, Serikaya	Sugar apple	<i>Annona squamosa</i>	
131	Ai-ata	Sirsak	Sour sop	<i>Annona muricata</i> L.	
132	Markisa, Markujas	Markisa, Markisah	Passion fruit	<i>Passiflora foetida</i> L.	Juice
133	Sawo	Sawo, Sauh Manila	Sapodilla Plum	<i>Manikara achras zapota</i>	Medicine
134	-	Ara	Fig	<i>Ficus carica</i> L.	Dried, syrugged
135	Abruinhos	Prem	Plum	<i>Prunus salicina</i> L.	Jam, dried
136	Pesikus	Persik	Peach	<i>Amygdalus persica</i>	Jam, juice
137	Nespra	N/A	Japanese loquat	<i>Eriobotrya japonica</i> ,	Syrugged
138	Masán	Apel	Apple	<i>Malus pumila</i> var. <i>domestica</i>	Juice, syrugged, dried

## Attachment 3.2: Agriculture Resources (Fruits and Other Commercial Products in Timor Leste)

	Tetun	Indnesian	English	Scientific name	Use
139	-	Anggur	Grape	<i>Vitis spp</i>	Juice
140	-	Kurma	Jujube, Chinese date	<i>Ziziphus jujuba</i>	Dried, medicine
141	Salak	Salak	Snake fruit	<i>Salacca edulis</i>	
142	Kulu, Kulu-tunu, Kulu-uhi	Sukun	Bread tree	<i>Artocarpus altilis</i>	Fried chips
143	Kulu-jaka, Kulu-naka	Nangka	Jackfruit	<i>Artocarpus heterophilla</i>	
144	Ai dila	Papaya, Pepaya	Papaya	<i>Carica papaya L.</i>	Pickles
145	Karanbola	Belimbing	Star fruit	<i>Averrhoa carambola</i>	Pickles, medicine
146	-	Belimbing asam	Cucumber tree	<i>Averrhoa bilimbi</i>	Pickles, medicine
147	Morangu fuik	Miik	Raspberry	<i>Rubus idaeus</i>	Jam
148	Morangu	Arbei	Strawberry	<i>Fragaria x ananassa Duch.</i>	Jam
149	-	Asem jawa	tamarind	<i>Tamarindus indica L.</i>	Paste, dried
<b>Other Commercial Products</b>					
150	Kafé	Kopi	Coffee	<i>Coffea canephora</i>	Drink
151	Kafé	Kopi	Coffee	<i>Coffea arabica L.</i>	Drink
152	Kamii, Ai-kamii	Keminting, Kemiri	Candlenut tree	<i>Aleurites moluccana WILLd</i>	Cosmetics, condiment
153	-	Jarak pagar	Jatropha,	<i>Jatropha Curcas</i>	Fuel
154	-	Jarak ulung	Bellyache Bush	<i>Jatropha gossypifolia Linn.</i>	Medicine, fuel
155	-	Buah zaitun	Olive	<i>Olea europaea</i>	oil
156	Kajú, Ai-Kajú	Jambu mede, Jambu mente	Cashew nuts	<i>Anacardium occidentale L.</i>	Dried nut
157	-	Ketapang	Tropical almond, Indian almond	<i>Terminalia catappa</i>	Dried nut
158	Nuu	Kelapa	Coconuts	<i>Cocos nucifera</i>	Dried, oil
159	Tohu	Tebu	Sugar cane	<i>Saccharum officinarum L.</i>	Sugar, juice
160	-	Aren	Sugar palm	<i>Borassus flabellifer</i>	Palm sugar
161	Kakau	Cokelat, Coklat	Cocoa	<i>Theobroma cacao</i>	Drink
162	Tabaku	Tembakau, Tembako	Tobacco	<i>Nicotiana tabacum L.</i>	Smoke
163	Bua	Pinang	Betel nut palm	<i>Areca catechu L.</i>	Chewing
164	Malus	Sirih	Betel leaf	<i>Piper betel L.</i>	Chewing, medicine
165	Amora	Besaran, Bebesaran	Mulberry	<i>Morus indica L.</i>	Herbal tea, juice
166	Rota, Rotan	Rotan	Rattan	<i>Calamus spp.</i>	Handcraft
167	Kabas	Kapas, Katun	Cotton	<i>Gossypium herbaceum Linn.</i>	Handcraft
168	-	Sisal	Sisal	<i>Agave sisalana</i>	Handcraft
169	-	Kapok	Cotton tree	<i>Ceiba pentandra Gaertn.</i>	Handcraft

Attachment 4: Natural Resources (Medicinal Plants in Timor-Leste)

No.	Family	Botanical Name	English name	Tetun	Specific Uses	Reference
1	Acanthaceae	<i>Justica gendarussa</i> Burm f.	Willow-leaved justica		Anti-arthritic, anti-inflammatory activity	3,4
2	Agavaceae	<i>Agave sisalana</i>	Sisal hemp		Cytotoxic steroidal saponins	2,3,4,5
3	Agavaceae	<i>Cordyline indivisa</i> Hook.F.	Spikes, Dracena spikes		Food rich in linoleic acid, injury, acupuncture	2,3,4
4	Amaranthaceae	<i>Alternanthera sessilis</i> (L.) R.Br.	sessil joyweed		Hematitic activity	2,3,4
5	Anacardiaceae	<i>Mangifera indica</i> L.	Mango	Haas	Wounds	1,2,3,4,5
6	Anacardiaceae	<i>Mangifera timorensis</i> Blume	N.A.		Antioxidant, antiviral, antiparasitic, antiseptic, antitussive	2
7	Anacardiaceae	<i>Pleiogynium timoriense</i> (DC.) Leenh.	Scented maple		The decoction of bark: thrush and gastritis	2
8	Anacardiaceae	<i>Rhus taitensis</i> Guill.	smac		Antimycobacterial activity against Tuberculosis	3,4
9	Annonaceae	<i>Annona glabra</i> L.	Pond apple		Anticancer effect	2,3,4
10	Annonaceae	<i>Uvaria rufo</i> Blume	Calabao		Antitubercular activity	2
11	Apiaceae	<i>Centella asiatica</i> (L.)	Gotukola	Dareta		2,3,4
12	Apocynaceae	<i>Asclepias curassavica</i> L.	Tropical milkweed		Anticancer , cytotoxic activity to cancer cells	2
13	Apocynaceae	<i>Alstonia scholaris</i> R. Br.	Devil's bit, white cheesewood		Ayurvedic medicine called Dita. Antidiabetic, antihyperlipidic, antibacterial, antioxidant, anticancer, antiinflammatory, analgesic activities and immunostimulating effect. Antitussive, anti asthmatic and expectorant activities. Hepatoprotective activity, anti anxiety and anti depressant effect. Anti diarrhoeal and spasmolytic activity	2,3,4
14	Apocynaceae	<i>Plumeria rubra</i> L.	Plumeria		Antibacterial activity	3,4
15	Apocynaceae	<i>Tabernaemontana pandacaqui</i> Lam.	Banana bush		Anti-inflammatory, antipyretic and antinociceptive activities	2,4,5
16	Apocynaceae	<i>Thespesia peruviana</i> K. Schum.	Yellow oleander		Poisonous plant. antimicrobial activity	3,4
17	Apocynaceae	<i>Cerbera manghas</i> L.	Beach milkwood, dog bone		Lactation stimulant, poison	1,2
18	Apocynaceae	<i>Wrightia javanica</i> A.DC	N.A.		Antibacterial, antiviral, antifungal, antitumor, analgesic, hypotensive, antiinflammatory, and immune enhancing effects	2,4,5
19	Apocynaceae	<i>Dischidia major</i> (Vahl) Merr.	Raffles' Dischida		Antioxidative and tyrosinase inhibition activities, cosmetic use	2,4,5
20	Araceae	<i>Acorus calamus</i> Linn.				3,4
21	Araceae	<i>Amorphophallus paeoniifolius</i> (Dennst.) Nicolson	Elephant foot yam		Ayurvedic medicine, piles, abdominal pains, tumors, spleen enlargement, asthma and rheumatism	2,3,4
22	Araceae	<i>Colocasia gigantea</i> (Blume) Hook.f.	Elephant ear		Ayurvedic medicine, heal, revive and restore balance	2,3,4,5
23	Araliaceae	<i>Schefflera elliptica</i> (Bl.) Harms.	Climbing umbrella-plant		Barks: bronchodilator activity, Leaves: relief of asthmatic attacks, inotropic action, bronchodilator action	2
24	Arecaceae	<i>Cocos nucifera</i> L.	Coconut palm	Nuu	Fractures	1,2,3,4,5
25	Arecaceae	<i>Caryota rumphiana</i> Mart.	Fishtail palm		Jaggery (unrefined sugar), starch	2,3,4,5
26	Arecaceae	<i>Metroxylon sagu</i> Rottb.	Sago palm	Akar	Antioxidant, food for allergy patient	2,3,4,5
27	Arecaceae	<i>Borassus flabellifer</i>	Lontar palm (Palmyra palm)	Akadiru	Food, fruits,	2,3,4,5
28	Arecaceae	<i>Arenga pinnata</i> Merr.	Sugar palm		Roots provide medicinal products, such as a tea decoction used to cure bladder trouble. The roots of <i>A. pinnata</i> are a useful insect repellent.	2,3,4,5
29	Asclepiadaceae	<i>Calotropis gigantea</i> (Willd) Dryand ex W.T.Ait	Akra		Latex used for Inflammation	2,3,4
30	Aspleniaceae	<i>Asplenium nidus</i> L.	Bird's nest fern		Antibacterial, antioxidative, Tyrosinase inhibiting activity, asthma, sores and weakness	2,3,4,5

Attachment 4: Natural Resources (Medicinal Plants in Timor-Leste)

No.	Family	Botanical Name	English name	Tetun	Specific Uses	Reference
31	Asteraceae	<i>Chromolaena odorata</i> (L.) R.M.King & H.Rob.	Siam weed		Hemostatic and Wound Healing Properties	2,3,4,5
32	Asteraceae	<i>Melanthera biflora</i> (L.) Willd.	Sea daisy, beach daisy		Cold	2,3,4,5
33	Asteraceae	<i>Tridax procumbens</i> L.	Coat buttons		Anticoagulant, hair tonic, antifungal and insect repellent	2
34	Bombacaceae	<i>Bombax ceiba</i> L.	Silk cotton tree, red cotton tree		Hypotensive, Antioxidant, Analgesic, Antiangiogenic, Hypotensive and hypoglycaemic, Antimicrobial and antibacterial, Cytotoxicity, Hepatoprotective, Inhibitory effects on fatty acid syntheses, Antipyretic, Aphrodisiac activities	2,3,4
35	Bombacaceae	<i>Ceiba pentandra</i> (L.) Gaertn.	Kapok		Anti-fungal, Anti-diarrhoeal, Anti-ulcer, Hepatoprotective, Anthelmintic, Angiogenesis, Anti-inflammatory, Hypoglycaemic, Hypolipidaemic activities	2,3,4
36	Boraginaceae	<i>Cordia dichotoma</i> G.Forst.	Indian cherry		Normoglycemic and diabetes, Wound healing activity, Antimicrobial and antifungal Analgesic, antibacterial and cytotoxic, Degenerative disorder, Antidiabetic, Anthelmintic, Ulcerative colitis, Gastroprotective and antiulcer effect, Anti-inflammatory activity, Behavioral changes and hypoperfusion effect, Antimplantation activity. Ayurvedic medicine	2,3,4
37	Boraginaceae	<i>Cordia monoica</i> Roxb. subsp. <i>subpubescens</i> (Decne.) Reidl	Sandpaper saucer-berry		Significant activity against E.coli , Diarrhoea	2
38	Boraginaceae	<i>Tournefortia argentea</i>	Tree heliotrope, octopus bush		Antiviral, antibacterial, antioxidant and anti-inflammatory properties	2,3,4,5
39	Burseraceae	<i>Garuga floribunda</i> Decne.	Garuga		Leaves for antimalarial	3,4
40	Burseraceae	<i>Haplolobus floribundus</i> (K.Schum.) H.J.Lam.	N.A.		Veterinary medicine, plant decoction for cough of cattle	2
41	Fabaceae	<i>Senna sophora</i> (L.) Roxb., <i>Cassia sophora</i>	Kasunda, Baner		Leaves and seeds: Skin diseases, especially paste is applied to ringworm. Seeds: patches for psoriasis and psoriasis	3,4,5
42	Caesalpiniaceae	<i>Caesalpinia bonduc</i> (L.) Roxb.	Nicker nut		Seed coat extract for anti-inflammatory and analgesic activity	2
43	Caesalpiniaceae	<i>Caesalpinia furfuracea</i> (Prain) Hattink	Sun letthe		Antibacterial activity against some of coli and methicillin-resistant bacteria	2,4
44	Caesalpiniaceae	<i>Cassia fistula</i> L.	Golden shower		Antioxidant activity, Central Nervous System activities, Wound healing activity, Antifungal and Antibacterial activity, Antitumor activity, Antifertility activity, Anti-leishmaniac activity, Ayurvedic medicine.	2,3,4
45	Caesalpiniaceae	<i>Intsia bijuga</i> (Colebr.) Kuntze	Borneo teak		Gastrointestinal diseases, antiulcer activity	2
46	Caesalpiniaceae	<i>Senna surattensis</i> (Burm.f.) H.S.Irwin & Barneby	Golden senna, scruambled egg plant		Hypoglycemic plant. Antidiabetic	2,3,4
47	Caesalpiniaceae	<i>Senna timorensis</i> (DC.) H.S.Irwin & Barneby			Food and drink, medicine (antianemia), antiruritic	2
48	Caesalpiniaceae	<i>Senna tora</i> (L.) Roxb.	Shickle senna, Wild senna, Sensitive-plant		Skin and gastrointestinal disorders	2,3,4,5
49	Cannabaceae	<i>Trema tomentosa</i> (Roxb.) H.Hara	Poison peach		Poison to cattles and horses	2
50	Cannaceae	<i>Canna edulis</i> Ker.Gawl.	Edible canna	Kontas	Starch. Antioxidant,	3,4,5
51	Capparaceae	<i>Capparis sepiaria</i> L.	Indian caper		Leaves for diabetes	2
52	Capparaceae	<i>Cleome hassleriana</i> Chodat	Cat's whiskers cleome		Antimicrobial activity	2,3,4,5
53	Capparaceae	<i>Cleome viscosa</i> L.	sticky spider-flower		Ayurvedic medicine. rheumatic arthritis, hypertension, malaria, neurasthenia, and wound	2,3,4
54	Caricaceae	<i>Carica papaya</i> L.	Papaya	Ai-dila	Cancer, gastro treatments, leave extra used for dengue fever and malaria	1,2,3,4,5
55	Casuarinaceae	<i>Casuarina equisetifolia</i> J.R.Forst. & G.Forst.	Austrarial beefwood		Root extract used for dysentery, diarrhoea and stomach-ache, powdered bark is used for treating pimples	2,3,4,5
56	Ceratophyllaceae	<i>Ceratophyllum demersum</i> L.	Coontail, hornwort		Antiulcer	2
57	Clusiaceae	<i>Calophyllum soulattri</i> Burm.f.	Bitangor Bunut		Antiproliferative xanthone derivatives	2
58	Clusiaceae	<i>Mammea</i> sp.	Mamey		Antifungal property	2
59	Combretaceae	<i>Terminalia catappa</i> L.	Bengal almond		Antioxidant /hepatoprotective properties	2,3,4,5
60	Commelinaceae	<i>Commelina diffusa</i>	Climbing day flower		Antioxidant and antifungal, treat wounds	3,4

Attachment 4: Natural Resources (Medicinal Plants in Timor-Leste)

No.	Family	Botanical Name	English name	Tetun	Specific Uses	Reference
61	Compositae	<i>Artemisia indica</i> var. <i>maximowiczii</i>	Mugwort		The leaves and flowering stems are anthelmintic, antiseptic, antispasmodic, emmenagogue, expectorant and stomachic.	4
62	Convolvulaceae	<i>Hewittia sublobata</i> (L.f.) Kuntze	Wild morning-glory		Leaf: antioxidant, antibacterial, anti-inflammatory, antiviral, immune system stimulant and detoxification activities.	2
63	Convolvulaceae	<i>Ipomoea pes-caprae</i> (L.) R.Br. <i>subsp. brasiliensis</i> (L.) Ooststr.	Beacn morning-glory		Antifungal, antibacterial, anti-inflammatory and Analgesic activity	2,3,4,5
64	Crassulaceae	<i>Bryophyllum pinnatum</i> (Lam.) Kurz	Air plant, maternity plant		Gastroprotective effect	2,3,4,5
65	Cucurbitaceae	<i>Momordica charntia</i> L.	Bitter gourd	Baria	Malaria	1,2,3,4,5
66	Cucurbitaceae	<i>Diplocyclos palmatus</i> (L.) C.Jeffrey	Lollipop climber		Seed is poisonous. Indian medicine. rheumatic pain, cough, flatulence and various skin	2,3,4
67	Cyperaceae	<i>Eleocharis dulcis</i> (Burm.f.) Trin. ex Hensch.	Chinese water chestnut		Chinese medicine, wounds	2,3,4
68	Cyperaceae	<i>Scleria lithosperma</i> (L.) Sw. var. <i>lithosperma</i>	Florida Keys nutrush		Veterinary medicine, plant decoction for foot-and-mouth disease of cattle	2
69	Cyperaceae	<i>Scleria polycarpa</i> Boeck.	Nutrush		Antiplasmodial activity, antimalaria	2
70	Dioscoreaceae	<i>Dioscorea bulbifera</i> L.			Wild game poison	1,2,3,4
71	Dioscoreaceae	<i>Dioscorea affinis transversa</i> R.Br.	Long yam		Extra give skin soothing and anti-inflammatory activity	2,3,4
72	Dioscoreaceae	<i>Dioscorea bulbifera</i> f. <i>domestica</i> L.	Air potato		Anticancer, Antioxidant, Antitumor Promoting / Constituents, Hepatotoxicity, Wound Healing, Antihyperglycemic / Antidyslipidemic, Myocardial Protective Effect, Anthelmintic, Analgesic / Anti-inflammatory, Hepatotoxicity, Antidiabetic Activity, Nanoparticles using D. bulbifera / Synergism with Antimicrobial Agents.	2,3,4
73	Ebenaceae	<i>Diospyros maritima</i> Blume	Malaysian persimmon		Bark: Cytotoxic and antimicrobial constituents	2
74	Euphorbiaceae	<i>Suregada glomerulata</i> (Blume) Baill.	N.A.		Chinese medicine, $\alpha$ -Glucosidase inhibitory activity for diabetes	3,4
75	Euphorbiaceae	<i>Aleurites moluccana</i> (L.) Willd.	Kukui nut	Kumii	Post partum bleeding, internal bleeding	1,2,3,4,5
76	Euphorbiaceae	<i>Euphorbia atoto</i> G.Forst.	Spurge		Low quality breast milk	1,2,3,4
77	Euphorbiaceae	<i>Euphorbia heterophylla</i> L., <i>Euphorbia geniculata</i> Ortega	Mexican fireplant		Purgative and laxative	2,3,4
78	Euphorbiaceae	<i>Jatropha curcas</i> L.	Physic nut		Urinary tract infection	1,3,4
79	Euphorbiaceae	<i>Jatropha gossypifolia</i> L.	Bellyache bush, pignut		Toxic plant. Extra from seed: Analgesic activity, Neuropharmacological activities, Anti-diarrheal activity,	1,3,4
80	Euphorbiaceae	<i>Euphorbia antiquorum</i> L.	Antique Spurge Malayalam		Ayurvedic medicine. Antibacterial activity	2,3,4,5
81	Euphorbiaceae	<i>Macaranga tanarius</i> (L.) Mull.Arg.	Blush Macaranga, heart leaf		Anticancer activity, Antioxidant activity, Antimicrobial activity, Anti-inflammatory activity, acetylcholinesterase inhibitory activities (treatment of neurological disorders), antiplasmodial activities	2,3,4
82	Euphorbiaceae	<i>Mallotus mollissimus</i> (Geisler) Airy Shaw	Green kamala		Decoction of bark: Cold, skin disorders, ringworm, scabies, herpes, tumors. Milk sap: dysentery cure	2,3,4
83	Euphorbiaceae	<i>Mallotus philippensis</i> (Lam) Mull.	Kamala, spoonwood		Ayurvedic medicine, high blood pressure, purgative in cold water, extract from bark used for cosmetic because of promoting collagen production	2
84	Euphorbiaceae	<i>Melanolepis multiglandulosa</i> (Reinw. ex Blume) Reichb.f. & Zoll.	N.A.		Baby's gum aches, arthritis, snake bites as a local medicine	2,3,4
85	Euphorbiaceae	<i>Phyllanthus reticulatus</i> Poir.	Potato plant		Antibacterial activity	2,3,4
86	Euphorbiaceae	<i>Ricinus communis</i> Linn	Castor bean		Poisonous plant. Traditionally used as a laxative and a muscle pain. Antioxidant activity, Antinociceptive activity, Anti-fertility activity, Antihistaminic Activity, Hepatoprotective activity, Anti-inflammatory activity, Antimicrobial activity, Antidiabetic activity, Wound healing activity, Lipolytic activity, Molluscicidal, Insecticidal and Larvicidal activity, Antiulcer activity	3,4,5
87	Euphorbiaceae	<i>Codiaeum variegatum</i> (L.) A.Juss. var. <i>moluccanum</i> (Decne.) Mull.Arg.	Croton		Gastric ulcers	2,3,4,5
88	Fabaceae	<i>Albizia lebbbeck</i> (L.) Benth.	Albizia		Pink eye	1,3,4
89	Fabaceae	<i>Pterocarpus indicus</i> Willd.	rosewood		Mouth sores, latex used for tumor and cancer	1,2,3,4
90	Fabaceae	<i>Tamarindus indica</i> L.	Tamarind		Sore joints, gastric and/or digestion	1,2,3,4,5

Attachment 4: Natural Resources (Medicinal Plants in Timor-Leste)

No.	Family	Botanical Name	English name	Tetun	Specific Uses	Reference
91	Fabaceae	<i>Canavalia rosea</i> (Sw.) DC.	Bay bean		Plant shoot decoction has been used to treat tuberculosis, while the roots have been used for the treatment of ciguatera fish poisoning, aches, pains, rheumatism, and leprosy Leaf extracts relieve pain, promote healing of burns, stop bleeding, and counter some enteric infections caused by certain gram-positive bacteria.	2,3,4
92	Fabaceae	<i>Derris scandens</i> (Roxb.) Benth.	Malay jwellvine		Osteoarthritis.	2
93	Fabaceae	<i>Desmodium triflorum</i> (L.) DC.	Creepind tick trefoil		Diarrhoea, dysentery, and also as a mouthwash and antipyretic (Setyowati-Indarto & Brink, 1999). Laboratory studies also showed analgesic, anti-inflammatory, and antioxidant effects of <i>Desmodium triflorum</i> (Lai et al., 2009; Lai et al., 2010).	2,3,4
94	Fabaceae	<i>Leucaena leucocephala</i> (Lam) de Wit.	Miracle tree, white leadtree		Anti-microbial activity	3,4
95	Fabaceae	<i>Mucuna pruriens</i> (L.) DC. var. utilis (Wight) Burck	Velvet beans	Lehe	Anti-diabetic, aphrodisiac, anti-neoplastic, anti-epileptic, and anti-microbial activities, anti-venom activities, anti-helminthic activity, neuroprotective, analgesic and anti-inflammatory activity	3,4
96	Fabaceae	<i>Peltophorum pterocarpum</i> (DC.) Backer ex K.Heyne	Yellow poinciana		Bark for dysentery, tooth powder, eye lotion, embrocation for pains and sores	3,4
97	Fabaceae	<i>Uraria lagopodioides</i> (L.) Desv. ex DC.	Prickitch		Ayurvedic medicine, Analgesic, anti-inflammatory,	2,3,4
98	Fabaceae	<i>Erythrina variegata</i> L. var. <i>orientalis</i> (L.)	Coral tree		Indian medicine, antiobesity, menstrual disorder	2,3,4
99	Fabaceae	<i>Pueraria lobata</i> (Willd.) Ohwi	Kudzu		Chinese medicine: Cold. Starch. Source of Puerarin; Daidzein; Rutin; Isoflavones; Aglycones. Antioxidant activity. Antipyretic activity. Antispasmodic activity.	3,4
100	Fabaceae	<i>Entada phaseoloides</i> (L.) Merr.	Matchbox bean, Gogo		Seeds: anti-inflammatory effect	2,3
101	Flacourtiaceae	<i>Flacourtia</i> sp. <i>large leaves</i> (F. rukam)	Cape plum		Phytochemical, Anti-oxidant and Anthelmintic activities	2
102	Flacourtiaceae	<i>Flacourtia indica</i> (Burm.f.) Merrill	Governor's plum		Antioxidant, Hepatoprotective, Antimalarial, Antibacterial, Anti-Diabetic, Anti-Inflammatory and Antimicrobial, Hepato Protective, Hepatoprotective activities and Anti-Asthmatic Potential.	2
103	Gnetaceae	<i>Gnetum gnemon</i> L.	Spanish koint fir		Seed extract: Reduction of serum uric acid. Increase of HDL cholesterol level. It means benefit in the prevention of atherosclerosis	2
104	Goodeniaceae	<i>Scaevola taccada</i> (Gaertn.) Roxb.	Beach Naupaka		Antibacterial, Antifungal activity	2,3,4,5
105	Gossypieae	<i>Gossypium speciosum</i> L.	Mexican cotton		Ayurvedic medicine. arthritis, anorexia, cardiac debility	2
106	Hydrocharitaceae	<i>Ottelia alismoides</i> (Linn.) Pers.	Duck lettuce		Anticancer	2,3,4,5
107	Lamiaceae	<i>Ocimum basilicum</i> L.	Thai basil		Antidepressant and an antiseptic	3,4,5
108	Lamiaceae	<i>Ocimum basilicum</i> (L.) Back	Sweet basil		Memory retention	3,4
109	Lamiaceae	<i>Ocimum sanctum</i> Linn, <i>Ocimum tenuiflorum</i> L. var. <i>anisodorum</i> (F.Muell.) Domin	Holy basil		Bronchitis, bronchial asthma, dysentery, skin diseases, arthritis, painful eye diseases, chronic fever. Improvement of immune system	2,4,5
110	Lamiaceae	<i>Orthosiphon grandiflorus</i> Bold	Cat whiskers		Urinary stones	3,4,5
111	Lamiaceae	<i>Hyptis suaveolens</i> (L.) Poit.	Chinese mint		Antifungal activity, especially against <i>Aspergillus</i> species	2,3,4,5
112	Lamiaceae	<i>Tectona grandis</i>	Teak	Ai-teka	Antibacterial, Antioxidant, Antifungal, Anti-inflammatory, Antiasthmatic, Analgesic Activity, Diuretic Activity, Hypoglycaemic, Antidiabetic, Antipyretic, Wound Healing, Anti-ulcer, Antinociceptive, Antitumor, Anti-metastatic, Hair growth activities	3,4,5
113	Lamiaceae	<i>Gmelina philippensis</i> Lam.	Parrot's beak		Hepatitis	1
114	Lamiaceae	<i>Callicarpa candicans</i> (Burm.f.) Hocker.	Great wooly Malayan lilac		Chinese medicine, antitumor, skin cancer, fish poison	2
115	Lamiaceae	<i>Clerodendrum floribundum</i> R.Br.	Wild jasmin		Ayurvedic medicine. Antimalarial and Antioxidant activity. Antihepatoprotective Effects. Anti-Inflammatory, Antimicrobial, Antiviral, Antihemolytic, Antihypotensive, Antifungal activity	2
116	Lauraceae	<i>Persea americana</i> Mill	Avocado, alligator pear		Blood pressure reducing effect	3,4,5
117	Lauraceae	<i>Cassytha filiformis</i> L.	Love-vine		Anti-platelet and vasorelaxant activity, Cytotoxicity activity, Antioxidant activity, Anti-trypanosomal activity, Diuretic activity,	2
118	Lauraceae	<i>Litsea glutinosa</i> (Lour.) C.B.Rob.	Indian laurel, Bollywood,		Bark: Diarrhea, dysentery, rheumatic gouty joints, sprains, bruises. Leaves: Bruises and wounds, Roots: Rheumatism	2,3,4
119	Lecythidaceae	<i>Barringtonia asiatica</i> (L.) Kurz	Fish poison tree		inflammation	1,3,4



Attachment 4: Natural Resources (Medicinal Plants in Timor-Leste)

No.	Family	Botanical Name	English name	Tetun	Specific Uses	Reference
120	Lecythidaceae	<i>Barringtonia racemosa</i> (L.) Spreng.	Powderpuff tree		Antioxidant and inflammatory activities	2
121	Leeaceae	<i>Leea indica</i> Merr.	Bandicoot berry		Diarrhea	1
122	Leguminosae	<i>Adenanthera pavonina</i> L.	Red sandal wood		Wounds, boils, rheumatism, and arthritis	2,3,4
123	Leguminosae	<i>Sesbania grandiflora</i> (L) Pers.	Agati, Corkwood tree		CNS depressant, hypotensive, cardiac depressant, diuretic, anti-inflammatory, antibacterial, antipyretic, analgesic, hypoglycaemic and cytotoxic activity.	3,4,5
124	Leguminosae	<i>Sesbania grandiflora</i> (L) Pers.	Agati, Corkwood tree		CNS depressant, hypotensive, cardiac depressant, diuretic, anti-inflammatory, antibacterial, antipyretic, analgesic, hypoglycaemic and cytotoxic activity.	3,4,5
125	Liliaceae	<i>Gloriosa superba</i> L.	Flame lily		Poison, antiperiodic, antihelminthic	2,3,4
126	Loganiaceae	<i>Strychnos lucida</i> R. Br.	Strychnine Bush		Growth inhibition on <i>P. falciparum</i> , anti-malarial activity	3
127	Lythraceae	<i>Pemphis acidula</i> J.R.Forst. & G.Forst.	Pemphis		Antibacterial activity	2,3,4,5
128	Malpigiaceae	<i>Hiptage benghalensis</i> (L.) Kurz	Helicopter flower		Indian medicine. Leaves and bark: cough, burning sensation, and inflammation, skin diseases, particularly useful for dermatitis, scabies, rheumatism and asthma	2,3,4,5
129	Malvaceae	<i>Sida acuta</i> Burm.f.	Wireweed		Antimicrobial activity, treatment of opportunistic infections	4,5
130	Malvaceae	<i>Sida retusa</i> Linn	Paddy's lucern		Roots: lumbago and rheumatism	4,5
131	Malvaceae	<i>Sida rhombifolia</i> L.	Bloom weed		Anti-inflammatory and anti-oxidant properties	4,5
132	Malvaceae	<i>Sida spinosa</i> L.	Prickly fanpetals		Antimicrobial activity. Leaves and flowers: bronchitis and coryza	4,5
133	Malvaceae	<i>Sterculia foetida</i> L.	Java-olive skunk tree		Chinese medicine, aperient, diuretic	2,3,4
134	Malvaceae	<i>Thespesia populnea</i> Sol. ex Corréa	Indian tulip tree		Antidiabetic and antihyperlipidemic effects	2,3,4
135	Malvaceae	<i>Urena lobata</i> L.	Caesar weed		Antifertility, antidiarrheal	2,3,4
136	Malvaceae	<i>Hibiscus tiliaceus</i> L.	Sea hibiscus, beach hibiscus		Antidepressant-like effects	2,3,4
137	Melastomataceae	<i>Memecylon</i> sp.	jaywree		Antipsoriatic activity	2
138	Meliaceae	<i>Azadirachta indica</i> A. Juss.	Neem		Sore joints	1,2,3,4
139	Meliaceae	<i>Aglaiia argentea</i> Blume	N.A.		Bioantifungal Activity, Effective to root rot	2
140	Meliaceae	<i>Aphanamixis polystachya</i> (Wall.) R.N.Parker	Rohituka tree		Cell growth inhibition, Analgesic activity, CNS depressant activity, Antimicrobial, Cytotoxic activities, antioxidant activity, reduces radiation-induced chromosome damage, Membrane Stabilizing Activity, Anthelmintic activities ,	2
141	Meliaceae	<i>Dysoxylum parasiticum</i> (Osb.) Kosterm.	Yellow mahogany		Ayurvedic medicine, used for dysentery	2,3,4
142	Meliaceae	<i>Dysoxylum acutangulum</i> Miq. subsp. <i>foveolatum</i> (Radlk.) Mabb. (opp lvs)	Persian lilic		Arthritis, anorexia, cardiac debility	2
143	Meliaceae	<i>Dysoxylum gaudichaudianum</i> (A.Juss.) Miq.	Vella akil		Antiviral activity against respiratory syncytial virus (RSV), spasmolytic activity, Cytotoxicity	2
144	Meliaceae	<i>Dysoxylum setosum</i> (Span.) Miq.	Miva mahogany		Decoction of bark: arthritis, anorexia, cardiac debility, to remove intestinal worms, inflammation	2
145	Meliaceae	<i>Swietenia mahogani</i> Jacq.	Mahogani		Ayurvedic medicine. Antibacterial activity, Antimicrobial Activity, Antioxidant activity, Anti ulcer activity, Antifungal activity, Anti – HIV activity, Anti-inflammatory, Analgesic and Antipyretic activity, Hypoglycemic activity, Platelet Aggregation Inhibitors activity	3,4
146	Meliaceae	<i>Swietenia macrophylla</i> King	Broad-leaved mahogani		Anti-hyperglycaemic activity	3,4
147	Melastomataceae	<i>Melastoma malabathricum</i> L.	Indian-rhododendron		Antiinflammatory, antagonistic activity towards platelet activating factor	3,4,5
148	Menispermaceae	<i>Tinospora smilacina</i> Benth.	Snake vine		Lice infestation, snake bite	1
149	Menyanthaceae	<i>Nymphoides indica</i> (L.) Kuntze	Water snowflake		Ayurvedic medicine, anti-fever of Malaria	2,3,4,5
150	Moraceae	<i>Antiaris toxicaria</i> Lesch. var. <i>macrophylla</i> (R.Br.) Corner	Upas tree		Dart and arrow poison, Anticonvulsant Effect	2
151	Moraceae	<i>Ficus hispida</i> L.f.	Devil fig, hairy fig		Hypoglycemic activity, Cardioprotective effect, Antidiarrheal activity, Antiulcerogenic effect, Sedative and anticonvulsant effects, Neuroprotective effects, Hepatoprotective effect, Antineoplastic activity, Anti-inflammatory and antipyretic.	2,3,4,5
152	Moraceae	<i>Ficus microcarpa</i> L.f.	Laurel Fig, Indian Laurel Fig		Ulcerous wounds of a diabetic patient	2,3,4,5
153	Moraceae	<i>Ficus racemosa</i> L.	Audumber or Umber		Diabetes and high cholesterol, antioxidant, antifungal and antibiotic	2,3,4,5
154	Moraceae	<i>Ficus sagittata</i> J.Konig ex Val	Trailing fig		Antioxidant properties	2,3,4,5
155	Moraceae	<i>Ficus septica</i> Burm. F.	Open fig		Antibiotic, cytotoxic effect on breast cancer	2,3,4
156	Moraceae	<i>Ficus superba</i> (Miq.) Miq.	cedar fig		Juice of leaves: Blister plaster, aerial roots: acute mastitis	2,3,4

Attachment 4: Natural Resources (Medicinal Plants in Timor-Leste)

No.	Family	Botanical Name	English name	Tetun	Specific Uses	Reference
157	Moraceae	<i>Streblus affinis taxoides</i> (Heyne ex Roth) Corner	N.A.		Bark for headache, antiulcer drug	3
158	Myrtaceae	<i>Psidium guajava</i> Linn	Guava		Leaves: hyperactive gut disorders, stabilizer	2,3,4,5
159	Myrtaceae	<i>Rhodamnia cinerea</i> Jack	Silverback		Carbohydrate metabolic disorder	2
160	Myrtaceae	<i>Syzygium nervosum</i> DC.	Wax apple		Chinese medicine, antimicrobial and inhibitor of protease	3,4,5
161	Myrtaceae	<i>Syzygium sp. affinis S. samarangense</i>	Java apple		Potent Antimicrobial and Inhibitor	3,4,5
162	Nyctaginaceae	<i>Pisonia aculeata</i> L.	Four o'clock flower		Inflammation, pain, and oxidative stress associated diseases.	3
163	Nyctaginaceae	<i>Pisonia umbellifera</i> (J.R.Forst. & G.Forst.) Seem	Bird lime tree		Antitubercular activity	2
164	Nyctaginaceae	<i>Boerhavia glabrata</i> Blume	Red spiderling		Ayurvedic medicine. antioxidant, thrombolytic activity and less cytotoxic activity	2,3,4
165	Oleaceae	<i>Ximenia americana</i> L.	Wild plum, sour plum		Bioactive polyphenols. throat infections, amenorrhea, as tonic, for wound healing and against pain.	2
166	Opiliaceae	<i>Opilia amentacea</i> Roxb.	N.A.		Antidiabetic and Antihypertensive Activities, to cure dermatitis	3
167	Pandanaceae	<i>Pandanus tectorius</i> Parkinson	Screw pine		Traditional medicine for leprosy, smallpox, fever, wounds, stomach spasms and strengthens the gum	2,3,4,5
168	Passifloraceae	<i>Passiflora foetida</i> L.	Bush passion fruit		Antiulcer and antioxidant activity, antibacterial properties: diarrhea, intestinal tract, throat, ear infections, fever and skin diseases.	3,4,5
169	Phyllanthaceae	<i>Bridelia tomentosa</i> Blume	Pop-gun Seed		Leaves are used as medicine for traumatic injury; the roots are used to treat epidemic influenza and neurasthenia	2
170	Phyllanthaceae	<i>Breynia cernua</i> (Poir.) Mull.Arg.	Breynia, fart bush		Antifungal, anti bacterial activity	2
171	Piperaceae	<i>Piper betle</i> L.	Betel leaf		Anticancer benefits and bio-guided fractionation	2,3,4,5
172	Piperaceae	<i>Piper sp. affinis P. retrofractum</i> Vahl	Long pepper		Diabetes prevention	3,4
173	Piperaceae	<i>Pothomorphe subpeltata</i> (Willd.) Miq.	Wild pepper		Neurasthenia	3,4
174	Pittosporaceae	<i>Pittosporum moluccanum</i> (Lam.) Miq.	N.A.		Antioxidant	3,4
175	Poaceae	<i>Imperata cylindrica</i> (L.) P.Beauv.	Cogon grass		Helminth worm infection, Anti hyper-tension	1,3,4,5
176	Poaceae	<i>Bambusa vulgaris</i> Schrad. ex Wendl.	Common bamuboo		Antioxidant and antibacterial activity	2,3,4
177	Poaceae	<i>Cymbopogon nardus</i> (L.) Rendle	Citronella grass		Culinary use, perfumery use. Essential oil: Insect repellent, Antimalaria activity, Herbal tea: Cold fever, Jaundice	2,3,4
178	Poaceae	<i>Phragmites vallisneria</i> (Pluk. ex L.) Veldkamp	N.A.		Diabetes	2,3,4,5
179	Poaceae	<i>Spinifex littoreus</i> (Burm.f.) Merr.	Spiny rolling grass		Abdominal pain, contortion, arthritis and inflammation	4,5
180	Polygonaceae	<i>Persicaria barbata</i> (L.) H.Hara	Water pepper		Seasoning, anti-inflammatory activities	2,3,4
181	Polypodiaceae	<i>Drynaria quercifolia</i> (L.) J. Sm.	Basket ferns		Throat infections	1,3,4,5
182	Portulacaceae	<i>Portulaca australis</i>	N.A.		Stimulant, food	2,4,5
183	Rhamnaceae	<i>Gouania javanica</i> Miq.	mao ju qian		Leaf extract: antiviral, antifungal, anti-inflammatory and cytotoxic activities	2
184	Rhamnaceae	<i>Ziziphus celtidifolia</i> DC.	jujube		Sedative properties	2,3,4,5
185	Rhizophoraceae	<i>Carallia brachiata</i> (Lour.) Merr.	Fresh water mangrove		Wounds	2
186	Rhizophoraceae	<i>Rhizophora stylosa</i> Griff.	Red mangrove		India, diabetes and after boiling used as an astringent for diarrhea, nausea	3,4,5
187	Rubiaceae	<i>Nauclea orientalis</i> (L.) L.	Cheeswood, yellow cheesewood		Anti-staphylococcal activity, Antianthelmintic activity, pink eye, post partum bleeding, internal bleeding	2
188	Rubiaceae	<i>Saprosma sp.</i>	Madders		Antifungal activity	2
189	Rubiaceae	<i>Guettarda speciosa</i> L.	Beach gardenia		Epilepsy	2
190	Rubiaceae	<i>Ixora timorensis</i> Decne.	Native ixora		Leaves used for stomach problems	2

Attachment 4: Natural Resources (Medicinal Plants in Timor-Leste)

No.	Family	Botanical Name	English name	Tetun	Specific Uses	Reference
191	Rubiaceae	<i>Morinda citrifolia</i> L.	Noni, Great morinda		Arthritis, diabetes, high blood pressure, muscle aches and pains, menstrual difficulties, headaches, heart disease, AIDS, cancers, gastric ulcers, sprains, depression, senility, poor digestion, atherosclerosis, circulation problems, and drug addiction.	2,3,4,5
192	Rutaceae	<i>Citrus hystrix</i> DC.	Kaffir lime	Sabraka fahi inur	Hepatitis, inflammation	1,2,3,4,5
193	Rutaceae	<i>Aegele marmelos</i> L. Correa ex Roxb.	Bengal quince		Anticancer effect	2,3,4
194	Rutaceae	<i>Micromelum minutum</i> (G.Forst.) Wight & Arn.	Lime berry		Cytotoxicity: antibacterial activity	2,4,5
195	Santalaceae	<i>Exocarpos latifolius</i> R.Br.	Broad Leaved Ballart		Aboriginal use:the twigs provided a bitter tonic and astringent for stopping infection on sores and cuts.Leaves were used to create a smoke for repelling insects, woman's sterilizations	2
196	Santalaceae	<i>Santalum album</i> L.	sandal wood		Ayurvedic and Chinese medicine.urogenital (internal) and skin (external) antiseptic.	2,3,4
197	Sapindaceae	<i>Allophylus cobbe</i> (L.) Raeusch.	Mangrove titberry		Fever and stomach ache, antimicrobial and brine shrimp lethality (fish poison)	2,3,4
198	Sapindaceae	<i>Cardiospermum halicacabum</i> L.	balloon vine		Antibacterials	2,3,4,5
199	Sapindaceae	<i>Dimocarpus longan</i> Lour. subsp. malesianus Leenh.	Longan, cat's eye		Antioxidant, Chinese medicine for promoting blood metabolism, soothing nerves, and relieving insomnia	2,3,4
200	Sapindaceae	<i>Pometia pinnata</i> J.R. & G. Forst.	Matoa		Leaves for Anti-HIV medicine	2
201	Sapindaceae	<i>Schleichera oleosa</i> (Lour.) Oken	Kusum tree		Menorrhoea, Kusum oil from seed for hair oil, itching, acne and massage oil to relieve pain of rheumatism.	2
202	Sapindaceae	<i>Lepisanthes rubiginosa</i> (Roxb.) Leenh.	Varied		Root: fever, seed: cough?	2
203	Sapotaceae	<i>Mimusops elengi</i> L.	Spanish cherry		Antibacterial, antifungal, anticariogenic, free radical scavenging, antihyperglycemic, antineoplastic, gastroprotective, antinociceptive and diuretic effects	2
204	Sapotaceae	<i>Pouteria obovata</i> (R.Br.) Baehni	Lukuma,		Antioxidant, dietary fiber, vitamins and bet carotene, niacin and 14 minerals	3
205	Smilacaceae	<i>Smilax australis</i> R.Br.	Lawyer vine		Antidiabetic	2
206	Smilacaceae	<i>Smilax blumei</i> A.DC.	N.A.		Prevention of muscular spasms and cramps, increasing sex drive in females	2,3,4
207	Solanaceae	<i>Solanum lycopersicum</i> Linn, Lycopersicum esclurentum Mill	Tomato		Antibacterial activity, antioxidants : prevent prostate, lung, stomach, pancreatic, colorectal, esophageal, oral, breast and cervical cancers	3,4,5,
208	Solanaceae	<i>Solanum tuberosum</i> L.	Potato		Anti-diabetes. Antioxidant effects and protease inhibitor action	3,4,5
209	Sterculiaceae	<i>Helicteres isora</i> L.	East Indian screw tree		Snake bite, diarrhoea and constipation of new born baby	2,3,4,5
210	Sterculiaceae	<i>Melochia umbellata</i> (Hout.) Stapf	N.A.		Hepatoprotective and antioxidant activity, antibacterial activity, anthelmintic activity	3
211	Sterculiaceae	<i>Kleinhovia hospita</i> L.	Guest tree		Antioxidant Activity and moderate cytotoxicity on HepG2 liver cancer cells	2
212	Surianaceae	<i>Suriana maritima</i> L.	Bay cedar		Wounds	3,4
213	Taccaceae	<i>Tacca palmata</i> Blume	Black bat flower		Recovery during the postpartum period	2
214	Verbenaceae	<i>Lantana camara</i> L.	Lantana		Antibacterial activity, Antifungal activity, Antiulcerogenic activity, Hemolytic activity, Antihyperglycemic activity, Wound healing activity, Antimotility activity, Mosquito controlling activity, Antifilarial activity, Antiinflammatory activity, Anti fertility activity (Embryo toxicity), Antirolithiatic activity, Anticancer and antiproliferative activity, Anti mutagenic activity, Antioxidant activity.L. camara is one among the most toxic plants known so far, possibly with in top ten	2,3,4,5
215	Verbenaceae	<i>Phyla nodiflora</i> (L.) Greene	Turkey tangle frogfruit		Acnes, pimples	2,3,4
216	Verbenaceae	<i>Vitex pubescens</i>	Leban,hairy-leafed molave		Antidysentery, analgesic, anti-inflammatory and anti-tumor activities	2
217	Verbenaceae	<i>Vitex rotundifolia</i> L.f.	Beach vitex		Chinese medicine for asthma and other allergic diseases	2,3,4,5
218	Verbenaceae	<i>Vitex trifolia</i> L.	Indian three-leaves vitex		Rheumatism and inflammatory joint conditions	2,3,4,5
219	Vitaceae	<i>Cayratia japonica</i> (Thunb.) Gagn.	Bush killer		Chinese medicine.Leaves and stems:Deuretic, painkiller, neuralgia,	2,3,4,5
220	Vitaceae	<i>Cayratia trifolia</i> L.	Bush grape		Whole plant used for diuretic, in tumors, neuralgia and splenopathy	2,3,4

Attachment 4: Natural Resources (Medicinal Plants in Timor-Leste)

No.	Family	Botanical Name	English name	Tetun	Specific Uses	Reference
221	Zingiberaceae	<i>Alpinia zerumbet</i> (Pers.)B.L.Burt and R.M. Smith	Shell ginger		Antioxidant and skin diseases	3,4
222	Zingiberaceae	<i>Kaempferia galanga</i> L.	Sand lily		Anti-inflammatory and analgesic activity, Nematicidal activity, Mosquito repellent and larvicidal activity, Vasorelaxant activity, Sedative activity, Antineoplastic and apoptotic activity, Anti-oxidant activity, Antimicrobial activity	3,4
223	Zingiberaceae	<i>Zingiber zerumbet</i> (L.) Sm.	Shampoo ginger		Indigestion	2,3,4
224	Zygophyllaceae	<i>Tribulus cistoides</i> L.	Jamaican feverplant		Cardioactive Steroid Saponins and Other Glycosides	2

Notes: These data were compiled by Yoko Nagata.

For providing the list, several sources were used.

1: Sean WM Collins, Xisto Martins, Andrew Mitchell, Awegechew Teshome and John T Arason "Fataluku medicinal ethnobotany and the East Timorese military resistance" (2007)

2:Northern Territory. Dept. of Natural Resources, Environment, the Arts and Sport., "A survey of flora and vegetation of the proposed Jaco, Tutuala, Lore National Park, Timor-Leste (East Timor) : report to Birdlife International from Northern" Territory Herbarium / Ian Cowie (2006)

3: Observed by Mr. Mariano

4: Observed by Yoko Nagata

5: Observed by Takaaki Kagawa

## Attachment-5: Basic Marketing Knowledge and Skills

### Introduction

Objective of this manual is to familiarize people with Marketing and do efficient marketing by themselves based on the knowledge and skills. Facilitator should understand these knowledge and skills and provide realistic examples for better understanding of people.

### I. Definitions of marketing

Marketing is a new term and concept for woman's group in Timor Leste. Therefore you need to start from explanation of definition on "marketing" in "official" and "real world".

Official meaning of marketing is defined as below;

- Marketing means the process of planning and executing the conception, pricing, and services to create exchanges that satisfy the individual and group objectives.
- Marketing means creation and delivery of a standard of living.
- Fundamental social process which evolves within a society to facilitate the effective and efficient resolution of society's needs for exchange of "consumption values"
- Marketing means management process through which goods and services move from concept to the customer. It includes the coordination of four elements called the **4 P's (Product, Price, Place and Promotion)** of marketing:
  - (1) identification, selection and development of a **product**,
  - (2) determination of its **price**,
  - (3) selection of a distribution channel to reach the customer's **place**, and
  - (4) development and implementation of a **promotional strategy**.

In real world, marketing is defined as below:

- Marketing is starting from thinking about the business in terms of customer needs/demands and their satisfaction.
- Marketing differs from selling because "Selling" concerns itself with the tactics and techniques of getting people to exchange their cash for your product. It is not concerned with the values that the exchange is all about. And it does not, as marketing invariable does, view the entire business process as consisting of a tightly integrated effort to discover, create, arouse and satisfy customer needs."

## II. Five variables of marketing

There are 5 variables in marketing to consider when you start business.

1. Target: List at least five **viable market segments**
2. Business types: Differentiate by example between **services** and **physical products**
3. 4 marketing mix: Describe the interaction among and between the **four elements of the “marketing mix”**
4. Position: Enumerate the ways **“positioning”** combines the other elements of the marketing mix
5. Competition: Identify possible **competition** for your own products

### 1) Target

If you want to get profits from your products, it is very important to know the Market, to know about your buyers /customers-their needs and wants.

1. What products are popular and demand?
2. How much is the selling price?
3. How many are sold in a day?
4. Who are making these products?
5. How and where are they being sold?

To know the needs and demand of buyers/customers, you shall survey on target variables. Then you can understand the real demand of them.

Target variables include

- Age
- Income
- Education
- Race
- Gender
- Religion
- National origin
- Place of residence
- Life style

In case of Timor Leste, your targets are local people or foreigners. You need to set lower price if the target is local people. On the other hand, you need to consider quality of product if target is foreigners.

## **2) Differences between Services and Products**

### **Service**

- Services are often intangible -acts, deeds and cannot be physically processed.  
Value lies in experience and no transfer of title
- Usually perishable, unused portions cannot be stored
- Quality cannot be separated from the service provider
- Vary in quality over time and are difficult to standardize over time

### **Products**

- Products are often tangible objects or things. Value lies in ownership and use and transfer of title takes place
- Can be stored, and unused portions can be used later
- Quality can be differentiated from the channel member's quality
- Products can be standardized and mass production and quality control are possible

## **3) The Marketing Mix (4 Ps)**

Component of Marketing mix is “Product”, “Price”, “Place” and “Promotion”.

### **Product Mix**

The assortment of goods and services that must be maintained in order to meet customer's needs

#### **Service as a Product**

- A service is a product at the instant of delivery; it can be created in advance or held in readiness
- A service cannot be centrally produced, inspected, stockpiled, or warehoused. Usually delivered to the customer, by people beyond the immediate influence of management
- The “product” cannot be demonstrated, nor can a sample be sent for approval
- The person receiving the service has nothing tangible, value depends on personal experience
- The experience cannot be sold or passed on to a third party
- A service cannot be recalled or repeated
- Quality assurance must happen before production rather than after production, as in the case of products
- Delivery of the service requires human interaction; buyer and seller must come

in contact in some relatively personal way to create service

- Receivers' expectations are integral to his/her satisfaction, and are largely subjective
- The more people the customer must encounter during the delivery of the service, the less likely it is that he/she will be satisfied with the service

### **Results**

- The final product class is the anticipated results of the goods and services

### **Product**

- The benefits or positive results (outcomes) that your customers derive out of dealing with you and using the services you offer them

### **Customers' Perceptions of Products**

- Revlon: Cosmetics sell "hope"
- Coca cola: Not sell soft drink but sell "stories"

### **New Paradigm of your product**

Ex. Woman's group presents comfortable time to customers when they taste your product

### **Customers' Perception of Woman's group**

- Woman's group: healthy and tasty food sell "healing time"

### **Price**

The costs or negative effects that customers must bear in order to do business with you, using your services in the way that you offer them

#### **Pricing Considerations**

- Nature of the target market (aforementioned)
- Nature of the competition
- Cost of merchandise (IE, successful buying practices by the supermarket manager)
- Familiarity of the customer with price ranges

#### **Pricing**

##### **The Pricing Process**

- The pricing process involves 5 steps:



- Setting price objectives
- Setting a broad price policy
- Developing a price strategy
- Implementing the strategy
- Making necessary adjustments (fine tuning)

### **Competitive Objectives**

- Meet the competition
- Be the price leader
- Offer the lowest price
- Increase sales volumes
- Prevent competition
- Neutralize price through non-price means

### **Financial Objectives**

- Maximize short-run profits
- Maximize long-run sales
- Stabilize income
- Move high-margin items
- Move slow turnover items
- Sustain a certain gross profit level

### **Market Objectives**

- Build market share
- Build traffic
- Emphasize low price image
- Desensitize customers to price
- Create attention and interest
- Achieve future growth
- Maintain current market share

### **Price Policy Options**

- “One-price” policy
- Variable price policy

### **Reasons to Vary Prices for Identical Goods**

- Different acquisition cost
- Increased record keeping cost
- Cost of credit to the customer or a third party
- Delivery costs
- Frequency of customer buying

### **Pricing Strategies**

- Cost-based
- Demand-based
- Competitive-based

### **Cost Considerations in Determining Prices**

- Advertising and other forms of promotion
- All kinds of customer discounts
- Returns
- Delivery
- Credit and other costs of money
- Administrative costs
- Selling expenses
- Security costs

### **Pricing Strategies**

- Demand-based pricing is related to the customers' willingness to pay

### **Price Elasticity and Inelasticity**

- "Elastic" price
  - Price = \$1.00, 100 units sold = \$100.00
  - Price = \$0.50, 300 units sold = \$150.00
  - Price = \$1.50, 50 units sold = \$ 75.00
- "Inelastic" price
  - Price = \$1.00, 100 units sold = \$100.00
  - Price = \$0.50, 125 units sold = \$62.50
  - Price = \$1.50, 75 units sold = \$112.50

## **Place**

The hour's location and physical characteristics that make it possible, easy or difficult for customers to use your products and services

### **Ways to Manipulate Place**

- Delivery
- Parking
- Drive-in windows
- Interior design and atmospherics
- Exterior appearance
- Telephone

### **The Telephone as an Asset**

- Calls to increase buyers compliance
- Calls to buyers to assess customers progress and satisfaction
- Calls to newcomers to the community to alert them to your services
- Calls to old buyers whose accounts have become inactive to determine the reasons

## **Promotion**

The most important of the "P"s

### **Advertising**

According to the American Marketing Association:

"Mass, paid communication, the purpose of which is to impart information, develops attitudes, and induces favorable action for the advertiser."

### **Why Advertise?**

- Attract attention
- Induce interest
- Develop the desire to buy and
- Activate the sale

### **Advertising Appropriation and Budget**

- Establish the objectives for advertising
- Determine the type and amounts of advertising necessary to accomplish these

objectives

- Determine the overall cost of the advertisement
- Schedule the advertisement day by day

### **Types of Ads**

- Institutional -focus on the woman's group services
- Merchandising -emphasize products and services

### **Selecting the Appropriate Advertising Media**

- POP (Point of Purchase advertising)
- Exhibition
- News papers
- Radio
- Television

### **POP**

- Eye-catcher
- Banner
- Leaflet
- Poster

### **Exhibition**

- Once or twice a year, some kind of exhibition for local products. It is good occasion to demonstrate your products.
- Sometimes you can demonstrate processing procedure in front of people.

### **Newspapers**

- Local newspapers -widely read
- Account for 30 percent of all advertising dollars
- Disadvantage -circulation sometimes much larger than supermarket trade area

### **Radio**

- Can be more persuasive than print
- High degree of geographic and audience selectivity
- Local radio-need repetition, brevity
- Lacks visual reinforcement

### **Television**

- Most conspicuous advertising medium
- Products or services must have mass appeal

### **Advertising Considerations**

- Consider clearly defined marketing goals
- Is advertising best medium to accomplish your purpose? Or, would publicity be a better option?
- Do you deliver what you promise?

### **Positioning**

- Position -sum total of its product, price, place, and promotional activities
- Do you match your position (assuming you have found one)?
- Perception becomes reality

### **Competition**

#### **Requisites of Success**

For successful marketing in a group, you need to understand requisites of success such as

- Get and keep customers
- In a way that is cost consistent with consumers' evaluation
- Survive and profit regularly
- Define purpose, plan and communicate
- Develop a system of rewards and sanctions

#### **Service Strategy**

- Distinctive formula for delivering service
- Vision plays an important role
- Judgment, creativity and the ability to think on a global level -necessary to “see the forest for the trees”
- Organizing principle allowing people in service enterprises to channel their efforts toward benefit oriented services that make a difference in the eyes of the

customer

- Concept that describes the value to be offered
- Being called back when promised
- Receiving an explanation of how a problem happened
- Providing me with information so I know what number(s) to call
- Being contacted promptly when a problem is resolved
- Being allowed to talk to someone in authority
- Being told how long it will take to solve a problem
- Being given useful alternatives if it cannot
- Being treated like a person, not a number
- Being told how to prevent future a problem
- Being given progress reports if a problem cannot be solved immediately

### **Service Reliability –Recovery Link**

- The problem reinforces a recurring pattern of previous shortcomings
- The recovery effort fails to satisfy the customer

### **Influencers of Quality Assessment**

- Reliability
- Tangibles
- Responsiveness
- Assurance
- Empathy

### **Complaints**

Customer complaints:

The least expensive consulting you can get

- The average business never hears from 96 percent of its unhappy customers
- Complainers are more likely than non-complainers to do business again with the company that upset them
- Of the customers who register a complaint, between 54 and 70 % will do business again with the organization if their complaint is resolved
- The average customer who has had a problem with an organization tells 9-10 people about it

### **Market Audit**

- A methodical analysis of the operations, tactics, and strategies used in marketing
- A self-examination

### **Market Research**

The most effective way for woman's group to find out the needs and attitudes of customers and thus effectively market their services

- Self test : What you know and don't know about marketing
- Customer Survey Form : Vital information for the people you serve or want to serve

### **Conclusion**

Marketing your services and products -achieving customers' satisfaction and your satisfaction!

## **Attachment-6: How to Make POPs**

### **What is POP advertising?**

In the retail world, "POP" is used to refer to point-of-purchase advertising displays. Point-of-purchase (POP) advertising is in-store advertising that is meant to catch the attention of shoppers while they're in an establishment.

This type of advertising used to be mostly printed, static signage, banners, shelf call-outs, end cap displays<sup>1</sup>, and the like. **POP displays** can take various forms, including shelf-mounted signs, hanging posters, and more.

Since an estimated 70% of purchase decisions are made within the retail store itself, effective POP displays can have a dramatic impact on sales for a particular product category or brand.

It is a simple tool among various advertising media. It is mainly written and illustrated material on paper.

### **Contents of POP**

- ✓ Catch copy
- ✓ Explanation of commodity with price or without price
- ✓ Hand illustration

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<sup>1</sup> In retail marketing, an **end cap** is a **display** for a product placed at the end of an aisle. It is perceived to give a brand a competitive advantage. It is often available for lease to a manufacturer in a retail environment.



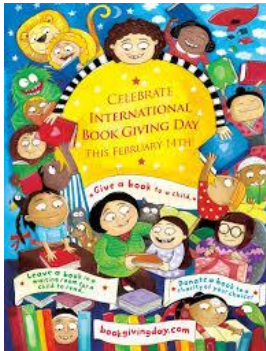
Sample of POP and other advertisement



Sales flyer



Product information



Posters



Price tags



Menus



Big sales



Direct mail (Post card)





Sample of Japanese POP



Sample of Japanese POP

## Attachment-7: How to Make a leaflet

### Important factors of “5W1H” in fliers

5W means ‘When’, ‘Where’, ‘Who’, ‘What’ and ‘Why’. 1 H means ‘How’. 5W1H are basic factors to convey exact message to people. If flier contains these 5W1H factors, consumers can easily understand and correspond to purchasing motivation.

1. When : day and time or period
2. Where : address of the site of sales or contact
3. Who) : who → promoter, to whom → target
4. What : What do you want to inform the target? What do you want to do? What do you want to sell?
5. Why : Purpose of open a store, sales, attracting customers and etc.

+

1. How : the measure and method of distribution

Please make it clear Why (purpose) and to Whom (target). Design of flier would be decided by the objective like to whom you want to convey and to whom you want to attract. The way of distribution would be decided by the sex or generation of target.

### How to make flyer

The role of flyer is to convey your word out to advertise and promote your products. First you have to let people to notice it. Next you want them to do something about it.

#### 1. Write a headline



#### Make it simple, and make it big!

- The headline should be no more than five words, fit in one line across the page, and be centered
- The lettering in the headline should be bigger than any other lettering on the flyer.
- Capital letters in a POP font.
- Use color if possible.
- A color matching the image you use in the flyer is even better.

## 2. Keep the message simple



### Do not make people “read” your flyer

- Communicate your message at an almost intuitive level
- Which headline jumped out at you? If you are like most people, the “BEST PRICE” caught your attention. That is not because everybody likes cheaper price; it is because its bright red, a color that naturally draws the eye.

## 3. Add a picture or illustration



After having the reader’s attention, take advantage of it! Give the reader something to look at---people tend to remember a message better if there is an image to associate with it.

- Use an image-editing application to increase the contrast; this will make the image more noticeable from a distance once it is printed on the paper.
- The picture should be centered, and its area should be no more than 1/3 of the page.
- Try to use only one image if possible. If absolutely necessary, you can include two images side by side, but any more than this will make the flyer too cluttered, which makes it less likely to catch someone’s eye.

## 4. Place a description below the image



- You've got the readers hooked, and they're coming in closer for the details. Make your description text as concise and detailed as possible; it should be two or three lines at most.
- To emphasize key words, use capitalization, a slightly bigger or bolder font, italics, and so forth—just do not use all of these options at once as that turns your flyer ugly in a hurry. Use words and phrases that might make your offer more enticing: *free, reliable, only, REWARD.*

## 5. Add your contact information



- If it is important for people to contact you in response to your flyer, add your first name and whatever form of contact you prefer—phone number, email address, etc.
- You can also employ the time-honored "tear-off" method: create a condensed version of your flyer text in a much smaller font, rotate it 90 degrees and repeat it several times across the bottom of the flyer. Make a partial cut between each occurrence so people can tear off the contact information conveniently

## 6. Make sure your flier works



- Tape it up on a door and stand back from it about 3 meters.
- Do the main points jump out at you?
- Looking at the sample flyer left side, you can see right away that it's a lost kitten—the cute photo draws you in to want to help, plus there's a big reward!
- Ask a friend or family member who has not seen your flyer to take a look at it, and see if they get its message right away.

## 7. Make copies

Now that you have completed your flyer and tested it, print as many copies as you need.

- **Black-and-white copies** are generally much cheaper than color. If you decide to go with black-and-white, you might try this: instead of printing the headline and any colored words, **leave those sections blank and write them in by hand with a colored marker**

## 8. Post your flier

Where should you post it? Well, where are the people that you want to reach?

- Note that in urban areas there are often restrictions on what you can post, and where—since it is easy to find you, do not flaunt the regulations!
- Try coffee shops, public bulletin boards, and if you see a pole that is covered with flyers—it is fair game!



## **Attachment-8: Guideline for Training in Bookkeeping**

### **Bookkeeping for women's group**

Bookkeeping is necessary skills for any group that handle money. It is important for the members to be equipped with a good skill of bookkeeping. However, it is better not to introduce complicated one that will hinder the members to practice and cause more mistakes if the member do not have much experience. Introduce a simple and understandable form and method at the primary stage.

It may worth considering to set the training as per level of understanding of the participants.

**Preparation:** Facilitation material, sheets of cashbook format (enough for the number of participants), pens for participants, flip chart.

Bookkeeping facilitation material:

Contents: Importance and meaning of keeping cashbook

What is a cashbook?

How to maintain cashbook

Example of cashbook

Important issue in cashbook keeping

### **Facilitation:**

First of all, it is important for the audience to understand concept and importance of bookkeeping, which will highly influence their practice after the training. People can practice by themselves as long as they recognize the necessity being equipped with adequate skills. Therefore, explain the importance citing practical situation as examples during the facilitation.

Secondly, explain how they should maintain the book, including when (wherever a transaction occurs), for what kind of transaction (any incoming and outgoing), compatibility with cash in hand, attachment of proof documents such as receipts.

Then, explain how to enter each transaction into the book, going step by step, starting from the explanation of the format

**Exercise of the participants:**

After the explanation through presentation, let the audience to practice recording on a cashbook format with some examples of transactions.

Example of transaction
1. There is a balance from the last month \$1,250
2. purchased seeds of vegetables on 5 <sup>th</sup> November 2012 with cost of \$15
3. purchased fertilizer on 13 <sup>th</sup> November 2012 with cost of \$150
4. sold seedlings grown by the group for in total \$ 400 on 20 <sup>th</sup> November 2012

- Prepare blank cashbook format sheets for individual participants to fill and a flip chart with the blank format.
- Distribute a cashbook format to the individual participant.
- Read the example of the cash transaction one by one (the one on the right or one prepared by facilitator), and let the participants to complete the work.
- Give enough time for the participants to complete the work.
- Ask one of the participants to fill the form on the flip chart to explain to other participants.  
(This trial is not to test the participant but to create more confidence of the participants. Therefore, never accuse their mistake but encourage them to try!!)
- Make additional explanation if necessary.

A sample answer

Date	Particular	Receipt No.	Incoming	Outgoing	Balance
01/11/2012	Balance from last month		1,250	-	1,250
05/11/2012	Seeds of vegetables	1	-	15	1,235
13/11/2012	Fertilizer	2	-	150	1,085
20/11/2012	Sales of seedlings	3	400	-	1,485

## Budgeting and Pricing

### Budgeting of the group activity

For the farmers' group be it for farming, for processing, or for any other purpose, simple budgeting can make their activities more fruitful, by planning financial overview of their activities.

#### 1. Cost analysis

At the beginning, let the women to become able to identify all the direct cost of their activity as there are some costs which are somehow forgotten to be taken as a cost.

They will need to consider the following categories;

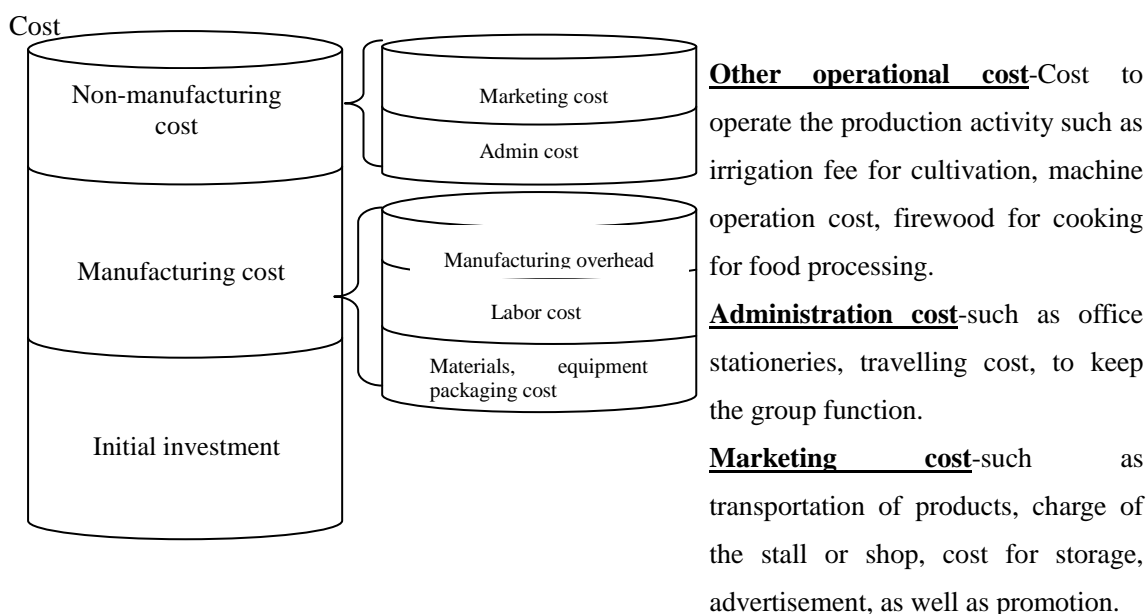
1. Manufacturing Cost (costs directly assigned to a particular production)
  - Direct material
  - Direct labor
  - Manufacturing overhead (cost for operation of manufacturing)
2. Non-manufacturing cost
  - General administrative cost
  - sales cost (expenses that is required in the process of the marketing)
3. Any other indirect cost

Example of the costs to be considered

**Materials** – This includes raw materials, ingredients of the product, seeds, as well as packaging materials. This is the easiest to be identified, though sometimes they purchase in bulk and utilize for several different purposes.

**Equipments**-Utensils, equipment, machinery etc. for production process can be identified and to be calculated as a cost. This is a little more complicate to calculate as a cost as some can last for long and can be utilized for several times, thus need to be calculated the cost per unit of the product.

**Labor cost**- When the group is operating their activity purely by themselves, labor cost may not be counted as a cost but included in their profit. However, it is necessary enough to calculate wage and labor cost even of members if the group step forward to business entity or enterprise.



### How to calculate fixed cost

Fixed cost, which is necessary to be born regardless the amount of the product, should be calculate from the total cost divided by the number of products.

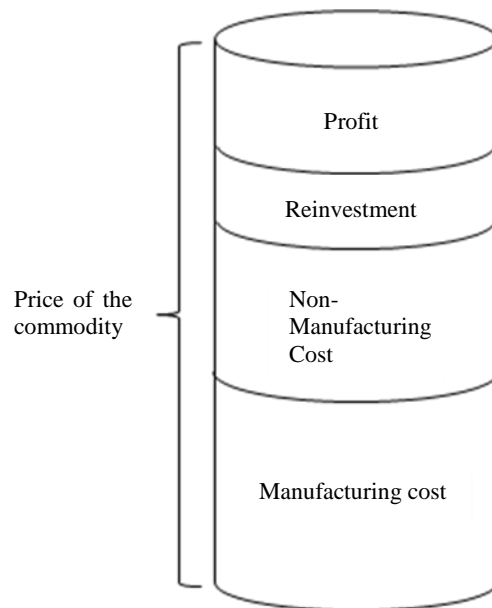
e.g. A utensil

The utensil for processing, which costs \$360, can serve the purpose for about 1 year, producing 10kg of the product per month.

- ◆ Calculate the cost of the utensil per product (per kg)!!  
 $\$360 / (10\text{kg} \times 12 \text{ months}) = \$ 3 \text{ per } 1 \text{ kg of the product}$

## 2. Pricing

In the above you will arrive at a gross total cost at point of sale. To price the product, they will add a profit margin that will be operational and development. Operational should be taken on a daily production basis and development should be retained for expansion. The margins on the above two components should be decided taking the market prices on similar products. If the market prices are less than what they would arrive at because in some other places there would be more economics of scale than a small manufacture, then they should add value to their



products such as handsome or true products of area etc, which will derive a premium to their products and buyer will not mind paying for added value. However, the pricing should be kept constant and not vary as is often the case that the regional small producer is so eager to get money into their hands that they would even sell at a loss with the shorter version and will not sustain for longer period.

The following factors should be considered in pricing

- ◇ **Cost:** Does the price cover all the cost?
- ◇ **Profit:** Can it generate income from the production?
- ◇ **Market price:** Is the price fair for target customers?  
Are people willing to buy with the set price  
Is the price comepetitive with other similar products?
- ◇ **Sustainability:** Does the price cover capital for reinvestment to develop production?

Different method of pricing

	Concept	Simplified examples of calculation
<b>Cost based pricing</b>	Price is determined by the cost with a certain rate of profit margin. Profit depends on the volume of product sold.	
<b>Target return based pricing</b>	Price is determined by the total return you expect and the expected profit is divided by expected volume of sales and be included to unit price of the product.	
<b>Value based pricing</b>	Price is determined by the value of the products judged by the customer, the amount customers are willing to pay for the products	

Example of pricing based on cost plus profit

e.g.: 1 kg of a product

<b>Cost of production</b>	Material cost	Ingredients and utensils	\$40
	Packaging cost	Packing bag, label., price tag printing	\$10
	Labor cost	Payment to the producer	\$30
<b>Operational cost</b>	Shopkeeper	Commission for shop keeper	\$10
	Admin cost	Stationeries	\$ 5
<b>Marketing cost</b>	Promotion	Display, posters, POP	\$10
	Transportation	Transportation for procurement	\$5
<b>Reinvestment</b>		Saving for permanent sales point	\$20
<b>Profit</b>			\$20
<b>Price of the product</b>			\$150

Compare with market price and see if it is marketable

## Value addition and price

Why is value addition more profitable?

Value added products have advantage and more profitable when it matches more to the taste of people, is more suitable for a particular need/occasion., such as gifts, health effects of the product, etc., or it is rare thus demand gets higher than the supply. All those increase utility of customers, for which people prefer to have nicer and better quality product even with higher price.

### Examples of comparison

	Normal product	Value added product
Cost	\$3.0	\$3.2 (cost difference due to value addition)
Selling price	\$3.5	\$4.0 (can be sold with higher price if it matches customer's taste)
Profit	\$0.5	\$0.8

### ➤ Practice!!!

Method: Prepare sample cases of procurement, production, marketing etc. and let the producers demonstrate pricing calculation. Start with a simple example even if it does not cover all the complicate cost at the beginning.

	<i>Product A</i>	<i>Product B</i>
<b>◆ Production (including packaging)</b>		
<i>Raw materials:</i>	Locally purchased with \$10/1 kg of the product	Main ingredient is locally collected: \$0 Some other ingredients purchased with cost of \$3/1 kg of product
<i>Transportation for procurement</i>	Return to XX aldeia. \$3 to transport material for 30kg of product	Return to YY aldeia. \$50 to transport material for 25kg of product
<i>Packaging</i>	Package materials \$12 (to pack 40kg of the product)	Package materials \$50 (enough to pack 50kg of the product)
<i>Labor cost</i>	\$15 / 10kg of the product	\$9/10kg of the product
<b>◆ Marketing(setting stall, transportation of products, display)</b>		
<i>Displaying materials</i>	\$60 (durable for 6 months)	\$60 (durable for 4 months)
<i>Transportation</i>	\$10 per 20kg	\$8 per 20kg
<b>◆ Administration cost</b>		
<i>Stationary and tools</i>	\$ 50 (durable /enough to operate for 5 months)	\$60 (durable 4 months)
<b>◆ Profit</b>		
<i>Expected profit</i>	\$1.5	\$2.0
<i>Expected sales per month (kg):</i>	100kg/month	150kg/month
<i>Price per kg</i>	\$ _____	\$ _____
<i>Market price of a similar product</i>	\$ _____	\$ _____

### 3. Record keeping in sales management

#### Stock taking

➤ Logic of stock taking

Stock taking is to manage the products understanding which products are sold well, how many of each product have been sold, how many products are produced and laid in stock, which products they should produce more. This will result in good marketing by understanding marketing needs.

➤ How to keep stock record

Stock taking is to confirm the situation of the products in stock. Basic things to be confirmed are as follows;

- Number of products existing in stock
- Number of products newly laid in stock
- Number of products sold
- Number of products remaining in stock

These records should be kept in one sheet for one product.

#### Sample record;

Item name: Dried sweet potato

Date	Balance Before	New supply	Total in store	Sold	Balance	Signature
2012/6/19	0	10	10	3	7	
2012/6/20	7	5	12	8	4	
2012/6/21	4	10	14	3	11	
2012/6/22	11	0	11	5	6	
2012/6/23	6	10	16	0	16	
2012/6/24	16	5	21	9	12	
Total of this month		40		28	12	

Annotations:

- Balance from the previous day (should be the same as 'balance' of the previous day)
- =Balance Before + New Supply
- Number of the product newly brought by producers
- =Total in store - Sold
- Total number of the product of the month
- Total number of the sales of the month
- Remaining balance of the products at the end of the month



## Sale record keeping

➤ Necessity of sales record keeping

Apart from the book keeping, it is necessary to keep record of sales of the day. After checking the stock, all the products in the shop should be recorded before start sales. Each time the products are sold, record by ticking on the record sheet.

As long as they record the items sold and handle the cash as priced properly, calculation of the earning and remaining balance can be done after closing the shop. The earning should be confirmed with the actual cash in hand and the remaining balance of items should be confirmed with the actual products in stall before closing the day.

## Sales Record

**Date: 21/6/2012**

**Name of recorder:** \_\_\_\_\_

Items	Unit price	Balance No. of the item	No. of newly arrived item	No. of item in stall	No. of the item sold	Gross earning (\$)	Remaining balance of the item	Signature of recorder	Signature for approval
Potato chips	20	10	5	15	4	80	11		
Herb tea	80	8	2	10	3	240	7		
Dried potato	100	5	3	8	5	500	3		
<b>Total</b>						<b>820</b>			

The record should be confirmed by the record keeper of the day and be approved by a responsible person. As long as the record is kept properly confirmed with the actual cash and products in hand, it can be managed by rotating the shop keeper among the group.

◆ **Practice!!!**

**Sales Record keeping**

Method:

Divide the participants into 2 groups and practice sell and shopping simulation.

One group to play as customers and the others group keep sale record as shopkeepers.

1. Both groups record their product on the form and prepare the shop
2. One group to purchase from the other group. Shopkeepers keep sale record
3. Turn and change the roles. The other group practice the sale record
4. Both group calculate their sales and confirm with remaining stock in each shop
5. Present their sales

Preparation:

Fake cash notes, products cards, recording sheets







## Attachment-12: Guideline for Discussion on Group Savings

### PART 1: SAVING

#### Chapter 1: Saving first

##### What is saving?

**Saving:** It means withholding something valuable for future use. There are two elements in saving activity.

- 1) **Discipline and sacrifice:** Withholding something valuable for future use instead of consuming it now.
- 2) **Planning for the future:** Saving is all for the future.
  - ◆ Anticipating and preparing for possible risks and emergencies (a bad harvest, sickness or death),
  - ◆ Preparing for upcoming events and expenditures (payment of school fees, a marriage, old age, or funeral)
  - ◆ Starting a new business or expanding an existing one.

##### Why people save?

Everybody saves, even the poor. It's just that the poor have fewer resources to start with, and so can only save in small amounts.

People save for a variety of reasons:

- To prepare for future emergencies or risks (natural disasters, injuries, death).
- To smooth out variations in income and consumption: Saving during surplus periods to use during difficult periods.
- To educate their children.
- To be prepared for old age and disability.
- To invest in opportunities potentially profitable (purchasing a cow, starting a small enterprise, storing grain to resell during high price season, etc.).
- To fulfill social and religious obligations (marriage, funeral).

##### How people save

People save in many ways, as *individuals* or in a *group*. They may save *in goods*, *in cash* (at home or in a bank), or by *giving*.

- **In goods:** When prices are continually rising (high inflation), when there is little cash in circulation (barter economy), or when there is no bank around, saving in goods may make sense. In goods savers normally save in food-grains, like maize or rice, or in livestock, such as cattle, goats, or chickens, and sometimes in items like gold or other valuable goods which increase in value as prices rise and can be easily resold for cash at a later date.

The disadvantages of in goods savings are that they tend to be less portable, more difficult to store and maintain (cattle are vulnerable to diseases, grains can be attacked by insects or rodents), less easily converted into cash, and more visible (sometimes people don't want others to see that they now have more chickens or cows than they used to have).

- **In cash:** Almost everyone, including the very poor, has some need for cash: to buy medicine or pay for school fees or buy new clothes, etc. The main advantages of saving in cash are that cash is very portable, storable, not very visible and can be exchanged for almost anything. In view of these features, saving in cash is generally preferred. The main weakness of keeping cash is that it can lose its value during high inflation. That's why many choose a mixed strategy of saving in goods and in cash.
- **At home or in a bank:** Saving **at home** has its benefits. The savings are nearby and easily accessed, but this means that it is also more easily accessed by other family members or can be easily stolen.

Saving at a **bank** may be a safer option. The problem is that banks only accept cash savings, the cost of opening and maintaining a savings account can be quite high and there are few banks, if any, located in rural areas.

- **By giving:** People give gifts or offer services not just out of generosity, but also sometimes with the hope of receiving the favor back when needed.

A typical example would be volunteering to help a neighbor harvest his crop. By doing this, you expect him to help you when it comes time to harvest your crop.

### **What about borrowing?**

On the surface, using someone else's money and then paying it back later, seems easier than saving. Borrowing doesn't require any immediate sacrifice. You get the money

quickly and don't have to worry about paying it back until later. But is it really easier than saving?

- **Borrowing can be expensive:** The borrower will have to pay back the loan itself, plus pay additional interest on the amount received. This can get expensive! There can also be “hidden” interests. For example, a shopkeeper may lend a person money without charging interest directly on the loan, but instead increase the price of the items the borrower must buy from him (medicines, food, other household items).
- **Borrowing can be risky:** Since the poor are more exposed to risks caused by weather, income fluctuations, diseases, theft and death, they may have repayment problems. Suppose that after borrowing some money a family member becomes ill. The money may then have to be spent on medicine rather than on the planned investment. This will make repayment difficult and worsen their situation.
- **Borrowing can be difficult:** For the above reasons, the poor may also have more difficulties in obtaining loans than would the rich. Lenders, whether a friend, a local moneylender or a bank, are unlikely to lend to people they think will have problems in repaying.
- **Borrowing can be stressful:** A loan involves a promise to repay the lender. Normally the full amount must be repaid within a fixed period of time, often with interest. Failure to repay may mean losing valuable possessions (gold, a cow, a plot of land, etc.) or one's good reputation, being threatened and/or becoming more indebted by building up fines and interest payments.

### **How can the poor save more?**

The poor do save. It may be just a few bags of rice or maize, money to pay for school fees, but they usually save something. However, they have difficulties in becoming better off since they face a lot of problems. By adopting group saving approaches they can overcome some of these problems.

Let's see how.

- The poor can save only **small amounts individually**, which are usually not enough to invest in productive resources.





By saving as a group, the poor can accumulate a larger amount of money more quickly by pooling their savings in a common fund which can then be used by the group or a member of the group for productive investment.

- **Low level of literacy** and numeracy skills make it difficult for the poor to keep track of their savings and to manage their money.

By saving as a group, the poor can help each other learn these skills. As a group, they can more easily receive literacy and money management training from group promoters or trainers from NGOs, and also learn from other more literate members.

- **More vulnerability to risks** like bad harvest, food shortage, sickness, flood, income shortage, etc.

By saving as a group, these risks can be shared between the members. Individual members can rely on other members for help in time of need. Group savings can be used like an **insurance** scheme to help members deal with these emergencies when they arise.

- **No access to safe saving facilities**, such as banks.

By saving as a group, people can create a safe place to put their money. Some group saving methods do not require storing at all, since the money is immediately redistributed after collection. The group can also buy or make a cash box that will be safeguarded by several members.

- **Social values** which expect individual savings to be redistributed to the extended family and regard individual accumulation of resources as selfish behavior.

By saving as a group, the poor can protect themselves from accusations of being selfish, since the savings belong to many individuals, not just one. The threat against a single member of the group is a threat against all members.

## **CHAPTER 2: Getting started**

When looking into starting a saving activity with a group, first find out how people in the village manage their money and other productive and social resources. If you are an external facilitator, one of your most important tasks will be to gain acceptance by the village.

This can take a long time, but it is important that you obtain the support of the village leader(s) and villagers themselves. Work to gain their trust by talking with them regularly. Listen and show respect. You can prepare yourself by gathering information about the village from the local district office, non-governmental organizations (NGOs) and local leaders.

### **Examples of information to be gathered**

- The living conditions of different socio-economic groups in the community - where is the nearest local bank, what are some traditional saving methods, where and when do households get their income from and how do they spend it?
- The needs of the community.
- The way the community solves its problems.
- Social patterns in the community - who talks to whom and why?
- The community power structure - who are the leaders and opinion makers?
- Informal and formal organizations of men and women (both mixed and separate).
- Links between the community and supply of services and who controls them.

*Make sure to always crosscheck the information collected from different sources, until you have a good idea of how accurate the information is.*

## **Group formation**

**Identify the people:** Use your own knowledge together with suggestions from villagers to identify men and women in need. In a rural community, often, you will find three broad wealth categories: the big farmers, with land and access to development services, the middle farmers, with sufficient resources to meet their basic needs, and the poor, who live at subsistence level. Remember that identifying and assisting the poor is a sensitive issue. People may not like to be identified as poor, just like the better-off may not want to be identified as rich for fear of being left out of possible assistance. You can get information on socio-economic differences through informal interviews or by doing a wealth ranking if necessary.

- **Discuss group formation:** Identify members of the village who are interested in working in a group. Organize one or more meetings with them to discuss their situation and financial needs and explain what you can do to assist them. It is best to keep the meeting small. A group of 8 to 15 people is ideal, since it allows for more open face-to-face discussions. If the group is too big, form sub-groups with people who have common interests. Large meetings tend to be less effective, since opinions and interests are more diverse which makes reaching agreement more difficult.
- **Identify a clear development goal:** Help the group express their goals and expectations clearly. People usually express their goals in general terms, such as “to generate income for the family”. It is important to establish realistic goals with specific actions. Let the group express their goals and discuss whether they are clear or vague. For example, “I want to improve my children’s education” is vague. “I want to buy school books and uniforms for my children for the next school year” is clearer.

## **Key to success**

- **Discuss saving:** Discuss how they intend to achieve their goals through saving. What are the advantages and disadvantages of saving? Illustrate your discussion with real stories of successful or failed savings groups. Do they know of any similar stories? How do people save? What are some traditional saving methods? How do people deal with emergencies? Discuss the different factors enabling and constraining saving in the community.

## **Factors enabling or constraining saving**

The success of any group saving activity will depend on a number of conditions that may either promote or discourage these approaches. Therefore it is important to know what they are and design a saving activity adapted to the local environment. Careful assessment of the local conditions as well as the skills and resources of group members (existing or potential) should be made. Some of these factors include:

- **Use of cash:** The more cash that is in circulation in the community, the more likely saving in cash will be useful. Although this manual focuses on saving in cash, saving in goods (livestock, grain, gold) can also be important. Many find, for example, saving in livestock (cattle, goats, sheep, and poultry) a better store of value since the livestock produce offspring and/or by-products (meat, hides, wool, eggs) which add value and can be converted back into cash when needed.

The main problems with in-goods savings are that they are not as portable as cash; they are more visible and more difficult to hide from needy friends and relatives; and they may be more subject to diseases as well as to theft. This type of saving requires good knowledge of taking care of livestock and/or storing grains, etc. How useful would saving in cash be for the group members?

- **Access to banking services:** Banks are usually safe places to store money but few are located in rural areas, they often have expensive service fees and very few are interested in providing services to small savers. This may make saving in a group the next best option for safekeeping one's money.

As the group and its savings fund grow, it may need to purchase a cash box or a safe to safely store its cash. The group or individual members may eventually also consider linking-up with a nearby credit union or a bank.

- **Inflation:** Rapidly rising prices decrease the value of the money you save. In other words, as prices continue to rise you find that your cash savings can buy less and less goods. Inflation may discourage people from saving in cash. If prices are rising, saving in kind may be a better option.
- **Social and economic differences:** Friends and neighbors, people of the same ethnic background, gender, age group, religious or social group, or those with similar incomes and expenses may be more inclined to form a savings group

than those who have little in common. That's because they trust each other or have similar potential to save. Forming a savings group with persons of very different backgrounds may be much more difficult and is not encouraged.

- **Traditional saving practices and social values:** In some societies, failure to share one's own resources with friends and family can result in being called selfish or even a witch, and these attitudes may discourage saving. What are the different ways people save in the village and which ways are preferred and why? What are the traditional values associated with saving? Do they encourage or discourage saving? If you are able to accumulate money or resources, are you considered as being selfish, and as taking money from someone else? Do people become jealous? Would saving in a group help one avoid these accusations?
- **Gender:** In most cultures, forming mixed savings groups with male and female members is accepted. However, in some mixed groups, men can dominate decision-making and leadership positions, leaving women members few opportunities to develop and acquire leadership skills or benefit from common resources. Women savings groups can create a legitimate opportunity for women to meet and work together, and gain leadership skills. Separate groups of men and women can be practical as long as both sides are aware of each other's opinions and activities and do not enter into conflict with each other. Raising awareness about gender issues with men is as equally important as empowering women.
- **Investment opportunities:** Raising funds to start a small enterprise, to purchase land, livestock or farming equipment, or simply to meet family food needs, are important saving objectives for many. Using one's own savings for productive investments, as opposed to getting a loan from someone else, may take more time, but it is a safer way for the poor to escape the poverty trap. To succeed, their investments must be well-planned and profitable.
- **Existing groups:** It is easier to organize group saving activities with an active self-help group rather than to start a new one. Promoting saving within a small group is also easier because members know and trust each other and learn more quickly. Record keeping is also less of a problem in smaller groups.

- **Living nearby:** People who live near each other are more likely to have similar problems and needs. They also tend to know more about each other and who is trustworthy and who is not. Also, the closer people live to each other, the easier it will be for them to meet on a regular basis.
- **Education:** Groups with higher literacy rates are better able to keep track of their savings, maintain good records of meetings, etc. Although some group saving methods require little record keeping, the group should continuously encourage members to improve their literacy and numeracy skills and their knowledge of the world around them.
- **Health:** Diseases, such as HIV/AIDS, TB (Tuberculosis), malaria, and disabilities reduce a household's capacity to save. These will affect a group's saving capacity, when some members are no longer able to contribute their savings or when loans are not paid back. Groups should take careful measures to **safeguard** the savings of all members by helping members in those situations better manage their resources. For example, the group can start a savings fund that will help finance the healthcare or funeral costs associated with the illness. Funeral societies (savings groups providing funeral services to their members) are commonly found throughout the world.
- **Institutions and policies:** As long as saving groups operate informally and on a small scale, they can set their own rules and regulations. But as the group's savings grow, it may want to open a bank account and this may require that the group be legally registered. Legal status may bring more opportunities, but may also come with more rules and regulations, hence less flexibility. Find out what process is involved to be registered, and what benefits or constraints are linked with this legal status.

## **Keys to success**

What then, are the basic factors that can contribute to group saving success? There are some key elements which the group should have and these include:

- **A common bond:** The more similar each member's interests, goals, backgrounds and incomes are, the less likely members are to get into conflicts and arguments

and the more likely they are to make quicker decisions that satisfy most members' concerns.

- **A clear saving objective:** Savings should be mobilized for productive uses (that will directly or indirectly increase members' incomes and their ability to save). The group can choose a common goal, such as saving to buy fertilizer for all members, or each member of the group can choose his/her own savings objective, depending on his/her priority and capacity.
- **Small groups:** Successful saving groups tend to be small rather than large. The average size of successful self-help groups is between 8-15 members, but this number can vary. In smaller groups, there is more face-to-face contact, making trust-building among members easier, and decision-making and collective learning more efficient. Small size also means small mistakes. So start small and let the group grow as it gains more experience and when it is ready to do so.
- **Discipline:** Saving requires discipline since it means withholding something for future use instead of consuming it right away. All group members must have discipline and agree on a common set of rules to follow. If the rules are not enforced, then all members suffer. Groups solve this problem by using peer pressure or punishing those members who do not follow the agreed rules. This may include a fine for late payment or for missing a meeting, and even expulsion from the group.
- **Team spirit:** Sometimes having a common interest and being disciplined are not enough. "Team spirit" is also needed. Good group leaders can develop this spirit, but it can also be strengthened by other means: by giving a special name to the group which all members can identify with. The group can also develop a simple list of principles all members agree are important and worth preserving.
- **Trust:** Group saving not only requires that all members adhere to and respect a set of rules but that they trust each other. If they don't, benefits will quickly disappear. Trust is built by showing commitment and discipline. If a member fails to honor his/her commitment, then it should not be left unpunished. Rules that aren't enforced are seldom obeyed.

### **Features of a successful group**



- Members have a common bond.
- Members have clear objectives.
- Members have agreed upon rules to follow.
- Members are honest and work hard to achieve their objectives.
- Members hold regular meetings and participate in discussions and decision-making.
- Members demonstrate leadership.
- Members keep accurate records of their activities and meetings.

### **Tips for group facilitators**

As a group facilitator, your task is to help poor people mobilize more resources for productive use by promoting savings groups or helping existing groups set up saving activities. The ultimate goal is to help people better manage their own resources themselves to improve their lives.

Your assistance to groups may include:

- Visiting and talking to individual members and other people from the community;
- Attending group meetings;
- Visiting groups when they carry out their activities;
- Organizing workshops, training sessions and evaluations for group members;
- Following-up on items discussed in the meetings, workshops, training sessions and evaluations.

### **Hints for facilitation**

**Encourage participation.** Meet in open areas, where all can observe and comment on charts or maps. Keep the circle open to encourage participation.

- **Minimize your role.** Allow the participants the space to take the lead in activities. You should resist the temptation to move to a higher position (standing over participants, moving into the circle to get more attention or speaking louder, etc.). The more you keep a low profile, the more the participants are likely to take the lead.
- **Keep language simple.** Use simple terms like savings, credit, insurance or

emergency funds, instead of “financial services”. Use words that the community people use in their daily lives.

- **Think about your facial expressions.** An encouraging smiling face can be an asset, just as frowning can create insecurity among participants.
- **Take care of your appearance.** Do not wear sunglasses or clothes that set you apart, distract or intimidate others.
- **Spend time in the village.** This eliminates delays due to travel, but is also an opportunity to create a relationship with the community and learn about the place. This also ensures that you are ready for the participants, and not the other way around.
- **Observe.** You will easily learn who are the leaders in the group and in the community. Listen to reactions.
- **Be a student.** You are here to guide the process, but you are not the expert on the participants’ situation. They are. Listen and learn. Ask questions respectfully and resist the temptation to impose your own ideas.



## **Attachment-14: Guideline for Discussion on Use of Earnings**

### **Part 2: How to utilized saved money in the woman's group**

This section mainly describes the Savings and Credit in woman's group, what they are used for, what their advantages and disadvantages are, and how they operate.

#### **Accumulative Savings and Credit in the Woman's Group**

In this woman's group, the contributions collected from production of cassava chips or other income generating activities are accumulated and stored with a help of NGO. With this accumulating fund, the group can do many things. It can lend to its members free of interest or with interest. Interest earned on loans can become income earned for savers, adding incentive for members to keep their savings with the group. This method can serve both savings and credit needs in a flexible way.

#### **How an Accumulative Savings and Credit Association works**

In this savings and credit association, members contribute a fixed percentage from generated income for a period of one year or more. After the group has saved enough money, it can start giving out loans to members. The loans can be paid back in installments, or in whole (lump-sum), free-of-charge, or with an additional interest charge.

Charging interest on loans generates additional income which can be used to help the group savings fund grow, to cover any costs in running the group, and/or to pay members an income on their savings.

The group can also decide to accept regular or irregular contributions of equal or unequal amounts or percentage from generated income of members, to keep the fund with the group, to lend the money to more than one member and charge interest on it, and a combination of these.

The woman's group will have to decide on which way it will run its Accumulative Savings and Credit Association to satisfy the needs and capacities of its members.

### **What it's used for**

- Expected expenses (marriage, education, health care)
- Unexpected emergencies (death, injury, fire)
- Investments (buying a cow, starting a small enterprise)

### **Advantages**

- Interest earned on savings can be used to fulfill individual and/or group interests
- Larger amount of savings can be accumulated overtime
- More flexible individual savings and loans options

### **Disadvantages**

- Management and record keeping skills needed
- Risk of default by a borrower
- Safekeeping of funds required (in a cash box or NGO safe or a bank account)

### **Steps**

1. Decide on how often the group will meet. (once a month)
2. How many percentages can each member contribute from their income? Will every member contribute the same amount or different amounts?
3. Agree on a set of rules and regulations to ensure discipline and trust. For example, fines for missing a meeting or late payment of contribution or loan, and expulsion from the group for more serious misbehavior.
4. Decide on who will be the leaders and for how long. Leaders can consist of a chairperson to facilitate the meetings, a secretary to keep minutes of the meetings, record-keeper records on the transactions, and a treasurer to keep the money. In addition, advisory auditor from NGO monitors their activity of micro credit. It is highly advisable to divide these duties to increase transparency and avoid mismanagement of the funds.
5. Find a safe place to keep the money, either in a safe of NGO or in a cash box. One way to safeguard the savings is for one trusted member to keep the box, while another trusted member keeps the key. Another way is to put two locks on the cash box and have each key kept by a different member. This provides some protection against temptation overcoming one person.

6. Decide on how long the group will save before starting to give out loans. Never lend out all the accumulated savings to one person only. Remember, the money belongs to all members of the group. Minimize the risk of loss, and always keep some money in reserve.
7. Decide on the conditions members must meet to receive loans and the terms of repayment. The size of the loan should be limited to a proportion of the total amount saved by the borrower. Each borrower should present one or two members with savings to stand as guarantors (co-signer) in case the borrower cannot pay back. If loans are not repaid on time, a fine should be charged.
8. Close accounts periodically, say at the end of each year, and return the savings to the members. This step helps ensure transparency and members trust that their money has been properly handled.

### **Some rules-of-thumb on lending**

#### **Rule 1: Offer a loan that the borrower is able to repay**

Set loan terms that match the cash patterns of borrowers. Loan repayments can be made on an **installment basis** (weekly, biweekly, monthly) or in a **lump sum** at the end of the loan period. For example, for seasonal activities, it may be more appropriate to design the loan such that a lump sum payment is made once the activity is completed (for example, after harvesting of coffee). However, care needs to be taken with lump sum payments, particularly if there is risk that the harvest (or other seasonal activity) may fail. One way to protect against this type of risk is to combine installment with lump sum payments, by collecting a minimum amount of the loan through installments, with the remainder paid at the end of the harvest.

**Rule 2: Motivate borrowers to repay loans Create incentives.** Groups should have a maximum loan size for first-time borrowers (you can test-start with a loan equal to the size of the borrower's savings), which can increase with each subsequent loan. This creates an incentive (the promise of a future larger loan) to repay the loans. You can also have the borrower pledge a valuable object or property as a guarantee (**collateral**) in case she cannot repay the loan.

**Rule 3: Charge loan fees and interest** *Set an interest rate that covers risks.* Lending can be risky and may involve costs. Sometimes loans may be repaid late (*delinquency*) or simply left unpaid (**default**), the accumulating fund is subject to inflation, and the management of loans and savings may involve administrative costs (paying a secretary and/or treasurer, bank transaction fees, transportation costs, etc.). If the interest rate is set right, it can cover these costs and provide in addition an income on members' savings. Interest rates are expressed as a percentage of the loan over a period of time (usually annually). Find out what interest rates have been set by the nearest commercial bank or other organizations providing loans in order to get an idea.

Three main ways to cover these risks can be used:

1. **Charge an initial loan service fee:** The simplest way is to charge a service fee at the time of disbursing the loan. The fee is usually a percentage of the initial loan amount and is collected up front.
2. **Set a flat interest rate:** The interest rate is set as a percentage of the loan amount at the time of disbursement and stays the same from the time the money is lent until it is fully paid back. This is easier to calculate as the interest payment amount remains the same throughout the repayment plan.
3. **Set a declining interest rate:** The interest rate is set as a percentage of the loan amount at the time of disbursement, but the rate decreases in proportion to the amount the borrower has left to pay. This method is used most often, as it is also an incentive for borrowers to pay back quickly. However, this requires more advanced record keeping skills.

**Minimize your risks!**

**Always remember, micro credits are from the savings of all members!**

Members are free to use their savings as they like; in most cases, savings are used for school fees, fertilizer, seeds, income-generating activities, and food. The savings made during the better season of the year help to overcome food shortages in difficult time, preventing households to sell off valuable assets or become indebted.

## Record keeping

The Accumulative Savings and Credit woman's group requires very careful record keeping. Here is an example of record keeping for a group (for simplicity, this group has only 3 members) that meets once a month and each member contributes 10% monthly. The group has a savings book indicating the date of the meeting, names of the members (1st column), individual member's deposit for that meeting (2nd column) and each member's total savings (3rd column).

The Starting Balance shows the group's total savings at the start of the meeting. The Ending Balance shows the group's total savings at the end of the meeting, after deposits have been collected.

### Example of records for two meetings on a savings book

<b>DATE: 1 March (1st meeting)</b>		
<b>STARTING BALANCE</b>		<b>0</b>
<b>Member</b>	<b>Deposit</b>	<b>Member Savings</b>
Riany	\$5	\$5
Maria	\$5	\$5
Nora	\$5	\$5
<b>Total Deposit</b>	<b>\$15</b>	<b>\$15</b>
<b>ENDING BALANCE</b>		<b>\$15</b>
<b>DATE: 1 April (2nd meeting)</b>		
<b>STARTING BALANCE</b>		<b>0</b>
<b>Member</b>	<b>Deposit</b>	<b>Member Savings</b>
Riany	\$5	\$10
Maria	\$5	\$10
Nora	\$5	\$10
<b>Total Deposit</b>	<b>15</b>	<b>30</b>
<b>ENDING BALANCE</b>		<b>30</b>

At the 12th meeting, the group has accumulated \$180. Maria asks the group for a loan of \$80 to start a small fish trading business, which she is given. But she must still



continue to meet her monthly contribution and pay back the loan with the interest set by the group. A separate record book should be kept for loans. In this example, the loan book has separate records for each borrower, indicating the amount borrowed and the terms of payment on a **loan contract** and a record tracking the repayment on a payment plan.

Here is an example of a simple loan contract and payment plan:

**Example of a Loan contract**

<b>Group:</b>	Feto Buka Moris
<b>Borrower:</b>	Maria
<b>Address:</b>	Aldeia Rileu
<b>Purpose of loan:</b>	Fish trading
<b>Date Issued:</b>	10 May, 2015
<b>Loan amount:</b>	\$60
<b>Flat interest rate:</b>	4% per year
<b>Monthly interest amount:</b>	\$0.2
<b>Additional fees:</b>	None
<b>Period of loan:</b>	6 months
<b>Number of payments:</b>	6
<b>Total interest:</b>	\$1.2
<b>Late payment fee:</b>	\$2
<b>Total due:</b>	\$61.2
<b>Due date:</b>	10 November, 2015
<b>Signature of borrower:</b>	<b>Signature of treasurer:</b>
<i>Maria</i>	<i>Nora</i>

**Example of a payment plan and tracking record**

Date	Loan payment	Interest charge	Payment to be made	Payment made	Late fee	Remaining loan amount
<b>10 May</b>	Loan issued	-	-			\$61.2
<b>10 June</b>	\$10	\$0.2	\$10.2	\$10.2		\$51.0
<b>10 July</b>	\$10	\$0.2	\$10.2	\$10.2		\$40.8
<b>10 August</b>	\$10	\$0.2	\$10.2	\$10.2		\$30.6

<b>10 August</b>	\$10	\$0.2	\$10.2	\$10.2		\$20.4
<b>10 September</b>	\$10	\$0.2	\$10.2			
<b>10 October</b>	\$10	\$0.2	\$10.2			

At the end of each meeting, the group should count how much cash they have in-hand and make sure that the amount matches the records. Everyone should participate, not just the treasurer, so that transparency is ensured.

Starting balance <sup>1</sup> + Savings deposited <sup>2</sup> + Cash in <sup>3</sup> - Cash out <sup>4</sup> = Ending balance <sup>5</sup>
<sup>1</sup> Ending balance from the previous monthly meeting
<sup>2</sup> Savings deposited by members on that meeting
<sup>3</sup> Loan repaid + interest + any late fees
<sup>4</sup> Loan given out
<sup>5</sup> Real cash amount left in the group's savings

**Example of a savings and loans balance record**

<b>Date</b>	<b>1 March</b>	<b>1 April</b>	<b>1 March</b>	<b>1 April</b>	<b>1 May</b>	<b>1 June</b>	<b>1 July</b>	<b>1 August</b>
<b>Starting Balance</b>	0	15	180	150	175.2	200.4	225.6	250.8
<b>Savings deposits (+)</b>	15	15	15	15	15	15	15	15
<b>Cash in (+)</b>	-	-	-	10.2	10.2	10.2	10.2	10.2
<b>Cash out/Loans (-)</b>	-	-	60	-	-	-	-	-
<b>Ending Balance</b>	15	60	150	175.2	200.4	225.6	250.8	276

----- records not shown for meetings held between these dates.

**Key Questions**

- How much or how many percentage will each member contribute?
- How often will the group meet? Once a month?
- Will members contribute the same amount or different
- What will happen to a member if she does not pay her contribution?
- Who will keep the money?
- Where will the money be kept?
- When can a member take a loan out?
- How much interest will be charged?

## Attachment-15: A Sample of Rules and Regulations of a Micro Credit Scheme

### Rules and Regulation for Use of Saving as Micro Credit of woman's group "Name of group" in Name of village.....

#### Rule 1

##### Title

These Rules and Regulation shall be shared among the woman's group "Name of group" to use their saving properly.

#### Rule 2

##### Definition of term

As used in these Rules and Regulation, the following terms shall mean:

- (a) **Micro credit** - a small loans and saving mobilization program exclusively for a woman's group to improve the asset base of household and expand the access to saving of the group. It involves the use of viable alternative credit schemes and saving programs including the extension of small loans, simplified loan application procedures, group character loans, collateral arrangements, alternative loan repayments, minimum requirements for savings, and small denominated instruments.
- (b) In starting stage, NGO "Name of NGO" will support fund management of woman's group "Name of group" to mobilize saving and stabilize credits. Name of NGO is a non-profit organization focusing on improvement of the basic sectors of society by providing advocacy, training on several sectors, community organization, monitoring, research, access to resources and other similar activities.
- (c) Charges on loan shall refer to agreed upon reasonable and conscionable interest rate ( % per year), service charges if necessary, penalty, discount, and such other charges incidental to **Micro Credit** lending activity.
- (d) Debtor shall refer to a borrower or person granted a loan by the woman's group "Name of group".
- (e) Monetary Assets shall refer to saving from income generating activities such as Name of activity and Name of activity.
- (f) **Micro credits** – are small loans granted to the basic sectors on the basis of the borrower's cash flow and other loans granted to the members of the woman's group "Name of group" for their microenterprise and small businesses to enable them to raise their income levels and improve their living standards.

### **Rule 3**

#### **Requirement for Structure**

(a) Structure of Micro Credit “Name of group”

A **Micro Credit** “Name of group” shall have a management committee to operate their activities. The management committee consists of at least five (5) members such as a president, a secretary, a record keeper, a treasurer and a supervisory auditor

- i. Role of president: She is responsible for the **Micro Credit** operation including call a meeting, organizing a meeting, facilitating a meeting and decision making
- ii. Role of secretary: Taking notes (minutes of meeting) and providing the list of participants in every meeting.
- iii. Role of record keeper: Providing individual loan records, calculating interests, monitoring the balance.
- iv. Role of treasurer: Keeping money (less than \$      from saving) safely, providing transparency to every member in the meeting by providing the report and making sure the balance in every month.
- v. Role of supervisory auditor (Name of NGO): Examining the business and financial records of **Micro Credit** “Name of group”, giving advice how to manage loans and keeping money (Savings over \$      ) safely.

### **Rule 4**

#### **Capital**

- (a) The **Micro Credit** “Name of group” shall have a minimum seed capital of Number (      ) Dollars saved from Activity name.
- (b) The capital (fund for saving credit) of the **Micro credit** shall be increased later in accordance with the profit from cassava chips and other income generating activities such as Name of activity of woman’s group “Name of group”. The group members will decide the amount of money and/or percentage of profit to allocate to the capital for **Micro Credit**. (      % for distribution(personal savings):      % for expansion of income generating activities:      % for seed money for **Micro Credit**).

### **Rule 5**

#### **Membership Requirement**

- (a) All of the membership of the **Micro Credit** shall be members of the woman’s group “Name of group” in Name of village.
- (b) Members of Name of activity shall have priority to other members of woman’s group “Name of group”. Other member can join as a member of micro credit if they can

contribute % of their income from group activities such as **Name of activity** and when their saving reached to \$ .

- (c) Need of co-signer
- (d) Pledge of collateral (Ex. Cow, pig, goat, chicken)

## **Rule 6**

### **Amount and Charges on Loans**

- (a) A **Micro Credit** may grant loans from a low of \$ to a maximum of \$ subject to such reasonable and considerable imposable interest rates ( % per year) and charges as may be agreed upon between the **Micro Credit** “**Name of group**” and the debtor:
- (b) In accordance with the Rules and Regulations of the **Micro Credit** “**Name of group**” prior to the consummation of the transaction, the **Micro Credit** “**Name of group**” shall furnish each debtor a disclosure statement, setting forth, to the extent applicable, the following information:
  - i. The principal amount of loan;
  - ii. Rate of interest of the loan;
  - iii. Service or processing fee, if any;
  - iv. Repayment schedule;
  - v. Any penalty charges for late repayment;
  - vi. Collection fee, if any;
  - vii. All other fees in connection with the loan transaction;
  - viii. Description of the collection and lien enforcement procedures; and
  - ix. Method of calculating the total amount of obligation in case of default.
- (c) Contract should be signed by a debtor, debtor’s co-signer, president of Micro Credit “**Name of group**” and another person from micro credit management committee.

## **Rule 7**

### **Maintenance of Books of Accounts and Records**

- (a) **Micro Credit** “**Name of group**” shall maintain books of capital (saving account) and records of loan.
- (b) Record keeper shall maintain these two books of each member, the saving accounts of each member of woman’s group “**Name of group**” based on the profit distribution from activities and the records of loans based on the micro credit contract.
- (c) Treasurer shall report the transaction and balance of **Micro Credit** in every month.
- (d) Advisory auditor (**Name of NGO**) shall monitor the correct use of **Micro Credit** and keep money safely.
- (e) If any accident, president shall call an internal meeting to solve the problems.

## **Rule 8**

### **Effectivity of Rules and Regulations**

These Rules and Regulations shall take effect from the day, **Day, Month, Year**.

Adopted by the Management committee on **Day, Month, Year, Name of village, Name of sub-district, Name of district** District, Timor-Leste

Name of President

**Signature of President**

Name of secretary

**Signature of Secretary**

Name of record keeper

**Signature of Record keeper**

Name of treasurer

**Signature of Treasurer**

Name of Auditor

**Name of NGO**

**Position of the person in charge**

**Signature of the person in charge**

**Attachment-16 A Sample of Loan Contract Form**

Details	
Name of group	Feto Buka Moris
Borrower	Maria Soares
Address	Aldeia Rileu
Purpose of loan	Dried fish trading
Date of issued	10 May, 2015
Loan amount	\$100
Flat interest rate	6% per year
Monthly interest amount	\$0.50
Additional fees	\$0.75
Period of loan	12 months
Number of payments	12
Total interest	\$6
Late payment fee	\$2 per month
Collateral	1 pig
Total due	\$106
Due date	10 May, 2016

Signature of borrower

Signature of President

Signature of Co-signer

Signature of Record keeper or Treasurer

# Manuál Tékniku CB-NRM

## Vol. 3:Hasa'e Rendimentu/Dezenvolvimentu

### Vida Moris



### Prepara hosi

**Projetu Jestaun Rekursu Natural Sustentável Bazeia ba Komunitade  
República Democrática Timor-Leste**







## LIA MAKLOKEK

Degradasaun floresta no deforestasaun mak asuntu importante ida-ne'ebé Governu Timor-Leste (GoTL) preziza rezolve hodi atinje dezenvolvimentu sósiu-ekonómiku sustentável iha rai laran. Estudu ne'ebé hala'o iha tinan 2013 hatudu katak pelumenus 184.000 ha hosi floresta lakon ona entre tinan 2003 no 2012 no maizumenus 170.000 ha hosi floresta ho densidade nakonu hetan ona degradasaun sai floresta ho densidade uitoan iha períudu hanesan.

Jestaun Rekursu Naturál Bazeia ba Komunidade (CB-NRM) mak aprosimaun ba konservasaun natureza ho rekoñese komunidade lokál sira-nia direitu atu benefisia sira hosi jestaun rekursu naturál sustentável (floresta, rai, bee, no biodiversidade) iha área ne'ebé termina ona. Ida-ne'e mak alternativu aprosimaun reguladór hosi leten mai kraik, ne'ebé seidauk efetivu iha nasaun barak, liuliu bainhira regulamentu sira labele hatán hotu mudansa sosiál, kultura no kontestu ekonómiku iha rai laran.

Projetu Jestaun Rekursu Naturál Sustentável Bazeia ba Komunidade (Projetu CB-NRM) ne'ebé implementa hamutuk hosi Japan International Cooperation Agency (JICA) no Ministériu Agrikultura e Peska (MAP), partikulármente Diresaun Nasionál Floresta no Jestaun Bacias Hidrograficas (DNFGBH), dezenvolve tiha ona mekanizmu ne'ebé la'o daudaun ba CB-NRM iha Timor-Leste. Projetu ne'e mós hasai manuál tuirmai iha kursu projetu, atu ajuda MAP hodi habelar mekanizmu ne'ebé hanesan, iha mota prinsipál sira iha rai laran.

- ◆ Manuál Operasaun ba Estabelesimentu Mekanizmu CB-NRM iha nivel Suku
- ◆ Manuál Tékniku CB-NRM
  - Vol. 1: Produsaun Ai-oan no Promosaun Kuda ai
  - Vol. 2: Promosaun Toos Rai-lolon Sustentável
  - Vol. 3: Hasa'e Rendimentu/Dezenvolvimentu Vida-moris
- ◆ Manuál ba Formasaun Konsellu Jestaun Bacias Hidrograficas

Manuál Tékniku CB-NRM sira introdús tékniku/abilidade xave ne'ebé relevante ba jestaun rai no floresta sustentável no mós dezenvolvimentu vida-moris ho prosedimentu detallu ba provizaun treinamentu prátika direktamente. Hirak-ne'e bazeia ba aprendizajen hosi esperiénsia iha terrenu; Tanba ne'e, ami, hanesan representativu MAP, rekomenda tebes katak, pratikante terrenu, la'ós de'it MAP, maibé mós organizasaun seluk ne'ebé servisu iha setór floresta no agrikultura, tenke uza manuál ne'e, hanesan instrumentu matadalan ba provizaun servisu estensaun agrikultura no floresta ba komunidade lokál sira.

  
Manuel Mendes  
Diretór Nasionál

Diresaun Nasionál Floresta no  
Gestaun Bacias Hidrograficas  
(DNFGBH), MAP

Outubru 2015  
  
Raimundo Mau  
Diretór Gerál Floresta, MAP



## **Kona-ba Manuál CB-NRM**

Manuál CB-NRM sira-ne'e dezenvolve no públika hosi Projetu Konjunta JICA no MAP hanaran Jestaun Rekursu Naturál Sustentável Bazeia ba Komunitade, atu fornese ekipamentu prátiiku ne'ebé útil ba planeadór no pratikante sira iha setór floresta iha Timor-Leste, hodi fasilita sira atu proteje no maneja rekursu natural sira ho maneira ne'ebé kolaborativu no sustentável. Materiál sira-ne'e kompostu hosi tipu manuál tolu (3), hanesan hatudu iha kraik ne'e.

- i) Manuál Operasionál ba Estabelesimentu Mekanizmu CB-NRM iha Nivel Suku
- ii) Manuál Tékniku CB-NRM
  - Vol. 1: Produsaun Ai-oan no Kuda Ai
  - Vol. 2: Promosaun To'os Rai-lolon Sustentável
  - Vol. 3: Hasa'e Rendimentu/Dezenvolvimentu Vida-moris
- iii) Manuál ba Formasaun Konsellu Jestaun Bacias Hidrograficas

Manuál Operasionál ne'e mak komponente prinsipál ne'ebé espesifika prosedimentu Operasaun padraun ba introdusaun no estabelesimentu mekanizmu CB-NRM iha nivel suku. Manuál operasionál ida-ne'e dezeña atu planeadór, pratikante, no servisu hanesan peskizadór/estudante sira iha setór floresta iha Timor-Leste bele uza, liuliu sira-ne'ebé envolve iha protesau floresta, konsersaun bacias hidrograficas, no floresta komunitária iha Diresaun Nasionál Floresta no Gestaun Bacias Hidrograficas (DNFGBH).

Manuál Tékniku CB-NRM sira suplementa Manuál Operasionál, introdús tékniku no abilidade relevante sira-ne'ebé bele ajuda komidade rural, hodi bele uza no maneja rekursu naturál sira, liuliu rai no floresta, ho maneira ne'ebé produtivu maibé mós sustentável. Manuál sira-ne'e tenke uza, prinsipalmente hosi servisu estensaun terrenu sira, hanesan funsionáriu MAP munisípiu (ezemplu, funsionáriu munisípiu, estensionista, no guarda floresta sira) no mós funsionáriu ONG sira, hanesan referénsia tékniku ba sira-nia servisu iha terrenu.

Manuál ba formasaun Konsellu Jestaun Bacias Hidrograficas, introdús prosesu dezenvolvimentu kolaboraun plataforma/kuadru servisu ba jestaun rekursu naturál sustentável iha nivel postu-administrativu ka sub-bacias hidrograficas, ne'ebé bele mós hanesan servisu baze ba espansaun mekanizmu CB-NRM iha eskala bacias hidrograficas. Tanba manuál ida-ne'etak aprosimasaun esensiál ida, hodi hadi'a governasaun ambiente iha nivel bacias hidrograficas, liu hosi hametin koordinasaun no rede servisu entre parseiru lokál sira. Manuál ida-ne'e bele uza hodi ajuda sira-ne'ebé envolve iha jestaun bacias hidrograficas.

Liután, Projetu Konjunta JICA no MAP mós dezenvolve no públika tiha ona manuál sira-ne'e iha versaun simples, atu ajuda uza na'in sira fasil halo tuir prosedimentu sira ka aplika tékniku sira-ne'ebé deskreve iha manuál sira-ne'e, iha terrenu.

Ne'e duni espera katak, manuál sira-ne'e ho sira-nia versaun simples bele serbí hanesan referénsia prátiiku ba parseiru roioin iha setór floresta iha Timor-Leste.

## Manual Técnico CB-NRM

### Vol. 3: Hasa'e Rendimentu/Dezenvolvimentu Vida Moris

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## **Vol.3: Hasa'e Rendimentu no Dezenvolvimentu Vida Moris (IG/LD)**

### **1. Introdusaun**

#### **1.1 Rasionál hosi Tékniku**

Hadi'a komunitade lokál sira-nia vida moris mak atividade esensial ida hodi redús ema nia presaun ba rekursu floresta iha área rural sira, tanba komunitade barak mak depende tebetebes ba floresta no rekursu naturál ne'ebé iha relasaun ho floresta, ba sira-nia vida moris. partikulármente, dezeñu di'ak hosi atividade hasa'e rendimentu/dezenvolvimentu vida moris (IG/LD) ne'ebé bazeia ba rekursu, la'ós de'it bele hamenus ema nia presaun ba floresta no rekursu naturál ne'ebé iha relasaun ho floresta, liuhosi fornese vida moris alternativu ba komunitade lokál sira, maibé mós kontribui hodi desenvolve mekanizmu ida-ne'ebé sei enkoraja sira, hodi proteje no maneja rekursu naturál ho maneira ne'ebé sustentável ho sira-nia iniciativa rasik.

Iha tempu hanesan, tékniku IG/LD sei responde tebetebes ba komunitade lokál sira-nia nesesidade, tanba tékniku sira-ne'e bele desenvolve rekursu alternativu hodi hetan osan ka redús lakon ka gastu iha moris lora-lora. No mós suporta IG/LD nian bele harii kapasidade no abilidade fetu sira-nian no simultáneamente hametin sira-nia fiar an liuhosi atividade ne'ebé sira hala'o.

#### **1.2 Objetivu hosi Tékniku**

Objetivu prinsipál hosi tékniku hasa'e rendimentu/dezenvolvimentu vida moris (IG/LD) mak atu fasilita komunitade lokál sira, especialmente fetu sira, hodi uza sira-nia natureza no rekursu agrikultura hodi hadi'a sira-nia vida moris, posivelmente desenvolve alternativu rekursu rendimentu. Especialmente, tékniku ne'e atu fasilita sira hodi:

- Avalia rekursu naturál no agrikultura disponivel potenciál ne'ebé eziste iha sira-nia lokalidade ba dezenvolvimentu vida moris;
- Prodús produktu ne'ebé bele hetan asesu ba merkadu, ne'ebé halo hosi rekursu naturál no agrikultura ne'ebé eziste ka halo hahán ne'ebé ho prazu naruk, liuhosi uza tékniku prosesa ai-han;
- Redús gastu lora-lora nian liuhosi introdús tékniku/materiál/ekipamentu simples;
- Promove produktu ai-han prosesa hodi fa'an iha merkadu prinsipál sira iha Dili; no
- Maneja rendimentu hosi atividade IG/LD ho maneira ne'ebé transparente.

#### **1.3 Objetivu hosi Manuál**

Manuál ne'e ho objetivu atu gia pratikadór terrenu no planeadór sira-ne'ebé hakarak atu introdús tékniku IG/LD iha área rural sira iha Timor-Leste, especialmente tarjetu ba funsiónáriu MAP munisípiu iha área tékniku terrenu ne'ebé relevante, koordinadór estensaun sira, no funsiónáriu tékniku ONG nian no projetu relevante ne'ebé hetan suporta hosi Parseiru Dezenvolvimentu MAP nian balu.

Tanba informasaun kit CB-NRM<sup>1</sup> prepara iha tinan 2015, introdús luan ona opsau hosi

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<sup>1</sup> Informasaun Kit CB-NRM ne'ebé akumula tékniku no abilidade útil eziste ona ba CB-NRM prepara hosi  
Projeto JICA CB-NRM iha Jullu 2015.



IG/LD ne'ebé komunitade lokál iha Timor-Leste bele aplika, manuál ne'e énfaze ba introdusaun xave tékniku IG/LD, especialmente tékniku prosesa ai-han, refere ba rezultadu hosi IG/LD ne'ebé hetan suporta hosi projetu JICA CB-NRM, atu nune'e uza na'in sira hosi manuál ne'e, bele haklean sira-nia komprensaun hosi prosesu no prosedimentu ba introdusaun tékniku IG/LD iha sira-nia hela fatin ho ponta importante balu.

## 2. Aproximasaun hodi Transfere Tékniku sira sai Efetivu

### 2.1 Treinamentu Prátika Diretamente no Kontinuasaun Treinamentu iha Fatin Servisu (OJT)

Treinamentu prátika diretamente mak métodu treinamentu ida, hodi fó treinadu sira oportunidade atu prátika no aprende tékniku sira liuhosi etapa sira tuirmai, durante kursu treinamentu prátika diretamente.

i) Observasaun ba demonstrasaun ne'ebé halo hosi treinadór

Dahuluk, treinadu sira observa demonstrasaun ne'ebé halo hosi treinadór hodi komprende prosesu no hatene produktu finál nia imajen ho klaru.

ii) Halo tuir tékniku ho ajuda hosi treinadór

Depois demonstrasaun ne'ebé halo hosi treinadór, treinadu sira sei halo tuir prosesu ne'ebé sira observa ho asisténsia tékniku hosi treinadór. Liuhosi halo ida-ne'e, treinadu sira espera atu aprende prosesu no prosedimentu hosi produsaun produktu. Tenke fó tempu suficiente no oportunidade ba treinadu sira, hodi prátika tékniku sira iha kursu treinamentu.

Sujere atu fó-oportunidade ba treinadu sira hodi kontinua prátika tékniku sira-ne'e hanesan OJT, atu nune'e sira bele hatene ho kompletu tékniku ne'ebé hanesan. Iha kontinuasaun OJT, membru prinsipál sira-ne'ebé aprende ona tékniku sira-ne'e iha kursu treinamentu prátika diretamente, karik bele sai treinadór ka mentór ba treinadu sira seluk. Liután, OJT bele sai hanesan oportunidade di'ak ba membru sira-ne'ebé aprende ona tékniku sira-ne'e hodi hadi'a no hasa'e sira-nia abilidade.

Elementu importante balu ne'ebé konsidera ba efektividade Treinamentu prátika diretamente no OJT mak haktuir iha kraik ne'e.

#### Elementu importante sira ba Efektividade Treinamentu Prátika Diretamente no OJT kona-ba IG/LD

Elementu	Deskrisaun
a. Partisipante iha treinamentu	Iha prinsipiu, tenke dezeña kursu treinamentu ne'ebé labele ba partisipante ne'ebé liuhosi na'in-10, atu mantein efektividade hosi kursu treinamentu. Karik número partisipante ne'ebé espera liuhosi ema na'in-10, pelumenus treinadór na'in-rua (2) tenke aloka ba kursu ne'e.
b. Fatin treinamentu	Iha prinsipiu, fatin sentru iha suku, hanesan sede suku ka sede aldeia, tenke uza hanesan fatin ba treinamentu tanba maioria hosi treinadu sira bele asesu ba fatin sira-ne'e, tanba ne'e sira sei la sente imparcialidade bainhira halo selesaun ba fatin treinamentu.
c. Treinadór/ Fasilitadór	Rekursu pesoál ka treinadór tenke kontrata hosi rekursu esternál ka hili hosi funsióariu tékniku sira hosi Diresaun Nasionál Agro-negósiu, tanba maioria hosi funsióariu estensaun sira seidak familiar/toman ho tékniku IG/LD, espesialmente tékniku prosesa ai-han. Funsióariu estensaun sira tenke servisu kolaborativu ho treinadór hodi aprende prosesu, atu nune'e sira bele ajuda treinadu/komunidade lokál sira prátika tékniku sira-ne'e, bainhira halo kontinuasaun OJT.
d. Grupu tarjetu	Feto sira iha comunidade tenke sai tarjetu hosi kursu treinamentu ne'e, tanba

Elementu	Deskrisaun
	maioria atividade IG/LD sei diretamente relasiona ho servisu doméstika feto sira-nian, hanesan prosesa ai-han, artezanatu, nst.
e. Monitorizasaun	Kondisaun ijiene no kualidade produktu final, tenke observa periódikamente iha kursu OJT kona-ba tékniku prosesa ai-han hodi mantein kualidade produktu.
f. Oportunidade ba treinamentu	Kuantidade kursu treinamentu prátika diretamente no OJT ne'ebé suficiente tenke arranja, atu nune'e treinadu/komunidade lokal sira bele aplika tékniku sira ho própriu no prodús produktu ho kualidade.

Rekursu: Ekipa Projeto JICA (2015)

## 2.2 Bazeia ba Rekursu

“Bazeia ba rekursu” mak konseitu importante ida-ne'ebé bele halo atividade IG/LD iha nivel suku sai sustentável, tanba karik sei la fasil ba komunidade lokal sira hodi kontinua atividade ruma ne'ebé presiza materiál ne'ebé tenke prokura rekursu hosi li'ur. Tanba ne'e, atividade IG/LD iha suku, tenke bazeia ba rekursu ne'ebé disponivel iha sira-nia lokalidade. Tenke fó-atensaun, la'ós de'it ba rekursu naturál, maibé mós ba rekursu kulturál no rekursu umanu.

## 2.3 Partisipativu

Treinadu/komunidade lokal sira mak tenke hili tópiku treinamentu prátika diretamente, ho maneira partisipativu, atu nune'e, sira bele simu no aplika tékniku sira-ne'e sein duvida ruma. Tan ne'e, importante atu envolve sira iha prosesu introdusaun tékniku IG/LD tomak (ezemplu, i) avaliaun rekursu disponivel ne'ebé eziste iha lokalidade; ii) ezamina no prioriza atividade IG/LD ne'ebé potenciál/posivel; iii) pratika tékniku iha treinamentu prátika diretamente no OJT, no iv) avaliaun rezultadu hosi atividade sira) atu fasilita sira hodi avalia nesidade hosi atividade IG/LD ho própriu, no iha tempu hanesan, hametin sira-nia sentidu hanesan na'in ba atividade refere.

## 2.4 Sentradu ba Feto

Feto tenke sai hanesan grupu tarjetu prinsipál hosi apoiu atividade IG/LD, tanba maioria hosi atividade IG/LD sira, especialmente tipu ai-han prosesa, ne'ebé diretamente relasiona ho feto nia servisu loron-loron. Atividade IG/LD mós sei hanesan oportunidade di'ak atu envolve feto sira iha kadru servisu CB-NRM, tanba atividade CB-NRM seluk, hanesan produsaun ai-oan, kuda ai, no agrikultura rai-lolon hanesan atividade sira-ne'ebé dala barak sentradu ba mane.

## 2.5 Kontinua Treina

Sei la realístiku atu espera katak treinadu/komunidade lokal sira bele aprende kompletu no hetan tékniku IG/LD ho pakote kursu treinamentu prátika diretamente ida de'it. Kontinua treinamentu no treina presiza duni, hodi asegura sira bele atu hala'o atividade IG/LD uza tékniku sira-ne'ebé introdús ona iha kursu treinamentu.

## 2.6 Kuadru Servisu hodi Transfere Tékniku sira

Tabela tuirmai hatudu kuadru servisu jerál no prosedimentu sira hodi transfere tékniku/abilidade ba introdusaun atividade IG/LD ne'ebé treinadu/komunitade sira hili ona.

### Kuadru servisu ne'ebé propoin ba transfere tékniku

Item	Liña jerál
Durasaun	Tinan 2.
Métodu estensaun	Treinamentu prátika direktamente no Kontinuasaun OJT.
Grupú tarjetu	Treinadu na'in-10 ka feto kada grupu ka aldeia.
Atividade planeadu iha tinan dahuluk	<p>a. Avalia rekursu disponivel ne'ebé eziste iha lokalidade no hili atividade IG/LD ne'ebé potenciál bazeia ba disponibilidade rekursu ho maneira ne'ebé partisipativu.</p> <p>b. Dezenvolve kurríkulu treinamentu ne'ebé kompostu hosi kursu treinamentu prátika direktamente ba atividade IG/LD potenciál ne'ebé hili ona.</p> <p>c. Hala'o kursu treinamentu prátika direktamente iha sede suku hodi fornese oportunidade ba treinadu/feto sira, hodi pratika tékniku sira-ne'ebé iha relasaun ho atividade IG/LD ne'ebé hili ona.</p> <p>d. Ajuda sira kontinua hodi pratika tékniku sira iha nivel aldeia depois kursu treinamentu.</p> <p>e. Ajuda sira avalia rezultadu hosi atividade sira no observa, karik iha atividade IG/LD ruma tenke troka ho opsau seluk ruma, iha kurríkulu treinamentu tinan daruak nian.</p>
Atividade planeadu iha tinan daruak	<p>a. Hala'o kursu treinamentu prátika direktamente iha sede suku hodi ajuda treinadu/feto sira, aprende fali prosesu no tékniku sira-ne'ebé presiza hosi atividade IG/LD ne'ebé hili ona.</p> <p>b. Hala'o kursu OJT kona-ba atividade IG/LD, hodi ajuda treinadu/feto sira, hadi'a qualidade produktu hodi fa'an.</p> <p>c. Enkoraja sira hodi ajuda malu pratika tékniku sira iha kursu OJT.</p> <p>d. Ajuda sira fa'an sira-nia produktu ba kompradór prinsipál sira iha Dili no merkadu sira seluk.</p> <p>e. Hala'o kursu treinamentu no fornese treina loro-loron kona-ba jestaun finanseiru hosi grupu ne'e.</p>

Rekursu: Ekípa Projétu JICA (2015)

### 3. Prosesu Introdusaun Atividade IG/LD ne'ebé Potensiál

#### 3.1. Observasaun Jerál

Introdusaun ba atividade IG/LD ne'ebé potensiál tenke envolve treinadu/feto sira iha prosesu tomak hosi selesaun atividade IG/LD ne'ebé potensiál, to'o operasaun no jestaun hosi atividade hanesan, iha adisionál ba provizaun treinamentu prátika diretamente/OJT kona-ba tópiku espesífiku, atu nune'e treinadu/feto sira bele kontinua atividade hanesan ho sentidu hanesan na'in no aproveita benefísiu hosi atividade. Tan ne'e, prosesu introdusaun atividade IG/LD ne'ebé potensiál tenke kompostu hosi etapa sira tuirmai ne'e.

- 1) Avaliasaun rekursu disponivel iha lokalidade no selesaun atividade IG/LD ne'ebé potensiál.
- 2) Treinamentu prátika diretamente/OJT kona-ba atividade IG/LD ne'ebé potensiál (técniku prosesa ai-han).
- 3) Treinamentu prátika diretamente/OJT kona-ba atividade IG/LD potensiál (técniku sira seluk)
- 4) Asisténsia *marketing* (fa'an produktu ba merkadu) no maneja empreza eskala ki'ik

Atividade IG/LD kona-ba tipu prosesa ai-han mak opsaun típiku hosi aproximasaun bazeia ba rekursu. Tékniku prosesa ai-han ho objetivu atu prezerva ai-han ba períodou longu prazu no/ka aumenta valór ba produktu lokál, atu nune'e produktu sira-ne'e bele fa'an iha merkadu iha Dili. Iha parte seluk, atividade IG/LD seluk la nesesáriu bazeia ba rekursu ne'ebé eziste, maibé foku ba hasa'e abilidade ne'ebé sei ajuda sira redús gastu vida moris, no posivel hala'o empreza eskala ki'ik, uza tékniku ka materiál/ekipamentu simples.

Bele dehan, *marketing* mak aspetu importante tebes ida, atu fasilita treinadu/feto sira hodi hetan benefísiu hosi atividade IG/LD. Partikulármente, promosaun produktu no negosiasaun ho sosa na'in sira mak esensiál ba *marketing* ne'ebé efetivu .

Tanba konsiderasaun, tenke mós fó jestaun finanseiru iha operasaun atividade IG/LD, hodi asegura kontinuaun operasaun ne'e. No, kontabilidade mós importante tebes hodi halo operasaun negósiu, tanba ida-ne'e hanesan baze ba avaliasaun hosi kustu no benefísiu hosi negósiu ne'e no fahe benefísiu entre feto/komunitade sira-ne'ebé hola parte iha negósiu ne'e.

## 3.2 Avaliasaun Rekursu iha Lokalidade no Selesaun Atividade IG/LD ne'ebé Potensiál

### 3.2.1 Rekursu Inventáriu

#### (1) Objektivu

Objektivu prinsipál hosi inventáriu rekursu ne'ebé disponivel iha lokalidade mak atu ajuda treinadu/feto sira avalia rekursu naturál, kultura no rekursu umanu ne'ebé eziste iha suku no identifika ida-ne'ebé mak util ba opsaun IG/LD.

#### (2) Prosedimentu ba Aplikasaun

Ekipamentu ba Avaliasaun Rurál Parsipativu (PRA) tuirmai ne'e, tenke uza ba avaliasaun rekursu ne'ebé eziste iha suku.

- i) Mapa rekursu
  - ii) Kalendáriu tuir estasaun
  - iii) Avaliasaun rekursu liuhosi diskusaun grupu
- a. Mapa rekursu (Refere ba **Aneksu-1: Métopu hosi Mapa Rekursu no Kalendáriu Tuir Estasaun** ba detallu liután).
- i) Organiza enkontru ho treinadu/feto sira no komunitade sira seluk no esplika objektivu hosi enkontru.
  - ii) Hili fatin ne'ebé própriu ba preparasaun halo mapa rekursu ho konsultasaun ho lider suku sira.
  - iii) Husu sira atu hatudu rekursu prinsipál no marka rai hosi suku ne'e, hanesan mota, estrada, foho, no baliza suku, liuhosi reprezenta hirak-ne'e iha surat-tahan ho tamañu boot ka tau/uza materiál ne'ebé disponivel iha lokalidade (jís, fatuk, ai-sanak, ai-tahan, nst.) iha rai-leten.
  - iv) Husu sira atu hatudu fatin prinsipál seluk hanesan uma komunitade sira-nian, rekursu bee, igreja, eskola, sede suku, fatin lulik sira iha surat-tahan ka rai-leten ho maneira ne'ebé hanesan.
  - v) Husu sira atu aumenta informasaun kona-ba utilizasaun rai (ezemplu, floresta ho densidade no espésie, plantasaun kafé, área sira halo to'os muda ba mai, to'os permanente ho ai-han, rai ho du'ut, no área hodi husik animál) no rekursu naturál seluk (fatin ba koleasaun ai-sunu, bani-been, tua-mutin no produktu seluk) iha surat-tahan ka rai-leten ho maneira ne'ebé hanesan.
  - vi) Organiza grupu ki'ik (ho membru menus hosi 10) no la'o hodi hala'o observaun badak atu valida no observa utilizasaun rai no rekursu ne'ebé disponivel.
  - vii) Halibur informasaun ruma ne'ebé kolleita ona liuhosi validasaun iha terrenu ho mapa rekursu ne'ebé prepara.
  - viii) Transkreve mapa rekursu no informasaun hotu-hotu ne'ebé aumenta ba mapa iha surat-tahan.

b. Kalendáriu tuir estasaun (Refere ba **Métodu hosi Mapa Rekursu no Kalendáriu Tuir Estasaun**).

- i) Prepara formatu mamuk ba kalendáriu tuir estasaun ne'ebé kompostu hosi koluna 14 (koluna 1 ba naran rekursu sira, koluna 12 ba fulan, no koluna ikus ba observasaun) no liña barak tuir rekursu prinsipál sira ne'ebé disponivel iha suku. (**Aneksu-2** hatudu amostra hosi kalendáriu tuir estasaun.)
- ii) Prenxe naran hosi rekursu naturál no agrikultura iha liña sira, iha formatu ne'e.
- iii) Vistu ka marka koluna fulan sira bainhira rekursu naturál no agrikultura sira kolleita ona.
- iv) Karik komunitade sira kuda rekursu naturál balu, halo nota iha koluna observasaun nian.

c. Avaliasaun Rekursu

- i) Halo lista hosi rekursu sira (naturál, kulturál, no rekursu umanu) ne'ebé eziste iha suku bazeia ba rezultadu hosi sesaun ne'ebé deskreve iha leten.
- ii) Diskute possibilidade utilizaun rekursu sira-ne'ebé identifika ona ba produsaun ai-han prosesa no tipu atividade IG/LD sira seluk.
- iii) Avalia no diskute volume/kbiit hosi rekursu sira-ne'ebé bele uza ba IG/LD.
- iv) Identifika atividade IG/LD tipu prosesa ai-han ne'ebé potenciál.

(3) Preparasaun materiál

Materiál sira tuir mai tenke prepara ba enkontru.

- ▶ Surat-tahan boot
- ▶ Markadór ho kór oiain
- ▶ Lapizeira no lapis
- ▶ Fita-kola

(4) Tempu ba Treinamentu

Enkontru ida-ne'e tenke hala'o prior ba selesaun atividade IG/LD ne'ebé potenciál. Tempu padraun hosi enkontru mak hatudu iha kraik ne'e.

**Tempu Padraun hosi Inventáriu Rekursu**

<b>Atividade</b>	<b>Tempu</b>	<b>Durasaun hosi sesaun</b>
i) Mapa rekursu	Inísiu hosi introdusaun	Loron ida
ii) Tabela tuir estasaun	Inísiu hosi introdusaun	Loron ida
iii) Selesaun atividade	Inísiu hosi introdusaun	Loron ida

Rekursu: Ekipa Projeto JICA (2015)

(5) Referénsia seluk

Lista hosi rekursu naturál no agríkola ne'ebé eziste iha Timor-Leste mak hatudu iha aneksu tuirmai, ne'ebé aneksa iha manuál ne'e. Aneksu hanesan fó-idea balu kona-ba oinsá atu uza respetiva rekursu sira-ne'e.

**Aneksu 3: Rekursu Agríkola (Modo, Ai-fuan no produktu komérsiu seluk iha Timor-Leste)**

**Aneksu 4: Rekursu Naturál (Ai-horis Medisinál iha Timor-Leste)**



### 3.2.2 Selesaun ba Atividade IG/LD ne'ebé Potensiál

#### (1) Objektivu

Objektivu prinsipál hosi sesaun ne'e mak atu ajuda treinadu/feto sira hili atividade IG/LD ne'ebé potensiál ho maneira partisipativu ho konsiderasaun ba aplikabilidade, impaktu potensiál, sustentabilidade, no bele selu kustu inisiál hosi atividade ne'e.

#### (2) Prosedimentu ba Selesaun Atividade IG/LD ne'ebé Potensiál

Atividade IG/LD ne'ebé potensiál tenke hili ho maneira no etapa sira hanesan tuirmai ne'e.

- i) Halo lista rekursu potensiál sira ho possibilidade utilizaun ba futuro bazeia ba rezultadu hosi rekursu inventáriu.
- ii) Esplika kritéria avaliaun tuirmai ba selesaun atividade IG/LD ne'ebé potensiál.

#### Kritéria Avaliasaun ba Selesaun Atividade IG/LD

Kritéria	Pontu diskusaun
Aplikabilidade	Posibilidade hosi aplika tékniku ne'ebé uza ba produsaun produktu ai-han prosesu.
Impaktu	Estima número uma-kain ne'ebé sei hetan benefísiu hosi tékniku/abilidade ne'ebé introdús ba produsaun produktu ai-han prosesa.
Sustentabilidade	Volume no asesu ba rekursu ne'ebé uza ba produsaun.
Marketing	Posibilidade <i>marketing</i> hosi produktu ai-han prosesa.
Bele selu kustu	Kustu estimadu hodi komesa no operasaun hosi atividade IG/LD ne'ebé potensiál.

Rekursu: Ekipa Projeto JICA (2015)

- iii) Prepara matrís tuirmai iha surat-tahan boot no haruka treinadu/feto sira atu avalia atividade IG/LD ne'ebé potensiál, iha terminu kritéria avaliaun uza sistema kritéria valór 3 ka 5 .

Atividade	Aplikabilidade	Impaktu	Sustentabilidade	Marketing	Bele selu kustu

- iv) Ajuda sira avalia respetiva kritéria ho própriu, fó sira informasaun nesáriu ba avaliaun, ezemplu, difikuldade hosi aplikasaun tékniku, komersializasaun hosi produktu, no kustu estimadu ba operasaun iha inísiu.
- v) Prioritiza atividade IG/LD ne'ebé potensiál bazeia ba rezultadu hosi sesaun anterior.
- vi) Hili atividade prioridade 3-5 hosi lista bazeia ba rezultadu diskusaun.

#### (3) Preparasaun materiál

Estasionáriu báziku, hanesan surat-tahan boot, markadór ho kór oiain, no fita-kola, tenke prepara ba enkontru ne'e.

(4) **Tempu ba Treinamentu**

Tempu padraun ba enkontru mak hatudu iha kraik ne'e.

**Tempu padraun hosi inventáriu rekursu**

<b>Atividade</b>	<b>Tempu</b>	<b>Durasaun hosi sesaun</b>
i) Avaliasaun ba opsaun	Depois inventáriu rekursu	Loron sorin
ii) Selesaun opsaun prioridade	Depois inventáriu rekursu	Loron sorin

Rekursu: Ekipa Projetu JICA (2015)

### 3.3 Treinamentu Prátika Diretamente/OJT kona-ba Atividade IG/LD ne'ebé Potensiál (Produitu Ai-han Prosesa)

Seksaun ida-ne'e introdús prosesu no prosedimentu ba introdusaun xave ba tékniku procesa ai-han. Objetivu prinsipál hosi procesa ai-han mak atu konverte/muda i) ai-han/rekursu sira-ne'ebé bele aat lalais ba ai-han longu prazu no/ka ii) ai-han ne'ebé menus valór bainhira sei matak sai ai-han ne'ebé iha valór adisionál/produitu ne'ebé bele fa'an iha merkadu. Métodu haat (4) tuirmai ne'e mak uza iha prosesu ai-han no rekursu naturál ba iha ai-han longu prazu/ai-han ho valór.

#### Métodu haat ba Prosesu Ai-han

Métodu prosesu	Tékniku	Prosesu	Produitu
Métodu Habai	Habai iha loro-matan	Hamaran materiál ai-han sira hodi redús konteúdu bee, menus liuhosi 13% hodi halakon baktéria sai belar.	Ai-fuan maran, modo maran, <i>herbal</i> maran, fore maran, temperu maran, ikan maran, naan maran no naan rahun maran.
Métodu hamanas	Hamanas	Hamanas materiál ai-han sira-ne'ebé haloot ka tau ona iha lata/botir/plástiku atu esteriliza ai-han ne'e liuhosi hamanas.	Hahán lata, hahán botir no hahán embalajen.
Métodu Hoban	Budu iha bee-masin	Hoban materiál ai-han sira iha bee-masin/budu iha bee-masin.	Modo masin, ikan masin, ai-fuan xarope, marmelada no budu.
Métodu Sona	Sona	Sona materiál ai-han sira ho mina hodi redús konteúdu bee no konverte ai-han sira-ne'e sai botun ho sabór batatiñas hodi fa'an iha merkadu.	Batatiñas hosi ai-fuan no hosi ai-han fehuk (Ezemplu, ai-farina, kontas)

Rekursu: Ekipa Projeto JICA (2015)

Nune'e, manuál ne'e introdús produitu lima (5) tuirmai, ne'ebé halo liuhosi uza métodu habai, hoban, no sona, tanba métodu sira-ne'e fasil atu aplika, maski iha situaun área rurál agora iha Timor-Leste.

- a. Hamaran Xá herbal  
Fehuk-midar maran
- b. Hoban Modo masin  
Modo budu
- c. Sona Batatiñas Ai-farina

### 3.3.1 Métopu Habai: Produsaun Xá Herbal

#### (1) Objétivu

Objétivu prinsipál hosi tékniku ida-ne'e mak atu fasilita treinadu/feto sira atu prodús xá *herbal*, ne'ebé halo hosi ai-horis no ai-tahan ne'ebé disponivel iha lokalidade, ne'ebé bele fa'an ba iha Dili ka esporta ba nasaun seluk hanesan hahán saudavel.



#### (2) Prosedimentu ba Aplikasaun

Etapa haat (4) tuirmai tenke hala'o hodi prodús xá *herbal*.

##### a. Kolesaun ai-tahan ne'ebé saudavel

- i) Kolleita ai-tahan ne'ebé saudavel hosi ai-hun no ai-horis medisinál/*herbal* iha área ne'ebé moos, ne'ebé dook hosi dapur, hariis fatin no animál luhan.
- ii) Hili ai-tahan ne'ebé saudavel no hasai fo'er, hetan estraga insetu, moras no modelu ladi'ak hosi ai-tahan sira.

*Dapur, hariis fatin no animál luhan jerálmente la ijiene no fatin ba baktéria no virus sira.*

*Kontrola kualidade tenke tau iha hanoin komesa hosi halo kolesaun ba ai-tahan herbal.*

##### b. Hamoos no hili ne'ebé di'ak hosi ai-tahan ne'ebé kolleita

- i) Fase ai-tahan sira ho di'ak hodi hasai fo'er sira hanesan, tahu, rai-henek, ular oan, no insetu sira-nia tolun.
- ii) Observa ai-tahan nia tamañu no kór no hasai ai-tahan sira-ne'ebé ladi'ak.
- iii) Hamaran bee didi'ak hosi ai-tahan sira.
- iv) Ko'a ai-tahan hodi halo uniforme sira-nia tamañu atu hamaran ho lalais bainhira nesesáriu.

*Tenke hadook kontaminausaun hosi li'ur hanesan: fuuk, kabas, du'ut, insetu, ai-sanak, liman-kukun, fatuk, rai-henek no tahu*

##### c. Hamaran ai-tahan

- i) Nahe lekar ai-tahan sira iha bandeja (fatin mamuk ida) hodi habai ai-tahan sira ho uniforme.
- ii) Taka bandeja ho hena metan hodi proteje ai-tahan sira hosi kona loro-matan maka'as diretamente atu prevene hosi lakon ninia kór.
- iii) Hamaran ai-tahan ba semana 1. Rai bandeja iha fatin mahon durante tempu kalan no bainhira udan.



##### d. Hili sai ai-tahan di'ak no tau ba embalajen ho marka.

- i) Tau ai-tahan maran sira iha surat-tahan mutin, hodi observa sira-nia kór, tamañu no ninia maran, no hili sai ai-tahan ne'ebé di'ak tuir padraun kualidade hosi padraun tuirmai ne'e.
- ii) Hili ai-tahan maran sanulu (10) hosi ai-tahan maran sira-ne'ebé kualidade di'ak no halo xá uza ai-tahan sira-ne'e (tau ai-tahan sira-ne'e iha xikra, fui bee manas, taka xikra matan ba, no hein ba minutu 3).
- iii) Observa ai-tahan nia kór no xá been, no koko uza kanuru moos.
- iv) Tetu no fahe ai-tahan sira ba parte ki'ik hodi tau ba embalajen.
- v) Empakota ai-tahan sira ba plástiku ka pakote seluk.
- vi) Taka plástiku ho *sealer* ka uza lilin.
- vii) Tau marka iha embalajen ho informasaun hosi produktu (Ezemplu, naran no kuantidade produktu, data manufatura, naran produtór, data prazu, no número *lot*).
- viii) Rai pakote xá *herbal* sira iha fatin moos ho jél silica maran.

### Ponta Importante



- ▶ *Labele prodús xá herbal bainhira ita-boot moras, hodi prevene kontaminasaun baktéria ho xá herbal.*
- ▶ *Uza de'it ai-tahan ne'ebé saudavel hodi prodús xá kualidade di'ak.*
- ▶ *Konteúdu umidade iha ai-tahan maran tenke menus hosi 10%*
- ▶ *Observa karik a-tahan sira bele rahun ho fasil bainhira kaer.*

### (3) Materiál, Instrumentu no Ekipamentu ne'ebé Uza ba Produsaun

- ▶ **Materiál matak ba xá *herbal*:**  
Dareta (*Indian pennywort*), ortelaun, derok, abakate, guava, ai-ruku (*holy basil*), ai-lia, no/ka du'ut morin tahan.
- ▶ **Instrumentu:**
  - Balde hodi fase moos, unidade 1
  - Raga hodi hamaran, unidade 2
  - Bikan kalén hanesan bandeja hodi habai, unidade 2
  - Rede hodi nahe ai-tahan sira bainhira habai, unidade 2
  - Hadak ba fatin habai halo hosi ai-riin (ai-riin 4 ba ain no ai-bigas/ai-dona 4 ba nahe leten)
  - Hena metan 1 hodi taka fatin habai
- ▶ **Materiál ba embalajen:**  
Plástiku, embalajen, marka, lilin/*sealer*, (unidade 1), fatin rai no jél *silica*
- ▶ **Roupa hatais ba te'in:**  
Aventál, xapeu ulun, máskara no luvas plástiku ba treinadu sira

#### (4) Tempu ba Treinamentu

Iha parte norte hosi nasaun ne'e, distinsaun entre estasaun tempu udan no bailoro klaru, kursu treinamentu prátika direktamente dahuluk tenke hala'o iha fulan-maiu/juñu, tanba fasil ba treinadu/feto sira atu hetan ai-tahan no habai. Hili ai-tahan maran ne'ebé di'ak no tau ba embalajen tenke hala'o loron 2-7 depois sesaun kolelaun, fase, no habai.

#### Tempu Padraun ba Produsaun Xá Herbal (Dala 4)

Atividade	Tempu	Durasaun hosi Sesaun
i) Kolelaun ai-tahan sira, fase, no habai	Maiu/Juñu	Loron ida
ii) Hili ai-tahan di'ak, no tau ba embalajen ho marka	Maiu/Juñu	Loron sorin

Rekursu: Ekipa Projetu JICA (2015)

#### Ponta Importante



- ▶ *Sujere atu hala'o pelumenus treinamentu dala 4, atu nune'e treinadu/feto sira bele aprende tékniku/abilidade sira-ne'e.*
- ▶ *Xá herbal bele prodús iha tinan tomak nia laran, karik situasaun klima permite.*

### 3.3.2. Métopu Habai: Produsaun Fehuk-midar Maran

#### (1) Objektivu

Objektivu prinsipál hosi tékniku ne'e mak atu fasilita treinadu/feto sira hodi konverte fehuk-midar ba ai-han longu prazu ne'ebé bele konsume hanesan merenda iha família.

#### (2) Prosedimentu ba Produsaun

Etapa haat (4) tuirmai tenke hala'o hodi prodús fehuk-midar maran.

a. Halo hadak habai ho fatin bandeja nian.

i) Prokura hadak habai ho fatin bandeja uza ai-riin/au-riin, kalén kabelak, no rede plástiku.

b. Fase no ko'a sai parte sira-ne'ebé fo'er.

i) Hili fehuk-midar ne'ebé ho kulit kabeer.

ii) Fase fehuk-midar didi'ak iha bee-laran hodi hasa'e tahu.

iii) Ko'a sai parte sira-ne'ebé mak fo'er.

c. Kukus.

i) Kukus fehuk-midar iha sanan kukus to'o fehuk sira sai mamar/tasak.

ii) Loke fehuk-midar ne'ebé kukus ona nia kulit ho liman bainhira fehuk sira sei manas hela.

iii) Depois fehuk ne'ebé loke ona kulit malirin, ko'a ba kada rohan ho medida 8-9mm.

d. Habai.

i) Nahe fehuk-midar ne'ebé ko'a ona iha bandeja habai nian.

ii) Habai fehuk sira-ne'e iha loron-matan ba loron rua (2) hodi prodús tipu fehuk-midar semi maran ka habai semana ida hodi prodús tipu fehuk-midar maran kompletu.



#### Ponta Importante



- ▶ Loke fehuk-midar kulit bainhira sei manas hela, selae sei difisil atu loke kulit, tanba fehuk-kulit taka an ona ba nia isin bainhira sai malirin ona.
- ▶ Ko'a fehuk ne'ebé loke ona kulit bainhira malirin ona. Sei difisil atu ko'a halo kabeer bainhira sei manas hela, tanba sei mamar no frajil.
- ▶ Labele prodús fehuk-midar maran durante tempu udan tanba fasil atu dodok ka kulapur.

e. Empakota no tau marka

- i) Hili fehuk-midar maran ne'ebé kualidade di'ak, haree hosi modelu, kór no ninia maran.
- ii) Tetu fehuk-midar maran ne'ebé hili ona.
- iii) Tau fehuk sira-ne'e ba plástiku.
- iv) Taka metin plástiku ho lilin ka fita-kola.
- v) Tau marka iha embalajen ho informasaun hosi produktu (hanesan: naran produktu, ingrediente, kuantidade, data produsaun, data prazu, naran produtór).



(3) Materiál, Instrumentu no Ekipamentu ne'ebé uza ba Produsaun

► Materiál matak:

Fehuk-midar kór-violeta ka kór-laranja mak prefere liu atu halo produktu finál ho kór interesante no atraente.

► Instrumentu:

- Balde tamañu boot unidade 2, balde fase nian unidade 2, koadór unidade 2, no eskova hodi fase unidade 5.
- Fogaun unidade 1 no sanan kukus hodi kukus unidade 1.
- Tudik ka *slicer* liman nian (kuadru ai 4 halo uza kail talin) hodi ko'a fehuk.
- Bandeja hodi habai halo hosi kalén no plástiku unidade 2, hadak habai unidade 1, no rede insetu hodi habai unidade 1.

► Materiál ba embalajen:

Plástiku, pakote, marka, lilin/*sealer* (unidade 1), dasin unidade 1 no rai-fatin unidade 1.

► Roupa hatais ba te'in:

Aventál, xapeu ulun, máskara no luvas plástiku ba treinadu sira.

(4) Tempu ba Aplikasaun

Treinamentu prátika direktamente ba tópiku ida-ne'e tenke hala'o iha tempu bailoro, tanba fehuk-midar fasil sai kulapur se karik prodús durante tempu udan.

**Tempu Padraun Treinamentu Prátika Direktamente ba Produsaun Fehuk-midar Maran**

Atividade	Tempu	Durasaun hosi sesaun
i) Harii hadak habai	Jullu	Loron ida
ii) Prosesa fehuk-midar maran	Jullu	Loron ida
iii) Empakota no tau marka	Jullu	Loron ida

Rekursu: Ekipa Projetu JICA (2015)



### 3.3.3. Métodu Hoban: Produsaun Modo-masin (hoban períodu naruk)

#### (1) Objetivu

Objetivu prinsipál hosi tékniku ne'e mak atu fasilita treinadu/feto sira hodi prezerva modo sira-ne'ebé bele aat lalais, ba períodu naruk/kleur, uza tékniku tradisionál ho arranju adisionál balu. Iha mós possibilidade katak produktu ne'e bele fa'an iha Dili, se karik kuantidade hosi produktu ne'e bele prodús ho estavel iha suku.

#### (2) Prosedimentu ba Aplikasaun

Etapa tolu (3) tuirmai tenke hala'o hodi prodús modo-masin ho forma ne'ebé bele fa'an iha merkadu.

##### a. Fase no ko'a modo.

- i) Hili modo ne'ebé sei fresku.
- ii) Ko'a sai abut no hasai fo'er sira.
- iii) Fase modo didi'ak hodi hasai tiha fo'er no ular-oan sira.
- iv) Habai modo ba loron sorin to'o loron ida hodi redús konteúdu bee iha modo-tahan.

##### b. Tau masin no budu.

- i) Tau modo-tahan ne'ebé maran natoon iha plástiku laran, hodi hatama ba balde boot.
- ii) Tau masin iha modo-tahan nia leet sira no fui bee ba plástiku laran.
- iii) Taka/kesi metin plástiku nia tutun no hanehan plástiku ne'e uza ain to'o modo ne'e sai la fleksivel.
- iv) Loke plástiku ne'e no aumenta ho ai-manas rahun uitoan no kinur-rahun kanuru isin ida ba plástiku laran.
- v) Kesi plástiku tutun, falsu de'it, no tau fatuk todan iha plástiku leten hodi budu modo ne'e.
- vi) Taka balde ne'e ho rede insetu nian hodi prevene modo hosi kontaminasaun insetu.
- vii) Tau balde ne'e iha fatin malirin no nakukun, hodi budu ba fulan rua (2) to'o tolu (3).
- viii) Observa modo nia kondisaun kada semana ida no hasai tiha modo been ne'ebé resik bainhira nesesáriu.

##### c. Empakota no tau marka ba *marketing*



- i) Foti sai modo-masin hosi balde laran no tetu ba grama 200.
- ii) Tau kada modo ne'ebé tetu ona (grama 200) ba plástiku no kesi plástiku nia tutun.
- iii) Tau marka iha plástiku ho informasaun produsaun (hanesan, naran produktu, ingrediente, kuantidade, data produsaun, data prazu, no naran produtór).
- iv) Rai modo sira-ne'ebé falun ona iha fatin malirin no nakukun to'o sira fa'an ba merkadu.

### (3) Materiál no instrumentu

- ▶ Materiál matak no ingrediente:
  - Mostarda/modo-tahan seluk
  - Masin
  - Ai-manas no kinur-rahun
- ▶ Instrumentu hodi tau masin no budu
  - Fatin/balde boot, unidade 2
  - Plástiku (45 L) 1
  - Fatuk 2
  - Esponja rohan 1
- ▶ Empakota no tau marka:
  - Plástiku ba embalajen
  - Marka
  - Fita-kola/borraxa hodi kesi no tau marka

### (4) Tempu ba Aplikasaun

Treinamentu prátika direktamente kona-ba tópiku ida-ne'e, tenke hala'o tuir tempu tuirmai ne'e.

#### Tempu padraun treinamentu prátika direktamente kona-ba modo masin (budu ba períodu naruk)

Atividade	Tempu	Durasaun hosi sesaun
i) Fase, habai, tau masin no budu	Maiu	Loron rua
ii) Observa kualidade, empakota no tau marka	Agostu	Loron ida

Rekursu: Ekipa Projetu JICA (2015)

### Ponta Importante



- ▶ *Tau rede insetu nian hodi prevene ataka ular-oan ka produktu sei fasil hetan estragu.*
- ▶ *Kualkér modo tahan bele uza halo modo masin. Sira-ne'ebé ho tahan mahar serve liu hodi halo modo masin.*
- ▶ *Aplika masin barak karik hakarak hanaruk/aumenta produktu nia prazu, maibé fase modo sira-ne'e ho bee hodi hasai tiha masin sira-ne'e bainhira atu han.*

### 3.3.4. Métopu Hoban: Produsaun Modo-budu (Hoban períodu badak)

#### (1) Objektivu

Objektivu prinsipál hosi tékniku ne'e mak atu fasilita treinadu/feto sira hodi prodús modo budu, ne'ebé halo hosi lakeru-mutin uza tékniku simples ba períodu tempu badak. Maski prazu hosi modo budu ne'e badak kompara ho modo masin ne'ebé introdús iha seksaun anterior (seksaun 3.3.3), produktu ne'e karik serve ba merkadu tanba bele prodús iha síklu badak.



#### (2) Prosedimentu ba Aplikasaun

Etapa tolu (3) tuirmai ne'e tenke hala'o hodi prodús lakeru-mutin masin.

##### a. Fase no ko'a lakeru-mutin antes budu.

- i) Hili lakeru-mutin ne'ebé fresku no nurak (kór matak).
- ii) Ko'a sai lakeru-mutin kulit (uza luvas plástiku ba protesaun liman-kulit).
- iii) Ko'a lakeru-mutin ne'e ba baluk oan 3mm no ko'a ho tamañu ne'ebé uniforme (naruk 3cm no luan 3cm).



##### b. Preparasaun ingrediente ne'ebé kahur ho lakeru-mutin

- i) Fase no ko'a derok-masin ho tamañu 3mm.
- ii) Loke ai-nanas/ai-dila kulit ne'ebé fase ona, no ko'a ba tamañu 3mm.
- iii) Ko'a ai-manas ba baluk no hasai ninia musan.



##### c. Tau masin no budu

- i) Prepara bee-masin liuhosi kahur masin 100g ho bee litru 1.
- ii) Hoban lakeru-mutin ne'ebé ko'a ona iha bee-masin ba minutu 30.
- iii) Kahur ingrediente sira ho bee litru 0,5, masin kanuru 1 no masin-midar maskavu kanuru 2 (karik disponivel).
- iv) Fase lakeru-mutin masin ho bee no hasuli didi'ak.
- v) Hoban lakeru-mutin iha ingrediente sira-ne'ebé kahur ai-lia no liis-mutin tuku.
- vi) Budu lakeru mutin ba loron ida.



d. Empakota no tau marka hodi fa'an

- i) Tau lakeru-mutin budu ba plástiku no tetu ho todan grama 200.
- ii) Tau budu been ba plástiku laran hodi mantein lakeru-mutin fresku nafatin.
- iii) Kesi plástiku tutun ho fita-kola ka borraxa.
- iv) Tau marka ba plástiku ho informasaun produsaun (hanesan, naran produktu, ingrediente, kuantidade, data produsaun, data prazu no naran produtór).
- v) Rai modo ne'e iha fatin malirin no nakukun to'o lori ba merkadu.



(3) Materiál no Instrumentu

- ▶ Materiál matak no ingrediente:
  - Lakeru-mutin/ Modo ai-fuan seluk
  - Ai-lia no liis-mutin
  - Masin
  - Ai-fuan (masán, ai-nanas, ai-dila, guava)/masin-midar
- ▶ Instrumentu hodi tau masin no budu:
  - Fatin/balde ho matan, unidade 2
  - *Drainer*, unidade 2
- ▶ Empakota no tau marka:
  - Plástiku ba embalajen
  - Marka
  - Fita-kola/borraxa hodi kesi no tau marka
- ▶ Roupa:
  - Aventál, xapeu ulun nian, máskara, no luvas plástiku ba treinadu sira

(4) Tempu ba Aplikasaun

Treinamentu prátika direktamente kona-ba iha tópiku ida-ne'e tenke tuir tempu tuirmai ne'e:

**Tempu padraun treinamentu prátika direktamente kona-ba Modo-masin (Budu período Badak)**

Atividade	Tempu	Durasaun hosi sesaun
i) Ko'a lakeru-mutin, tau masin no budu	Juñu	Loron ida
ii) Empakota no tau marka	Juñu	Loron sorin

Rekursu: Ekipa Projeto JICA (2015)

**Ponta Importante**



- ▶ Uza ai-fuan ne'ebé ko'a hodi aumenta midar no kór ba lakeru-mutin budu.
- ▶ Uza liis-mutin no ai-lia hodi aumenta sabór ba lakeru-mutin budu.
- ▶ Métodu ida-ne'e bele mós aplikavel ba modo tahan sira.

### 3.3.5 Produsaun Batatiñas Ai-farina

#### (1) Objektivu

Objektivu prinsipál hosi tékniku ne'e mak atu fasilita treinadu/feto sira hodi prosesa produtu hosi to'os lokál (ai-farina no fehuk seluk) ba ai-han prosesa ho valór aumenta no prazu naruk ne'ebé bele fa'an iha merkadu iha Dili.

#### (2) Prosedimentu ba Aplikasaun

Etapa sia (9) tuirmai ne'e tenke hala'o hodi prodús batatiñas ai-farina ne'ebé bele fa'an.

##### a. Fase no loke ai-farina kulit.

- i) Fase ai-farina iha bee laran no eskova sai tiha tahu ne'ebé belit iha ai-farina lolon.
- ii) Ko'a/hasai tiha parte ne'ebé fo'er.
- iii) Loke ai-farina kulit ho tudik/deskaskadór.
- iv) Fase ai-farina ne'ebé loke ona kulit didi'ak to'o ai-farina lolon la sai belit ona.



##### b. Ko'a Ai-farina.

- i) Ko'a ai-farina ne'ebé fase ona ho mihis (1mm) uza *slicer* (mahar ne'ebé oioin bele rezulta testura/toos ne'ebé la uniforme).
- ii) Hasai ai-farina ne'ebé mahar liu no rahun.



##### c. Pre-tratamentu hodi hadi'a batatiñas ai-farina nia kór no testura.

- i) Tau ai-farina ne'ebé ko'a ona 3kg ba bee litru 5 ne'ebé kahur ho masin kanuru 1 no ahú kanuru balun.
- ii) Hoban ai-farina ne'ebé ko'a ona bee ne'ebé kahur ona ne'e ba minutu 10.



##### d. Fase no hamaran ai-farina ne'ebé ko'a ona.

- i) Fase ai-farina ne'ebé ko'a ona dala lima (5) ho bee no tau iha *drainer* hodi hasuli sai bee.
- ii) Nahe ai-farina ne'ebé ko'a ona iha bandeja boot.
- iii) Habai ai-farina ne'ebé ko'a ona iha loro-matan ba minutu 10.



##### e. Preparasaun temperu no *topping*.

<Sabór derok no ai-manas >

- i) Hasai ai-manas musan no tetak ba rohan-rohan ki'ik.

- ii) De'ut derok-tahan no kahur ho ai-manas rohan sira-ne'ebé ko'a ona no masin.

<Sabór Liis-mutin no pimenta>

- i) De'ut pimenta-musan ho masin iha fatuk tuku.
- ii) Ko'a liis-mutin ho forma orizontál
- iii) Sona liis-mutin iha mina manas (170°C-185°C) iha taxu boot, to'o liis sira-ne'e muda kór sai kinur di'ak.
- iv) Hasai liis-mutin sira hosi taxu laran no tau iha surat-tahan.



- f. Sona ai-farina ne'ebé ko'a ona.

- i) Hamanas mina litru rua (2) iha taxu laran to'o mina ne'e sai manas to'o 170 °C-185°C.
- ii) Tau ai-farina ne'ebé ko'a ona iha mina ne'ebé manas ona. Labele tau ai-farina rohan barak dala ida, selae temperatura mina bele tun no batatiñas bele sai la botun/tarutu.
- iii) Kedok ai-farina ne'ebé sona hela to'o ninia kór sai kinur di'ak.
- iv) Suru sai batatiñas ho kanuru rede no nahe ba surat-tahan ne'ebé loke hela iha bandeja leten hodi halo malirin batatiñas ne'e.



- g. Tau temperu no topping

- i) Rega temperu rahun uza makta'es xá nian antes batatiñas sai malirin.
- ii) Kahur batatiñas ho liman ne'ebé uza luvas hodi halo kona temperu rahun ba batatiñas ho di'ak.
- iii) Aumenta *topping* ba batatiñas ne'ebé kahur ona temperu.



- h. Tetu no tau batatiñas ba embalajen.

- i) Sukat batatiñas nia volume ne'ebé deside ona antes, molok tau ba embalajen.
- ii) Tau batatiñas ba embalajen molok sira absorve umidade.
- iii) Empakota no taka embalajen uza lilin ka *sealer*.

- i. Tau marka.

- i) Tau marka ba embalajen ho informasaun produsaun (hanesan, naran produktu, ingrediente, kuantidade, data produsaun, data prazu, no naran produtór)



### (3) Materiál no instrumentu

- ▶ Materiál matak no ingrediente:
  - Ai-farina
  - Mina-sona
  - Ahu (limestone powder)
  - Temperu (masin, ai-manas, liis-mutin, pimenta derok-tahan maran)
- ▶ Instrumentu:
  - Balde unidade 1, no tudik/deskaskadór (*peeler*) unidade 1, hodi fase no loke ai-farina kulit.
  - Laban/koadór unidade 1 hodi ko'a ai-farina.
  - *Drainer* unidade 1 no bandeja boot unidade 1 hodi fase no hamaran fehuk ne'ebé ko'a ona.
  - Fogaun unidade 1, taxu unidade 1 no *drainer* kalén unidade 1 hodi sona batatiñas.
  - *Grinder* unidade 1, Fatuk tuku unidade 1 no makta'es xá nian unidade 1 ba preparasaun temperu no *topping*.
  - Dasin 1 ba empakota
- ▶ Empakota no tau marka :
  - Embalajen (plástiku alumíniu)
  - Marka
  - *Sealer*
- ▶ Roupa:
  - Aventál, xapeu te'in nian, máskara no luvas plástiku ba treinadu sira.

### (4) Tempu ba Aplikasaun

Treinamentu prátika direktamente kona-ba tópiku ida-ne'e tenke hala'o tuir tempu hanesan tuirmai ne'e.

#### Tempu padraun treinamentu prátika direktamente kona-ba produsaun batatiñas ai-farina

Atividade	Tempu	Durasaun hosi sesaun
i) Ko'a ai-farina, sona no temperu/ <i>topping</i>	Outubru	Loron ida
ii) Empakota no tau marka	Outubru	Loron ida

Rekursu: Ekipa Projetu JICA (2015)

#### Ponta Importante



- ▶ Hili no uza ai-farina isin ne'ebé kualidade di'ak.
- ▶ Labele estraga ingrediente no materiál sira hodi poupa gastu ba produsaun.
- ▶ Prodús batatiñas iha kondisaun ne'ebé ijiene.
- ▶ Tékniku ne'ebé hanesan bele aplika ba produsaun batatiñas hosi ai-han fehuk seluk, hanesan fehuk-midar, talas, kontas no ai-raraut.

### 3.4 Treinamentu Prátika Diretamente/OJT kona-ba Atividade IG/LD ne'ebé Potensiál (Atividade Seluk)

Artezanatu (hanesan, homan, eskultura no arte serámika) no manufatura uma (hanesan, suku, halo bloku no karpintaria) mak atividade IG/LD seluk, hanesan mós atividade prosesa ai-han ne'ebé komunitade lokál posivel bele involve ba. Objetivu prinsipál hosi tékniku ne'e mak atu uza abilidade, dalaruma tékniku artezanatu, hodi i) prodús sasán/produtu balu ne'ebé bele aumenta valór ne'ebé halo hosi materiál lokál sira-ne'ebé disponivel iha lokalidade no/ka ii) hadi'a produtu loroloron nian, hodi redús gastu loroloron nian. No mós, seksaun ida-ne'e introdús tékniku suku hanesan ezemplu hosi atividade IG/LD ne'ebé feto sira iha komunitade lokál bele ho fasil introdús no simu ho di'ak. Iha realidade, tékniku seluk karik sei gasta tempu barak ba komunitade lokál/feto sira, hodi aprende tékniku hanesan, to'o sira bele hetan rendimentu osan hosi atividade ne'ebé sira hala'ó.

#### 3.4.1 Tékniku Suku

##### (1) Objetivu

Objetivu prinsipál hosi tékniku ne'e mak atu fasilita treinadu/feto sira hodi hadi'a no halo roupa uza mákina suku.



##### (2) Prosedimentu ba Aplikasaun

Etapa haat (4) tuirmai tenke hala'ó hodi suku hena.

- a. Halo dezeñu padraun roupa nian.
  - i) Halo dezeñu padraun roupa.
  - ii) Risku dezeñu ne'e iha hena leten ho jís.
- b. Tesi hena.
  - i) Tesi hena tuir ho liña ne'ebé dezeña ho tezoura no halo parte hosi roupa. (Husik parte balu atu suku nian bainhira tesu hena).
  - ii) Tutan parte sira ba malu ho daun marka nian.
- c. Aliñava no prova roupa.
  - i) Aliñava parte ne'ebé atu suku.
  - ii) Prova/ajusta roupa ne'ebé aliñava ona ho na'in.
- d. Suku roupa
  - i) Depois realiñava fali roupa ne'e tuir ajustamentu ne'ebé halo, suku parte sira hamutuk .
  - ii) Hasai kabas aliñava nian.
  - iii) Estrikan roupa ne'ebé suku hodi finaliza.





### (3) Materiál no Instrumentu

- ▶ Materiál
  - Hena
  - Kabas
  - Padraun dezeńu suku nian
  - Kabas aliñava
- ▶ Instrumentu:
  - Mákina suku, unidade 1
  - Daun, pakote 1
  - Daun marka, pakote 1
  - Tezoura, unidade 1
  - Jís, box 1
  - Estrika, unidade 1

### (4) Tempu ba Aplikasaun

Treinamentu prátika direktamente kona-ba tópiku ida-ne'e tenke hala'o tuir tempu tuirmai ne'e.

#### Tempu padraun Treinamentu Prátika Direktamente kona-ba Suku (Dala 2)

Atividade	Tempu	Durasaun hosi sesaun
i) Oinsá atu uza mákina suku	Dezemburu	Loron ida
ii) Halo dezeńu padraun no tesi	Dezemburu	Loron ida
iii) Aliñava/Prova	Dezemburu	Loron ida
iv) Suku	Dezemburu	Loron ida
v) Finaliza	Dezemburu	Loron ida

Rekursu: Ekipa Projetu JICA (2015)

#### Ponta Importante



- ▶ *Presiza hala'o pelumenus kursu treinamentu pakote rua (2), atu nune'e treinadu/feto sira bele aprende tékniku/abilidade hodi halo rounpa. Ba dahuluk, sira tenke aprende oinsá atu suku produtu ne'ebé simples, hanesan lensu ulun, hena meza iha kursu dahuluk, no depois bele aprende atu halo rounpa/vestidu iha kursu daruak nian.*
- ▶ *Observa kondisaun mákina suku depois uza mákina ne'e. partikulármente, hasai tiha kabas rahun sira, no tau óleu ba mákina, especialmente parte ne'ebé halo movimentu.*
- ▶ *Observa no kolleita daun sira depois uza mákina, hodi prevene kanek.*

### 3.5 Asisténsia iha *Marketing* ba Produtu no Operasaun no Jestaun Atividade IG/LD

Maski treinadu/feto sira bele hetan ona tékniku/abilidade liuhosi treinamentu prátika direktamente no OJT ne'ebé arranja/hala'o hanesan ne'ebé deskreve iha seksaun anterior, karik sei difisil ba sira atu bele hetan rendimentu ka halo osan, to'o sira bele fa'an sira-nia produtu iha merkadu. Tanba ne'e, importante ba sira atu hetan koñesimentu no abilidadade *marketing* ba sira-nia produtu. Liután, jestaun finanseiru ne'ebé própriu mak esensial hodi asegura no halo operasaun sai sustentável hosi atividade IG/LD sira-ne'e. Partikulármente, kontabilidadade inklui halo arkivu (*record keeping*) mak hanesan abilidadade ne'ebé presiza atu aprende/hetan hosi pesoál/grupu ne'ebé iha intensaun atu hala'o negósiu eskala ki'ik uza tékniku IG/LD.

Ho relasaun ida-ne'e, seksaun ne'e introdús no deskreve:

- i) Oinsá atu promove produtu IG/LD ba *marketing*; no
- ii) Oinsá atu maneja rendimentu ne'ebé hetan hosi atividade IG/LD.

Hanesan adisionál, ba operasaun no jestaun atividade IG/LD, seksaun ne'e mós introdús eskema mikro kréditu hanesan opsaun ida atu utiliza lukru ne'ebé hetan hosi atividade IG/LD, hodi direktamente kontribui atu hadi'a estatutu ekonomia hosi treinadu/feto sira, tanba iha possibilidade katak atividade IG/LD balu karik sei bele hetan rendimentu osan hanesan hatudu iha suku ne'ebé hetan suporta hosi projektu JICA CB-NRM. Iha realidade, suku ne'ebé hanesan mós hala'o ona operasaun eskema mikro kréditu hodi utiliza rendimentu ne'ebé hetan hosi atividade IG/LD hodi hadi'a vida moris feto lokál sira-nian ho efetivu.

### 3.5.1 Promosaun Produitu

#### (1) Objetivu

Objetivu prinsipál hosi tékniku ne'e mak atu fasilita treinadu/feto sira hodi promove sira-nia produitu, atu nune'e sira bele fa'an produitu sira-ne'e iha merkadu prinsipál sira iha Dili.

#### (2) Prosedimentu ba Aplikasaun

Atividade xave tuirmai tenke hala'o ba promosaun produitu.

- a. Avaliasaun no dezvoltamentu informasaun ba produitu.
  - i) Diskute entre treinadu/feto sira kona-ba pontu ne'ebé sei estrese, bainhira halo *marketing* ba produitu ne'e, hanesan produitu nia karakterístika xave, impaktu pozitivu ne'ebé poténsial, istória hosi produitu, no karakterístika lokal ruma relasiona ho produitu ne'e.
  - ii) Halo materiál promosaun hanesan broxura no promosaun badak ba produitu, ne'ebé deskreve pontu *marketing* hosi produitu ne'e.
- b. Partisipasaun iha espozisaun ne'ebé hala'o iha Dili.
  - i) Observa oráriu espozisaun ne'ebé sei hala'o iha Dili (ezemplu, espozisaun produitu lokal) no diskute ho sira kona-ba sira sei partisipa ka lae iha espozisaun ruma.
  - ii) Halo oráriu hodi partisipa iha espozisaun.
  - iii) Hili membru sira-ne'ebé sei partisipa iha espozisaun.
  - iiii) Arranja transporte, akomodasaun, no osan nesesáriu ba gastu ruma hodi atende iha espozisaun.
  - v) Prepara materiál promosaun (ezemplu, broxura no promosaun badak) ne'ebé desenvolve ona tuir item a.
  - vii) Atende iha espozisaun ho materiál promosaun no promove/fa'an produitu ba konvidadu sira iha espozisaun.
  - viii) Maneja produitu ne'ebé fa'an durante espozisaun ho própriu.
  - ix) Fahe rezultadu hosi espozisaun ba treinadu/feto sira seluk bainhira ema sira-ne'ebé atende iha espozisaun filafali ba sira-nia suku.
- c. Promosaun produitu direktamente ba komprador prinsipál sira (merkadu) iha Dili
  - i) Prepara materiál promosaun ne'ebé desenvolve tuir item a.
  - ii) Hili membru sira-ne'ebé sei vizita komprador prinsipál sira iha Dili.
  - iii) Arranja transporte, akomodasaun, no osan nesesáriu ba gastu ruma ba promosaun.
  - iv) Arranja enkontru/hasoru malu ho komprador prinsipál sira.
  - v) Promove produitu liuhosi esplika produitu nia pontu marketing iha enkontru ho komprador sira.
  - vi) Negosia maneira atu halo distribuisaun produitu ba komprador sira, karik bele.

- d. Negosiasaun ho kompradór sira
- i) Halo estimasaun kustu produsaun no *marketing* bazeia ba kuantidade ingrediente no materiál sira seluk (ezemplu, embalajen no marka).
  - ii) Estabelese presu fa'an bazeia ba kustu produsaun no *marketing* estimadu.
  - iii) Halo negosiasaun ho kompradór sira kona-ba presu.
  - iv) Diskute maneira no kondisaun pagamentu ne'ebé sei halo hosi kompradór sira.

### (3) Materiál

- Materiál ba promosaun (ezemplu, livru ki'ik)
- Surat-tahan mahar ba promosaun badak
- Surat-tahan ba broxura
- Markadór ho kór (kór oioin)
- Kadernu no lapizeira

### (4) Tempu ba Aplikasaun

Treinamentu prátika direktamente kona-ba tópiku ne'e tenke hala'o bazeia ba tempu tuirmai ne'e.

#### Tempu padraun treinamentu prátika direktamente kona-ba promosaun produktu

Atividade	Tempu	Durasaun hosi sesaun
i) Avaliasaun no Dezenvolvimentu informasaun kona-ba produktu (OJT)	Setembru	Loron sorin
ii) Partisipasaun iha espozisaun (OJT)	Outubru	Loron rua
iii) Vizita ba kompradór sira hodi halo promosaun direta (OJT)	Dezemburu	Loron rua
iv) Negosiasaun ho kompradór sira (OJT)	Bainhira nesesáriu	Loron sorin-loron ida

Rekursu: Ekipa Projeto JICA (2015)

### Ponta Importante



- ▶ *Komprende ho di'ak pontu marketing hosi produktu prior ba promosaun.*
- ▶ *Prepara material publisidade ne'ebé furak ho istória hosi produktu. Komesa halo negosiasaun ho presu ne'ebé aas liu hosi presu ne'ebé estabelese, hodi asegura fatin ba negosiasaun (labela ofereze presu ne'ebé ki'ik liu presu fa'an nian.)*
- ▶ *Di'ak liu halo akordu eskrita ho kompradór, bainhira fa'an produktu.*

- ▶ *Halo fatura, bainhira halo distribuisaun produktu ba kompradór sira.*
- ▶ *Rai arkivu hosi produsaun, distribuisaun, no pagamentu ne'ebé kolleita periódikamente.*

Aneksu sira tuirmai, aneksa iha manuál ne'e, bele esplika liután abilidade *marketing* nesesáriu no oinsá atu halo materiál sira-ne'e.

**Aneksu-5: Koñesimentu no abilidade báziku sira kona-ba *marketing*.**

**Aneksu-6: Oinsá atu halo promosaun badak.**

**Aneksu-7: Oinsá atu halo broxura.**

### 3.5.2 Kontabilidade

#### (1) Objektivu

Objektivu prinsipál hosi tékniku ne'e mak atu fasilita treinadu/feto sira-ne'ebé mak responsavel ba jestaun rendimentu atu mantein livru konta ho maneira ne'ebé própriu.

#### (2) Prosedimentu ba Aplikasaun

Etapu sira tuirmai ne'e tenke foti hala'o hodi halo grupu feto sira komprende kona-ba kontabilidade.

- a. Koñesimentu báziku kona-ba kontabilidade.
  - i) Esplika nesesidade no importánsia hosi kontabilidade ba partisipante sira.
  - ii) Esplika estrutura hosi livru konta no oinsá atu rejistu dados iha livru konta.
  - iii) Husu partisipante sira atu pratika hatama dados no kalkula balansu entre rendimentu no gastu uza formatu ezersísiu ne'ebé prepara ona antes.
- b. Analiza kustu no lukru.
  - i) Esplika kustu prinsipál no item lukru nian.
  - ii) Esplika kustu tipu seluk hanesan kustu variável, presu fíksu, kustu kahur sira seluk.
  - iii) Esplika oinsá atu estabelese presu fa'an hosi produktu bazeia ba gastu sira.
  - iv) Husu partisipante sira atu kalkula kustu produsaun no estabelese presu fa'an uza formatu ezersísiu ne'ebé prepara ona antes.

#### (3) Materiál

- Surat-tahan boot no markadór ho kór.
- Formatu ne'ebé transkreve iha surat-tahan boot no livru ki'ik.
- Lapizeira no kadernu.

#### (4) Tempu ba Aplikasaun

Treinamentu prátika direktamente kona-ba tópiku ne'e tenke hala'o bazeia ba tempu tuirmai.

#### Tempu padraun ba treinamentu prátika direktamente kona-ba kontabilidade (loron 2 x dala 2)

Atividade	Tempu	Durasaun hosi sesaun
i) Koñesimentu báziku kona-ba kontabilidade	Janeiru & Juñu	Loron 2
ii) Analiza kustu no lukru	Janeiru & Juñu	Loron 2

Rekursu: Ekipa Projeto JICA (2015)

#### Ponta Importante



- ▶ *Aloka tempu ne'ebé suficiente hodi fasilita partisipante sira komprende kustu no benefísiu.*
- ▶ *Toma atensaun ba kustu ne'ebé bele haree (direta) no kustu ne'ebé labele haree (la direta) bainhira halo presu.*

Manuál kontabilidade no amostra ba formatu, iha aneksu tuirmai.

**Aneksu-8: Matadalan ba Treinamentu Kontabilidade.**

**Aneksu-9: Formatu Livru-konta/*Cashbook*.**

**Aneksu-10: Formatu Rejistu Fa'an nian/*Sales Record*.**

**Aneksu -11: Formatu Rejistu Estoke nian/*Stock Record*.**

### **3.5.3 Mikro Kréditu Utiliza Rendimentu hosi Operasaun Atividade IG/LD**

#### **(1) Objektivu**

Objektivu prinsipál hosi tékniku ne'e mak atu fasilita grupu treinadu/feto sira-ne'ebé hetan ona rendimentu osan hosi atividade IG/LD, hodi uza osan ne'ebé rai ba operasaun eskema mikro kréditu ba treinadu/feto sira-ne'ebé envolve iha atividade IG/LD.

#### **(2) Prosedimentu ba Aplikasaun**

Etapa tolu (3) tuirmai tenke hala'o, hodi ajuda grupu sira decide oinsá atu uza sira-nia rendimentu ne'ebé sira hetan hosi atividade IG/LD no komesa operasaun eskema mikro kréditu, hodi hadi'a kondisaun ekonomia hosi treinadu/feto sira-ne'ebé envolve iha atividade IG/LD.

a. Diskusaun kona-ba oinsá atu uza rendimentu iha grupu.

- i) Ajuda treinadu/feto sira diskute estatutu osan ne'ebé rai no rekursu prinsipál hosi rendimentu grupu nian.
- ii) Ajuda sira avalia oinsá grupu ne'e rai ona rendimentu ne'e no gasta rendimentu ne'e iha kursu opsaun operasaun IG/LD.
- iii) Ajuda sira kalkula montante nesesáriu ba opsaun operasaun IG/LD.
- iv) Fasilita sira-nia diskusaun kona-ba oinsá atu uza rendimentu ne'ebé rai/hetan hodi esplika possibilidade utilizasaun rendimentu, hanesan i) kontinuasaun ba operasaun opsaun IG/LD ne'ebé eziste ona, ii) habelar opsaun IG/LD seluk iha futuro, iii) mikro kréditu, iv) distribuisaun rendimentu, no v) depóziitu iha grupu.
- v) Ajuda sira decide oinsá atu uza rendimentu ne'ebé hetan/rai.

b. Finaliza regulamentu kona-ba mikro kréditu.

- i) Fasilita sira-nia diskusaun kona-ba regulamentu báziku hosi eskema mikro kréditu, hanesan elijibilidade, garantia, período selu filafali osan, jurus, no limitasaun ba osan ne'ebé empresta.
- ii) Ajuda sira dezenvolve ezbosu regulamentu ba eskema, bazeia ba rezultadu hosi diskusaun iha leten.
- iii) Introdús ba sira livru-banku no formatu ne'ebé sei uza ba kontratu ba empresta nian, ne'ebé hatudu amostra hosi dokumentu rua (livru-banku no formatu kontratu empresta) no ajuda sira komprende nesesidade hosi formatu sira-ne'e.
- iv) Ajuda sira hili membru sira hosi komité jestaun (prezidente, sekretária, kontan-na'in/arkivu-na'in, no tezureiru) no diskute knaar no responsabilidade hosi komité ne'e no nia membru sira.
- v) Ajuda sira diskute no finaliza tuir lei eskema nian.

c. Asisténsia iha operasaun eskema mikro kréditu.

- i) Fornese treinamentu loron-loron ba komité jestaun hodi fasilita sira maneja no hala'o eskema mikro kréditu ho maneira ne'ebé própriu no transparente.



- ii) Monitór pagamentu filafali ne'ebé halo hosi treinadu/feto sira-ne'ebé empresta osan hosi rendimentu ne'ebé hetan/rai ne'ebé hetan hosi tempu ba tempu, no ajuda komité jestaun hodi fó-hanoin ba empresta na'in sira, atu selu filafali osan ne'ebé sira empresta.

### (3) Materiál

- Surat-tahan no markadór
- Lapizeira no kadernu
- Amostra livru-banku
- Amostra formatu kontratu empresta nian
- Ezbosu lei no regulamentu ho knaar no responsabilidade hosi komité

### (4) Tempu ba Aplikasaun

Treinamentu prátika direktamente kona-ba tópiku ne'e tenke hala'o bazeia ba tempu tuirmai.

#### Tempu Padraun ba Diskusaun Utilizasaun Rendimentu iha Mikro kréditu

Atividade	Tempu	Durasaun hosi sesaun
i) Diskusaun grupu kona-ba oinsá atu uza rendimentu	Fevereiru	Loron ida ba esplikasaun no diskusaun
ii) Diskusaun no finaliza regulamentu mikro kréditu	Marsu	Loron ida ba diskusaun
iii) Asisténsia iha operasaun mikro kréditu	-	Monitorizasaun periódikamente durante operasaun

Rekursu: Ekipa Projeto JICA (2015)

### Ponta Importante



- ▶ *Aloka tempu suficiente hodi diskute kona-ba oinsá atu uza rendimentu ne'ebé rai/hetan, no regulamentu ba mikro kréditu, tanba sira-ne'e bele afeta operasaun no jestaun atividade IG/LD.*

Amostra hosi livru ki'ik no manuál ne'ebé bele uza iha diskusaun mak aneksa iha manuál ne'e.

**Aneksu-12: Matadalan ba diskusaun rai osan iha grupu.**

**Aneksu-13: Amostra formatu livru-banku.**

**Aneksu-14: Matadalan ba diskusaun utilizasaun rendimentu.**

**Aneksu-15: Amostra hosi lei no regulamentu eskema mikro kréditu**

**Aneksu-16: Amostra formatu ba kontratu empresta osan nian**

#### 4. Módulu Treinamentu Padraun

Tabela tuirmai hatudu módulu treinamentu padraun ba respetiva téknika sira-ne'ebé introdús iha seksaun 3.2 to'o 3.5. Kursu treinamentu hotu-hotu asume sei hala'o iha sentru suku (sede suku).

##### Módulu Treinamentu Padraun hosi Téknika sira

Kursu treinamentu	Ítem	Deskrisaun
Rekursu inventáriu	Objetivu	Atu ajuda treinadu/feto sira avalia rekursu util ne'ebé eziste ba atividade IG/LD
	Tempu	<u>Sesaun dahuluk: Halo mapa rekursu (loron 1 ho balun)</u> a. Introdusaun no halo mapa rekursu (loron sorin) b. Observasaun terrenu ( <i>transect walking</i> ) (loron sorin) c. Finaliza mapa rekursu (loron sorin) <u>Sesaun daruak : Kalendáriu tempu estasaun (loron 1)</u> a. Introdusaun no identifíkasaun rekursus no atividade halo to'os (loron sorin) b. Diskusaun ba rekursu ne'ebé disponivel iha tempu ruma no atividade sira (loron sorin) <u>Sesaun datoluk: Avaliasaun rekursu (loron 1)</u> a. Introdusaun no haree filafali sesaun anterior (loron 2) b. Halo lista ba rekursu potenciál no halo diskusaun kona-ba possibilidade utilizasaun rekursu sira-ne'e (loron sorin) c. Identifíkasaun atividade IG/LD ne'ebé potenciál (loron 0,3)
		Materiál
	Rezultadu espera	Lista hosi opsaun IG/LD ne'ebé potenciál
Selesaun ba atividade IG/LD ne'ebé potenciál	Objetivu	Atu ajuda treinadu/feto sira hili no prioriza atividade IG/LD ne'ebé potenciál ho maneira parsipativu
	Tempu	a. Introdusaun no esplíkasaun ba prosesu no métodu avaliasaun (loron 0,2) b. Avaliasaun atividade IG/LD ne'ebé potenciál (loron sorin) c. Selesaun ba atividade IG/LD prioridade (loron 0,3)
	Materiál	Surat-tahan boot, markadór , fita-kola, kadernu no lapizeira
	Rezultadu espera	Lista atividade IG/LD prioridade
Produsaun xá <i>herbal</i>	Objetivu	Atu fasilita treinadu/feto sira prodús xá <i>herbal</i> ne'ebé halo hosi ai-horis no ai-tahan ne'ebé disponivel iha lokalidade
	Tempu	<u>Sesaun dahuluk: koleasaun, fase, no habai (loron 1)</u>

Kursu treinamentu	Item	Deskrisaun
		<p>a. Kolesaun no hili ai-tahan di'ak (loron 0,25)</p> <p>b. Fase (loron 0,25)</p> <p>c. Habai (loron sorin)</p> <p><u>Sesaun daruak : hili ai-tahan di'ak no empakota ho tau marka (loron 1)</u></p> <p>a. Observa qualidade, empakota no tau marka (sesaun daruak ne'e, tenke hala'o semana 1 depois sesaun dahuluk.)</p>
	Materiál	<p>Materiál matak: Dareta-tahan, derok-tahan no abakate- tahan, nst.</p> <p>Instrumentu: basia hodi fase, <i>drainer</i>, bandeja, rede habai, hadak habai, hena metan, plástiku no marka</p>
	Rezultadu espera	<p>Feto sira bele prodús xá <i>herbal</i> hosi ai-horis/ai-tahan naturalmente ne'ebé moris iha sira-nia lokalidade, uza tékniku ne'ebé simples</p>
Fehuk-midar maran	Objetivu	<p>Atu ajuda treinadu/feto sira prodús fehuk-midar maran hanesan ai-han prosesa longu prazu, uza fehuk-midar ne'ebé kolleita hosi sira-nia lokalidade</p>
	Tempu	<p><u>Sesaun dahuluk: Fase, kukus, no habai (loron 1)</u></p> <p>a. Fase no hamoos (loron 0,25)</p> <p>b. Kukus (loron 0,25)</p> <p>c. Habai (loron sorin)</p> <p><u>Sesaun daruak : empakota ho tau marka (loron 1)</u></p> <p>a. Empakota no tau marka (loron 1)</p> <p>(sesaun daruak ne'e, tenke hala'o loron 3 depois sesaun dahuluk)</p>
	Materiál	<p>Materiál matak: fehuk-midar</p> <p>Instrumentu: sanan kukus, koadór, hadak habai ho bandeja, rede insetu, plástiku no marka</p>
	Rezultadu espera	<p>Feto sira bele prodús fehuk-midar maran ne'ebé bele rai ba período tempu ne'ebé naruk.</p>
Modo-masin (períodu naruk)	Objetivu	<p>Atu ajuda treinadu/feto sira prezerva modo sira-ne'ebé bele aat lalais ba período longu prazu iha forma modo-masin.</p>
	Tempu	<p><u>Sesaun dahuluk: fase, habai, tau masin no budu (loron 2)</u></p> <p>a. Fase, habai, no tau masin (loron 1)</p> <p>b. Aumenta tan masin, no budu (loron 1)</p> <p><u>Sesaun daruak : Observa qualidade, empakota no tau marka (loron 1)</u></p> <p>a. Empakota no tau marka (loron 1)</p> <p>(sesaun daruak ne'e, tenke hala'o fulan 2-3 depois sesaun dahuluk)</p>

Kursu treinamentu	Item	Deskrisaun
	Materiál	Materiál matak: modo-metan Instrumentu: balde boot, plástiku boot, rede insetu, fatuk todan, plástiku no marka
	Rezultadu espera	Feto sira bele prodús modo-masin kualidade di'ak uza tékniku tradisionál ho modifikasaun balu
Modo-masin (Períodu badak)	Objetivu	Atu ajuda treinadu/feto sira prodús modo budu uza tékniku simples ba períodu tempu badak.
	Tempu	<u>Sesaun dahuluk: fase, ko'a, tau masin no budu (loron 1)</u> a. Fase, hasai kulit & musan, no ko'a (loron sorin) b. Tau masin no budu (loron sorin) <u>Sesaun daruak : empakota no tau marka (loron 1)</u> a. Empakota no tau marka (loron 1) (Sesaun daruak ne'e, tenke hala'o semana 1 depois sesaun dahuluk)
	Materiál	Materiál matak: lakeru-mutin, liis-mutin, Ai-fuan, ai-manas, masin, masin-midar, no bee Instrumentu: balde, <i>drainer</i> , ai ko'a modo, tudik, borraxa, plástiku no marka
	Rezultadu espera	Feto sira bele prodús modo budu kualidade di'ak, uza tékniku simples.
Produsaun batatiñas	Objetivu	Atu facilita treinadu/feto sira prodús produktu longu prazu no aumenta valór ba produktu ne'e (batatiñas ho sabór) halo hosi produktu lokál hanesan ai-farina no kontas.
	Tempu	<u>Sesaun dahuluk: fase, loke kulit, ko'a no sona (loron 1)</u> a. Selesaun, fase, no loke ai-farina kulit (loron 0,2) b. Ko'a, pre-tratamentu, no habai (loron 0,3) c. Sona (loron sorin) <u>Sesaun daruak : sona, tau temperu, no empakota (loron 1)</u> a. Repete filafali atividade sesaun dahuluk nian (loron sorin) b. Preparasaun temperu no <i>topping</i> (loron 0,1) c. Tau temperu no <i>topping</i> (loron 0,2) d. Empakota (loron 0,2)
	Materiál	Materiál matak: fehuk (hanesan, ai-farina, kontas no fehuk-midar) Instrumentu: koadór, taxu boot, kanedok rede, bandeja, plástiku/falun alumíniu, no marka
	Rezultadu espera	Feto bele prodús batatiñas kualidade di'ak ne'ebé halo hosi produktu lokál, hanesan ai-farina no fehuk seluk, ne'ebé bele fa'an iha merkadu prinsipál sira iha Dili.

Kursu treinamentu	Item	Deskrisaun
Suku	Objetivu	Atu fasilita treinadu/feto sira hodi halo roupa no prátika uza mákina suku.
	Tempu	<u>Kursu Treinamentu dahuluk: pratika suku (loron sorin)</u> a. Oinsá atu suku uza mákina suku (loron 1) b. Pratika suku (loron 4) <u>Kursu Treinamentu daruak: halo roupa/vestidu (loron 5)</u> a. Oinsá atu halo dezeñu padraun roupa (loron 1) b. Ko'a hena (loron sorin) c. Suku (loron 3 ho balun)
	Materiál	Máquina suku, hena, kabas, dezeñu padraun suku, no tezoura
	Rezultadu espera	Feto sira bele hadi'a sira-nia roupa no/ka halo roupa/vestidu uza mákina suku
Promosaun produktu	Objetivu	Atu fasilita treinadu/feto sira ka grupu, atu halo atividade promosaun nesesáriu hodi fa'an sira-nia produktu iha Dili no Merkadu seluk
	Tempu	<u>Sesaun dahuluk: Dezenvolvimentu informasaun produktu (loron 1)</u> a. Diskusaun kona-ba pontu <i>marketing</i> hosi produktu (loron sorin) b. Halo ezbosu materiál promosaun (loron sorin) <u>Sesaun daruak : partisipasaun iha espozisaun (loron 2)</u> a. Diskusaun kona-ba partisipasaun iha espozisaun (oráriu, selesaun membru ne'ebé atu tuir, no arranja buat ne'ebé presiza (loron 1) b. Partisipasaun iha espozisaun iha Dili (loron 1) <u>Sesaun datoluk: Vizita kompradór ba promosaun direta (loron 2)</u> a. Preparasaun materiál promosaun no diskusaun kona-ba vizita kompradór sira ba promosaun (Tempu, selesaun membru, no Arranja buat ne'ebé presiza) (loron 1) b. Vizita kompradór sira hodi halo promosaun (loron 1) <u>Negosiasaun ho kompradór sira (OJT)</u> a. Diskusaun kona-ba presu negosiasaun b. Vizita kompradór sira ba negosiasaun
	Materiál	Surat-tahan mahar, surat-tahan, markadór, kadernu no lapizeira
	Rezultadu espera	Feto sira bele aprende nesesidade/demanda hosi kompradór prinsipál sira, atu nune'e sira bele identifika halo asaun nesesáriu hodi hadi'a sira-nia produktu. Iha tempu hanesan, espera atu aprende prosesu no asaun nesesáriu ne'ebé sei halo ba promosaun produktu
Kontabilidade	Objetivu	Atu fasilita treinadu/feto sira ka grupu atu mantein livru-konta ho

Kursu treinamentu	Item	Deskrisaun
		rejistu kustu, lukru no konta ne'ebé simu, no estoke hosi produktu
	Tempu	<p><u>Sesaun dahuluk: Koñesimentu báziku kona-ba kontabilidade (loron 2)</u></p> <p>a. Koñesimentu báziku kona-ba kontabilidade (loron sorin)</p> <p>b. Ezersísiu kona-ba kontabilidade (loron sorin – loraon 1)</p> <p>c. Ezersísiu kona-ba kalkulasaun balansu entre kustu no lukru (loron sorin – loraon 1)</p> <p><u>Sesaun daruak : Analiza kustu no lukru (loron 1)</u></p> <p>a. Esplikasaun kustu no lukru loraon (loron sorin)</p> <p>b. Esplikasaun oinsá atu tau presu fa'an (loron sorin)</p> <p>c. Ezersísiu ba kalkulasaun hosi kustu produsaun no presu fa'an (loron 1)</p>
	Materiál	Surat-tahan boot, formatu ne'ebé halo antes ba ezersísiu, livru-ki'ik, markadór , fita-kola , kadernu no lapizeira
	Rezultadu espera	Feto sira ka grupu feto bele maneja sira-nia rendimentu ne'ebé hetan/rai hanesan soin ho maneira ne'ebé própriu no transparente
Mikro Kréditu uza rendimentu hosi atividade IG/LD	Objetivu	Atu fasilita treinadu/feto sira ka grupu feto, atu deside oinsá atu uza sira-nia rendimentu ne'ebé hetan/rai hosi atividade IG/LD hodi fó-benefísiu ba treinadu/feto sira-ne'ebé envolve iha atividade ne'e
	Tempu	<p><u>Sesaun dahuluk: Diskusaun oinsá atu uza sira-nia rendimentu (loron 1)</u></p> <p>a. Diskusaun kona-ba estatutu osan ne'ebé rai no rekursu prinsipál hosi rendimentu ( loraon 0,25)</p> <p>b. Avaliasaun ba rendimentu no gastu iha implementasaun atividade IG/LD ( loraon 0,25)</p> <p>c. Kalkulasaun ba montante nesesáriu ba operasaun atividade IG/LD (loron 0,25)</p> <p>d. Diskusaun kona-ba oinsá atu uza rendimentu ne'ebé hetan/rai (loron 0,25)</p> <p><u>Sesaun daruak : Diskusaun kona-ba regra eskema mikro kréditu (loron 1)</u></p> <p>a. Diskusaun kona-ba regra eskema mikro kréditu no dezenvolve ezbosu regra (loron sorin)</p> <p>b. Introdusaun no esplikasaun formatu no sistema hosi eskema ne'e (loron 0,2)</p> <p>c. Selesaun membru sira ba komité jestaun no diskusaun knaar no responsabilidade hosi membru sira (loron 0,3)</p> <p><u>Sesaun datoluk: Finaliza regra no tuir lei hosi eskema ne'e (loron</u></p>

Kursu treinamentu	Item	Deskrisaun
		<p><u>1)</u>                      a. Diskusaun kona-ba finaliza knaar no responsabilidade hosi membru sira (loron 0,3)                      b. Finaliza regra no tuir lei hosi eskema ne'e (loron 0,7)</p>
	Materiál	Surat-tahan boot, livru-ki'ik, markadór, fita-kola, kadernu no lapizeira.
	Rezultadu espera	Feto sira ka grupu fetu bele deside oinsá atu utiliza rendimentu ne'ebé hetan/rai ho maneira ne'ebé efétivu no efisiente, dezenvolve regra no tuir-lei hosi eskema mikro kréditu

Rekursu: Ekupa Projeitu JICA (2015)

## 5. Estimasaun Kustu

Kapítulu ida-ne'e introdús oinsá atu halo estimasaun ba orsamentu nesesáriu hodi hala'o kursu treinamentu série no diskusaun iha nivel suku no aldeia. Estimasaun kustu mak abilidade/tékniku esensiál ida, hodi prepara planu konvense, ne'ebé bele hetan suporta finanseiru no administrativu hosi administrasaun altu. Seksaun tuirmai esplika dalan atu halo estimasaun orsamentu kada sesaun no mós ba kada suku/aldeia hodi introdús kustu item ne'ebé sei konsidera bainhira halo estimasaun.

### 5.1 Estima kustu ba Treinamentu

Kustu item prinsipál ba kursu treinamentu/enkontru mak: i) materiál ne'ebé uza ba sesaun, ii) hahán ba membru/partisipante sira, iii) kustu transportasaun ba fasilitadór, iv) kustu seluk, no v) kustu ba fasilitadór, karik kontratu fasilitadór hosi li'ur ba sesaun. Kada kustu item ne'ebé estimadu, liuhosi multiplika kuantidade item ho kustu unidade. Formatu tuirmai bele uza hodi halo estimasaun.

**Formatu ba Estimasaun Kustu Sesaun Treinamentu**

Item kustu padraun	Kuantidade (a)	Kustu unidade (b)	Kustu (a x b)
1. Materiál ba treinamentu (ba hirak-ne'ebé labele kolleita iha suku)			
2. Merenda no hahán ba partisipante sira			
3. Kustu transporte ba fasilitadór			
4. Kustu ba fasilitadór (pagamentu ba fasilitadór)			
5. Kustu seluk			
<b>Totál kustu ba sesaun treinamentu ida (1+2+3+4+5)</b>	-	-	

Rekursu: Ekipa Projeto JICA (2015)

### 5.2 Estima kustu ba pratika rasik/OJT

Parte hosi treinamentu prátika direktamente, membru sira sei envolve iha aplikasaun/pratika rasik atividade IG/LD, hanesan OJT iha nivel aldeia ho asisténsia tékniku hosi fasilitadór sira. Kustu item prinsipál ba pratika rasik/OJT mak: i) merenda ka hahán ba partisipante sira, ii) kustu transporte ba fasilitadór, iii) kustu ba fasilitadór, no iv) kustu seluk. Formatu hanesan iha leten bele uza ba estimasaun.

### 5.3 Estima Kustu ba kada Suku

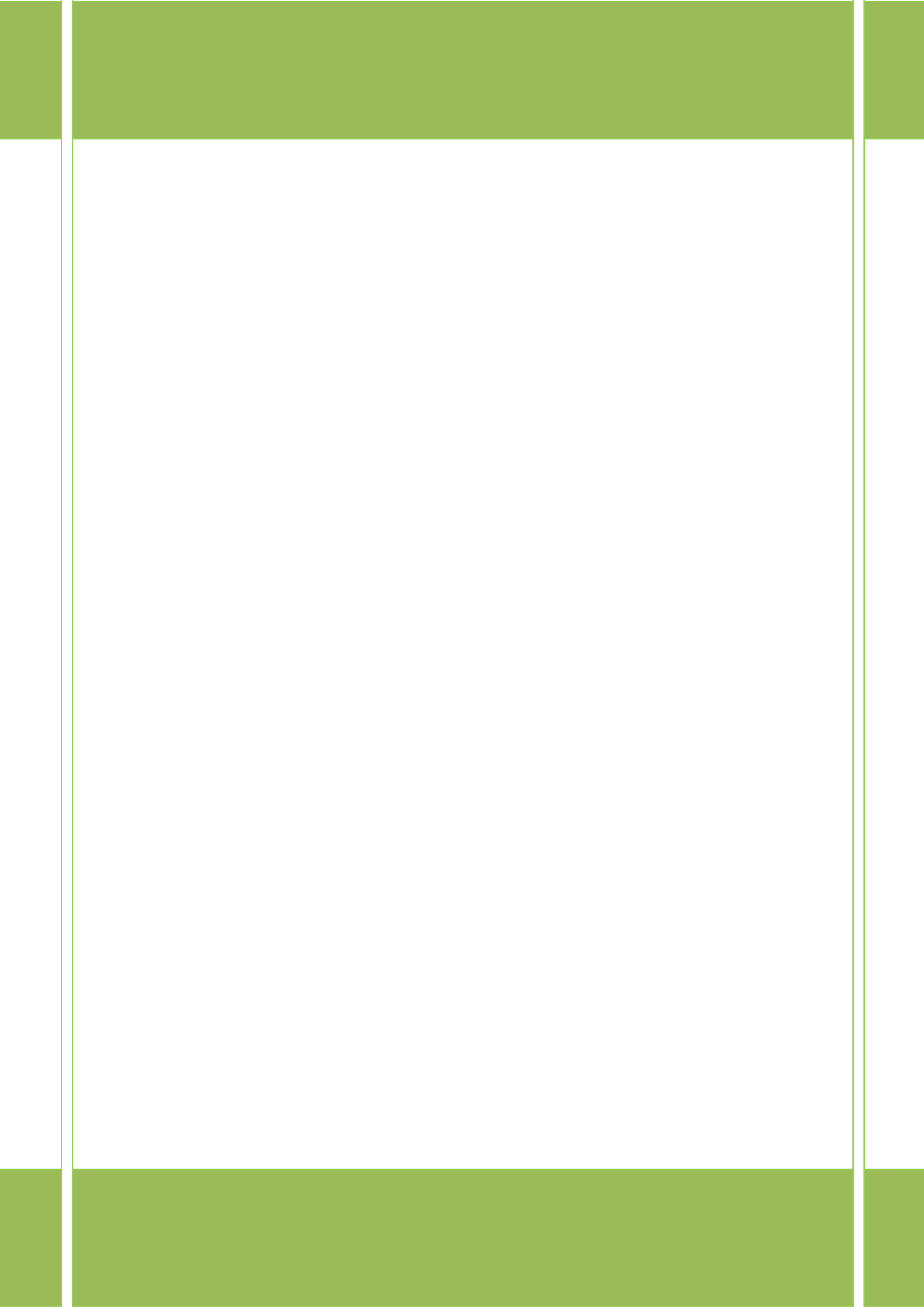
Kustu ba síklu ida ba kurríkulu treinamentu IG/LD iha suku, estimadu liuhosi soma hamutuk kustu sira ba sesaun treinamentu/enkontru hotu-hotu ne'ebé deskreve iha leten. Se karik sesaun ne'e hala'o iha nivel aldeia, kustu hosi respetiva sesaun sira-ne'e tenke multiplika ho número hosi aldeia iha suku, hodi halo estimasaun kustu ba nivel suku nian. Nune'e, formatu tuirmai bele uza hodi halo estimasaun.



**Formatu ba Estimasaun Kustu Sesaun Treinamentu iha Tinan Dahuluk**

<b>Item kustu padraun</b>	<b>Nº. Grupu(a)</b>	<b>Kustu unidade (b)</b>	<b>Kustu (a x b)</b>
1. Rekursu inventáriu no selesaun opsaun atividade IG/LD ne'ebé potenciál			
2. Treinamentu prátika direktamente ba produsaun produktu A			
3. OJT kona-ba produsaun produktu A			
4. Treinamentu prátika direktamente ba produsaun produktu B			
5. OJT kona-ba produsaun produktu B			
6. Treinamentu prátika direktamente ba produsaun produktu C			
7. OJT kona-ba produsaun produktu C			
8. Treinamentu prátika direktamente kona-ba suku			
9. OJT kona-ba suku			
10. Treinamentu prátika direktamente kona-ba promosaun produktu			
11. Treinamentu prátika direktamente kona-ba kontabilidade			
12. Diskusaun kona-ba utilizaun rendimentu ne'ebé hetan/rai			
<b>Totál kustu sesaun treinamentu ba kada suku</b>	-	-	

Rekursu: Ekipa Projetu JICA (2015)



## Aneksu-1 Métodu hosi Mapa Rekursu no Kalendáriu Tuir Estasaun

### Oinsá atu buka hatene material sira ba prosesu

Objetivu hosi manual ne'e maka atu hadia kapasidade liu-liu grupu fetu sira ba atividade hasa'e rendimentu/dezenvolvimentu vida moris liuhusi akumulasaun sira nia koñesementu no esperensia ho abilidade no rekursu ne'ebé ezisti nanis ona. Tanba ne'e, bainhira sira komesa atividade hasa'e rendimento/dezenvolvimentu vida moris ida, importante tebes atu hatene sira nia kapasidade no difikuldade sira ne'ebé infrenta mai hosi ema no ambiente ne'ebé sira hela ba. Parte hosi manual ne'e inklui ezersisiu balun ne'ebé grupu fasilitador sira (ekstensionista/staff ONG sira) bele halo hamutuk ho komuidade sira iha suku hodi aprende liutan kona-ba abilidade no koñesementu, sira nia suku no rekursu ne'ebé iha. Iha Manual ne'e, ami hametin liu oinsá atu buka hatene rekursu sira ne'ebé iha.

### 1. Mapa Rekursu Suku – Saida mak moris iha ne'ebé?

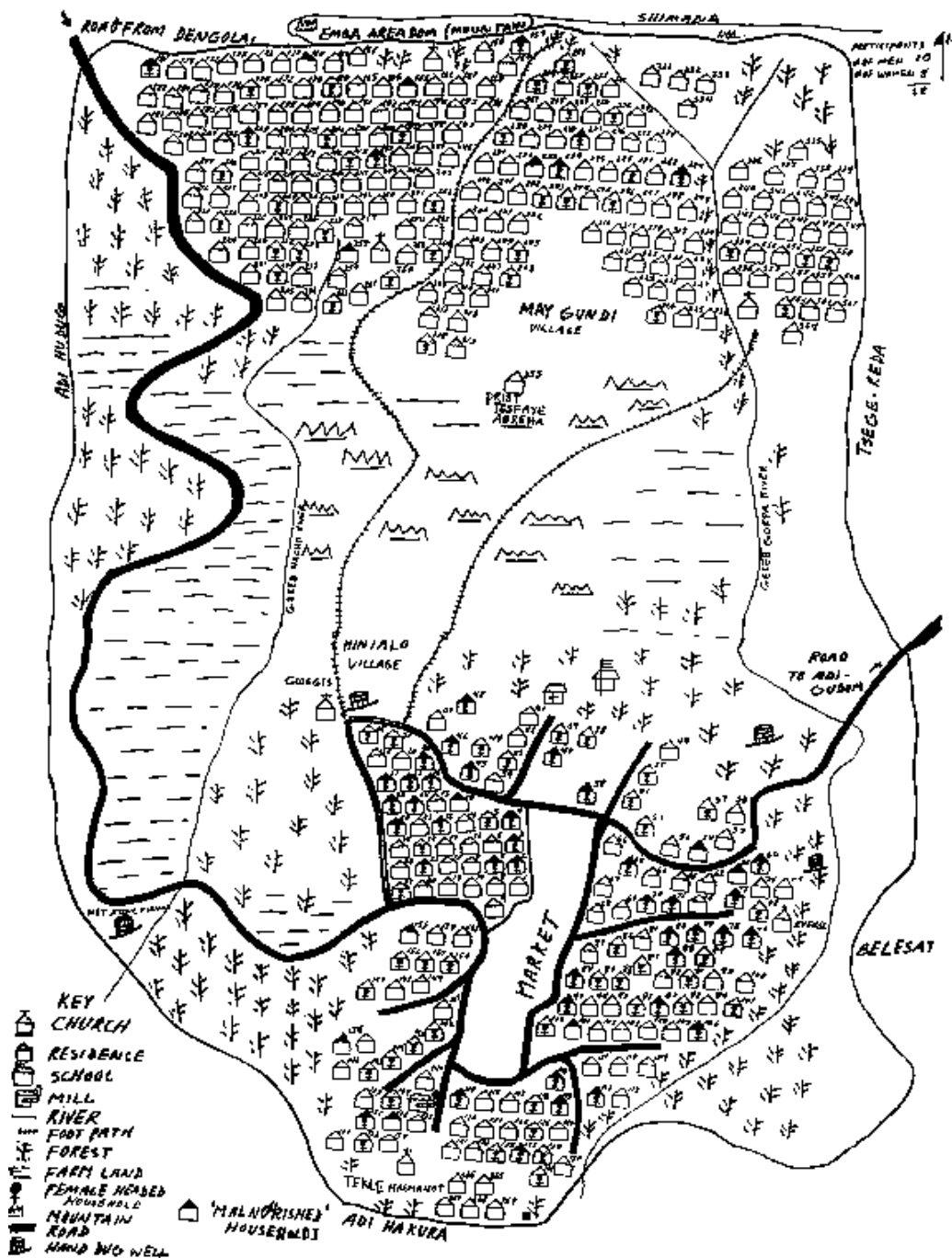
Ita bele buka hatene saida deit mak moris iha fatin ne'ebé iha suku liuhusi halo imajen ho rekursu natural/kultivadu iha *mapa rekusu suku ida*. Mapa ida ne'e hatudu diferensia rekursu natural/kultivadu hanesan, ai, erbustos, ervas, aifuan no modo sira ne'ebé haleu fatin ne'e. Mapa ne'e indika karateristika rekursu iha suku refere (Ezemplu,. rekursu natural, rekursu natural ne'ebé bele produs, rekursu kultivadu sira no nst.) Mapa Rekursu diak liu halo iha inisiu hosi avaliasaun, no bele fornese ita ho informasaun ne'ebé sei presija ba avaliasain seluk, hanesan **reprodusaun no prosesamentu** .

### Objetivu

- Atu visualiza saida mak moris iha fatin ne'ebé.
- Atu aprende kona-ba rekursu natural no kultivadu hosi ai, erbustos, ervas no nst. no komprende karateristika balun.
- Atu aprende kona-ba diferensia rekursu natural/kultivadu no oinsá komuidade bele uza rekursu sira ne'e.
- Atu identifika plantas sira, fasilitador ka to'os nain sira bele refere ba rekursu inventoriu (rekursu natural no kultivadu) ho foto ne'ebé mak aneksu ho matadalan ne'e.

## Prepare Mapa rekursu orijinal

Ezemplu hosi mapa rekursu suku ida<sup>1</sup>



Social map of Hiniato Kuset, Hintalo Tabia (including nutrition mapping)

<sup>1</sup> Projeto FAO: "hadiak seguransa aihan uma kain no Nutrisaun iha Shewa Norte (Amhara region) no zona Sul (Tigray region), Ethiopia"

## **Mapa ne'e ba Se?**

Depende ba situasaun lokál, ita hakarak mapa ne'e ezersisiu ba grupu separadu hosi fetu no mane sira hodi hasa'e partisipasaun ka ho grupu komuidade seluk. Iha Timor-Leste, fetu karik sei dada-an atu koalia iha mane sira nia oin. Tanba ne'e, diak liu atu fahe grupu sira ba mane nian no fetu nian hodi promove komentariu livre no voluntariamente.

### **Etapasira**

1. *Husu ba partisipante sira atu halo mapa ida hosi suku refere, hatudu uma kain hotu. Ba orientasaun sei ajuda liu ba dalauluk risku uluk dalan sira no fatin signifikadu sira iha suku refere hanesan mota no bee matan sira.*
2. *Husu partisipante sira atu mós hatudu instituisaun no fatin sira ne'ebé oferese atendentu sosial ka fatin koñesidu ruma hodi hasoru malu (Ezemplu. Eskola, Igreja, Postu Saude, edefisiu postu administrativu, sede suku, kiosk, sentru komuidade nian, nst)*
3. *Husu atu hatama mós area kultivadu, ailaran no area husik animal livre iha mapa ne'e.*
4. *Husu grupu ne'e atu indika fatin ne'ebé mak bele diferensia ai sira no erbustos sira. mantein nafatin atu ema hotu iha komprensaun ne'ebé hanesan.*
5. *Bainhira ema ida fó ona respostas, husu sira seluk konkorda, lae ka hakarak atu aumenta tan buat ruma. Halo ezersisiu hodi enkoraja diskusaun.*

### **Materials ne'ebé presija**

Surat tahan boot, rekursu inventoriis (natural no kultivadu), lapis no markador

Karik mak halo risku iha rai, buka rai ne'ebé fasil atu risku, uza aisanak, Fatuk, aitahan, masa matan, fore, ka mateials lokál seluk tan hanesan simbolu. Tenke kopia risku sira ne'ebé halo iha rai leten ne'e ba iha surat tahan boot depois de sesaun.

## **2. Tuir Tempu – Bainhira mak disponivel?**

Depois de identifika rekursu naturál no kultivadu ne'ebé iha potensial atu utiliza ba atividade hasa'e rendimentu, halo lista rekursu ida. Depois ita tenke buka hatene bainhira mak rekursu naturál/kultivadu sira ne'e disponivel. Ita tenke halo bar chart ida ba kada rekursu desde ida ne'e sei diretamente influencia ba produsaun. Ezersisiu ida ne'e bele ajuda ita karakteriza produsaun tuir tempu no komesa diskusaun ida kona-ba fátores saida deit mak importante hodi determina

produsaun. Diak liu halo **Bar chart tempu** nian imediatamente tuir kedan mapa rekursu atu nune'e bele komprende fisikamente fatin rekursu (ai no erbustos spesifiku sira) hodi liga ba produsaun tempu nian.

### Objetivu

- Atu identifika no komprende ida ne'ebé no bainhira kada rekursu disponivel.
- Atu identifika no komprende bainhira no oinsá kada rekursu bele preserva.
- Atu identifika no komprende bainhira kada rekursu bele hatudu karik posibel.

### Etapa sira

1. *Halo lista ida ba potencial rekursu naturál no kultivadu ne'ebé iha potencia ba atividade hasa'e rendimentu.*
2. *Husu partisipante sira atu halo risku bar chart ida, hatudu disponibilidade hosi kada rekursu. Ba orientasaun sei ajuda liu ba dalauluk risku uluk kolum ho naran rekursu no fulan 12*

Naran	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

3. *Husu partisipante sira atu prenxe **naran** iha kolum hosi rekursu naturál/kultivadu ne'ebé identifika ne'ebé mak hakerek ona iha mapa rekursu.*

Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Cassava												
Dareta												
Kontas												

4. *Husu atu risku liña ida ho regua ida iha fulan sira **ne'ebé disponivel***

Name	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Cassava													
Dareta													
Kontas													

5. Husu grupu ne'e atu indika bainhira fini kuda karik mak ne'e bele kuda no tau marka iha bar chart ka **umenta** informasaun iha kolum ida hanesan komentariu

Naran	Tempu	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Aifarina	Kuda	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████
	Koileta	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████
	Produsaun	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████
Dareta	Kuda	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████
	Koileta	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████
	Produsaun	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████
Kontas	Kuda	██████████										██████████	██████████
	Koileta			██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████		
	Produsaun			██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	██████████	

6. Husu grupu ne'e atu diskuti bainhira no oinsá sira bele **preserva** rekursu ne'ebé koileta.
7. Bainhira ema ida fó resposta, husu sira seluk karik sira konkorda, lae ka hakarak aumenta tan buat ruma. Halo ezersisiu hodi enkoraja diskusaun.

### Materials ne'ebé preija

Mapa rekursu suku, surat tahan kiik hodi halo lista, surat tahan boot hodi halo bar chart tempu, regua, lapis no markador

Aneksu-2 Hatudu Amostra hosi Kalendáriu tuir Estasaun

Orariu Produsaun		Fulan											
Naran Aihan	Tempu	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Cassava (Ai farina)	Kuda												
	Koileta	■	■	■	■	■	■	■	■	■	■	■	■
Cassavachips	Produsaun	■	■	■	■	■	■	■	■	■	■	■	■
	Faan	■	■	■	■	■	■	■	■	■	■	■	■
Edible canna (Kontas)	Kuda												
	Koileta			■	■	■	■	■	■	■	■		
Kontas chips	Produsaun			■	■	■	■	■	■	■	■		
	Faan			■	■	■	■	■	■	■	■	■	■
Mustard leaf (Modo metan)	Kuda	■	■	■	■						■	■	■
	Koileta	■	■	■	■							■	■
Modo masin	Produsaun	■	■	■	■							■	■
	Faan	■	■	■	■							■	■
Chayote (Lakeru mutin)	Kuda	■	■	■	■							■	■
	Koileta	■	■	■	■							■	■
Salada	Produsaun	■	■	■	■							■	■
	Faan	■	■	■	■							■	■
Lime (Derok masin)	Kuda		■	■	■	■	■	■	■	■			
	Koileta		■	■	■	■	■	■	■	■			
Lime paste	Produsaun		■	■	■	■	■	■	■	■			
	Faan		■	■	■	■	■	■	■	■			
Sweet potato (Fefuk midar)	Kuda												
	Koileta												
fehuk midar maran	Produsaun												
	Faan												
Gotukola (Dareta)	Kuda												
	Koileta	■	■	■	■	■	■	■	■	■	■	■	■
Sha herbal	Produsaun	■	■	■	■	■	■	■	■	■	■	■	■
	Faan	■	■	■	■	■	■	■	■	■	■	■	■
Derok tahan	Kuda												
	Koileta		■	■	■	■	■	■	■	■			
Sha herbal	Produsaun		■	■	■	■	■	■	■	■			
	Faan	■	■	■	■	■	■	■	■	■	■	■	■
Cengkeh tahan	Kuda												
	Koileta		■	■	■	■	■	■	■	■			
ingriedente ba kripik	Produsaun		■	■	■	■	■	■	■	■			
	Faan	■	■	■	■	■	■	■	■	■	■	■	■
Ailia	Kuda												
	Koileta	■	■	■	■	■	■	■	■	■	■	■	■
ingriedente ba kripik	Produsaun	■	■	■	■	■	■	■	■	■	■	■	■
	Faan	■	■	■	■	■	■	■	■	■	■	■	■
Lis mutin	Kuda					■	■	■	■	■			
	Koileta							■	■	■	■		
ingriedente ba kripik	Produsaun							■	■	■	■		
	Faan							■	■	■	■		
Aimanas matak	Kuda					■	■	■	■	■	■	■	■
	Koileta	■	■	■	■	■	■	■	■	■	■	■	■
Lime paste	Produsaun		■	■	■	■	■	■	■	■			
	Faan		■	■	■	■	■	■	■	■			
pimenta	Kuda												
	Koileta									■	■	■	■
ingriedente ba kripik	Produsaun									■	■	■	■
	Faan										■	■	■



Aneksu-3 :Rekursu Agrícola (Modo, Ai-fuan no produutu komérsiu seluk iha Timor-Leste)

	Tetun	Indonesian	English	Naran sientifiku	Uza
Fruit vegetables					
1	Tomate	Tomat	Tomato	<i>Lycopersium esculentum</i> Mill.	Paste, dried fruit
2	Berinjela	Terong, Terung	Eggplant	<i>Solanum melongena</i> L.	Paste, dried fruit
3	Kaha, Pepinu(Pipinu)	Mentimun, Ketimun	Cucumber	<i>Cucumis sativas</i> L.	Pickles
4	Pateka mutin	Sewangica	Cucumber	<i>Cucumis sativas</i> L.	Pickles
5	Ai manas	Cabe, Cabai	Chilli	<i>Capsicum annum</i> L.	Paste, dried chili
6	Kumus	Pement	Sweet pepper	<i>Capsicum annum</i> L.	Puree, pickles
7	Lakeru	Labu kuning	Pumpkin	<i>Cucurbita moschata</i> Duch.	Paste, puree
8	Baria	Paria, Pare	Bitter Gourd	<i>Momordica charantia</i> L.	Fried, dried chips
9	Patola	Oyong	Angled loofah	<i>Luffa acutangula</i> Roxb.	Astringent from stem sap
10	Patola	Oyong	Loofah,Sponge gourd	<i>Luffa cylindrica</i> Roem.	Astringent from stem sap
11	Okura	Koni, Bendi	Okura	<i>Abelmoshus esculentus</i> Moench	Pickles
12	Lakeru Lilin	Labu air	Bottle gourd	<i>Lagenaria siceraria</i> Standley	Juice
13	Babuar	Baligo, Kundur	Wax gourd, White gourd	<i>Benincasa fispida</i> Cogn.	Syrupped, pickles, juice
14	Lukeru Mutin,Jepang	Labu siam, Jepang	Chayote	<i>Sechium edule</i>	Pickles
15	-	Paria belut	Snake gourd	<i>Trichosanthes cucumerina</i>	Chips
16	Babuar lotuk		Melon	<i>Cucumis melo</i> L.	Puree
17	Pateka	Semangka	Water melon	<i>Citrullus lanatus</i>	Juice
18	Pateka mutin	Semangka putih			Juice, syrupped
19	Koto mean	Kacang gude	Pigeon pea	<i>Cajanus cajan</i> Millsp.	Paste, syrupped, canned
20	Koto-nurak, Tunis, Turis	Kacang buncis	Kidney bean, common bean	<i>Phaseolus vulgaris</i> L.	
21	Ervilla	Kacang kapri	Snow pea	<i>Pisum sativum</i>	
22	-	Kacang botor	Winged bean	<i>Psophocarpus tetragonobus</i> DC.	Fried chips
23	Fore-tali	Kacang panjang	Yard long bean	<i>Vigna sinensis</i> var. <i>sesquipedalis</i> L.	
24	Koto moruk	Kacang besar	Scarlet runner bean	<i>Phaseolus coccineus</i> L.	
25	Favas	Kacang babi	Broad bean	<i>Vicia fava</i>	Fried chips, dried beans
26	Uhi		Aerial yam	<i>Dioscorea bulbifera</i> L.	Powder

Aneksu-3 :Rekursu Agrícola (Modo, Ai-fuan no produ tu komérsiu seluk iha Timor-Leste)

	Tetun	Indonesian	English	Naran sientifiku	Uza
Flower Vegetables					
27	Kori	kol kembang, kol bunga, kubis bunga	Cauliflower	<i>Brassica oleracea</i> L.	Pickles
28	Kori Italia	Brokoli	Italian Broccoli	<i>Brassica oleracea</i> var. <i>italica</i> Plen	
29	-		Garlic flower	<i>Allium sativum</i> L.	
30	-	Antung pisang	Banana flower	<i>Musa sapientum</i>	
31	-	Turi	Sesbabiya flower	<i>Sesbania Grandiflora</i>	Powder
32	Ai-dila funan	Bunga pepaya	Papaya flower	<i>Carica papaya</i> L.	
Leafy Vegetables					
33	Repollu	Kubis, Kol	Cabbage	<i>Brassica oleracea</i> L.	Pickles
34	Modo Mutin	Sawi putih	Chinese cabbage	<i>Brassica campestris</i> L.	Pickles
35	Modo Mutin	Sawi putih	Chinese white cabbage	<i>Brassica rapa</i> L.	Pickles
36	Modo metan	caisim	Leaf mustard	<i>Brassica juncea</i> Czern.et Coss.	Pickles
37	Alfase	Daun Selada	Lettuce	<i>Lectuca sativa</i> L.	
38	Kobi Tahan		Chinese cale	<i>Brassica oleracea</i> L.	
39	Lis tahan	Kucai	Chinese chive	<i>Allium tuberosum</i> Roxb.	
40	Salsa	Selederi	Celery	<i>Apium graveolens</i> L.	Powder
41	Agriaun	Salada Air, Selada air	Watercress	<i>Nasturtium officinate</i>	
42	Kankun	Kangkung	Swamp cabbage	<i>Ipompea aquatica</i>	
43	Bayaun	Bayam	Slender amaranth	<i>Amaranthus gracilis</i>	
44	-	Daun ubi jalar	Sweet potato sprout	<i>Ipompea batatas</i> Lam.	
45	Lakeru	Labu kuning	Pumpkin	<i>Cucurbita moschata</i> Duch.	
46	Markisa/Markujas	Daun markisa	Passion fruit	<i>Passiflora foetida</i> L.	
47	Babasa tahan		Ivy gourd	<i>Coccinia indica</i> Wight et Arnott	Pickles
48	Ai farina	Daun ubi kayu	Cassava leaf	<i>Manihot esculenta</i> L.	
49	-	Daun pepaya	Papaya leaf	<i>Carica papaya</i> L.	Juice, dried leaves, powder
50	Fore-mungu	Tauge	Mung bean sprout	<i>Phaseolus radiatus</i>	

Aneksu-3 :Rekursu Agrícola (Modo, Ai-fuan no produtu komérsiu seluk iha Timor-Leste)

	Tetun	Indonesian	English	Naran sientifiku	Uza
Attachment 1-3: Root Vegetables					
51	Ai farina	Ubi kayu	Cassava	<i>Manihot esculenta</i> L.	Fried chips, starch
52	Talas	Talas	Taro	<i>Colocasia esculenta</i> Schott	Fried chips, starch
53	Fehuk-midar	Ubi jalar	Sweet potato	<i>Ipomoea batatas</i> Lam.	Fried chips, starch
54	Fehuk-ropa	Kentang	Potato	<i>Solanum tuberosum</i>	Fried chips, starch
55	Kumbili	Ubi kemali	Greater Yam	<i>Dioscorea alata</i> L.	Starch, powder
56	-	-	Wild yam	<i>Dioscorea tamarisciflora</i> P.etB.	Starch, powder
57	Singomas	Sengkuang/Bungkuan	Yam bean	<i>Pachyrrhizus erosus</i> L.	Fried chips
58	Same	-	Arrow root, Kuzu	<i>Pueraria lobata</i> Lour.	Starch
59	Ai-raruut, Taros metan	Talas hitam	Arrowroot, Black Javanese s ente	<i>Maranta arundinacea</i> L.	Fried chips, starch
60	-	Lobak	White radish	<i>Raphanus sativas</i>	Dried, pickles
61	Senoura	Wortel	Carrot	<i>Daucus carota</i>	Pickles
62	Kontas	-	Edible Canna	<i>Canna edulis</i> Ker.	Fried chips, starch
63	Liis	Bawang Bombay	Onion	<i>Allium cepa</i>	Chips, starch
64	Liis-mean	Bawang merah	Shallot	<i>Allium ascalonicum</i> L.	Pickles
65	Liis-asu, Liis-mutin	Bawang putih	Garlic	<i>Allium sativum</i> L.	Pickles, powder, paste
66	Maek	Pasak bumi, Tutup	Elephant foot yam	<i>Amorphosphallus</i> sp.	Fried chips, pickles
Herbs and Spices					
67	Ruku fuik	Kemangi	Holy Basil	<i>Ocimum sanctum</i> Linn	Condiment, herbal tea
68	Ruku	-	Thai basil	<i>Ocimum basilicum</i> Sims.	Condiment, herbal tea
69	Kumis kucing	Kumis kucing	Cat whiskers	<i>Orthosiphon stamineus</i> Benth	Condiment, herbal tea
70	Pimenta Tahan	Ketumbar	Coriander	<i>Coriandrum sativum</i> L.	Condiment, herbal tea, spice
71	-	Adas	Fennel	<i>Foeniculum vulgare</i> Mill L.	Condiment, herbal tea, spice
72	-	Adas sowa	Dill	<i>Anethum graveolens</i> L.	Condiment, herbal tea, spice
73	-	-	Anise	<i>Pimpinella anisum</i> L.	Condiment, herbal tea, spice
74	Pimenta	Lada	Pepper	<i>Piper nigrum</i>	Spice, medicine
75	Aimanas ai leten	Karuk	Wild betel, Leaf bush	<i>Piper sarmentosum</i> Roxb.et Hunter	Condiment, spice, medicine
76	Ortelaun, Ortelán, Karudu, Kandolar	Janggat	Mint	<i>Mentha cordifolia</i> Opiz.	Condiment, herbal tea
77	-	Po'o	Cool mint	<i>Mentha arvensis</i> L.	Condiment, herbal tea
78	Dareta	Pegaga(n)	Indian penny wort	<i>Centella asiatica</i>	Condiment, herbal tea
79	Du'ut-morin	Serai	Lemon grass	<i>Cymbopogon citratus</i> Stapf.	Condiment, herbal tea
80	Hedan, Boro	Pandan	Pandan, Screw pine	<i>Pandanus amaryllifolius</i> Roxb.	Condiment, medicine
81	-	-	Roselle , Indian sorrel , Jamaica sorrel	<i>Hibiscus sabdariffa</i> L.	Herbal tea
82	Kinur	Kunyit	Turmeric	<i>Curcuma domestica</i> Valetton	Spice, medicine
83	Lankuas	Laos, Lenngkuas	Galangal	<i>Languas galanga</i> L.	Condiment, medicine
84	Ai lia	Jahe, Halia	Ginger	<i>Zingiber officinale</i> Rosc.	Condiment, medicine
85	-	Kepulaga, Kardamunggu	Cardamon	<i>Elettaria cardamomum</i>	Spice, medicine
86	-	Chengkeh	Clove	<i>Syzygium aromaticum</i>	Spice, medicine
87	Baunilla	Panili	Vanilla	<i>Vanilla fragrans</i>	Flavoring, cosmetics

Aneksu-3 :Rekursu Agrícola (Modo, Ai-fuan no produtu komérsiu seluk iha Timor-Leste)

	Tetun	Indonesian	English	Naran sientifiku	Uza
<b>Grains</b>					
88	Hare(plant) , Foos(grain)	Padi(plant) , Beras(grain)	Rice	<i>Oryza sativa</i> L.	Flour, alcohol
89	Foos-belit	Ketan	Sweet rice	<i>Oryza sativa</i> L.	Flour, alcohol
90	Terig		Wheat	<i>Triticum aestivum</i>	Flour
91	Batar	Jagung	Corn, Maize	<i>Zea mays</i> L.	Flour, canned, paste, popcorn
92	Batar ainaruk		Sorghum	<i>Sorghum bicolor</i> Moench	
93	Lena	Wijen, Bijan	Sesame	<i>Sesamum indicum</i> L.	Paste
<b>Beans</b>					
94	Fore-rai	Kacang tanah	Peanut	<i>Arachis hypogaea</i> L.	Paste, fried, roasted
95	Ervilla	Kacang kapri	Snow pea	<i>Pisum sativum</i>	Paste, fried
96	Fore-keli	Kacang kedelai	Soy bean	<i>Glycine max</i>	Powder, tofu, tempe, roasted
97	Tunis	Kacang turis	pigeon pea	<i>Cajanus cajan</i>	
98	Fore-mungu	Kacang hijau	Mung bean	<i>Phaseolus radiatus</i>	Sprout, paste, powder, noodle
99	Fore-metan	Kacang tunggak	Cow pea	<i>Vigna sinensis</i> Savi et Hassk.	Paste
100	Koto-nurak, Tunis, Turis	Kacang buncis	Kidney bean, common bean	<i>Phaseolus vulgaris</i> L.	Paste, syrugged, canned
101	Koto moruk	Kacang besar	Scarlet runner bean	<i>Phaseolus coccineus</i> L.	Syrugged
102	Koto moruk	Kacang besar	Scarlet runner bean	<i>Phaseolus coccineus</i> L.	Canned
103	Favas	Kacang babi	Broad bean	<i>Vicia fava</i>	Roasted
<b>Others</b>					
104	Audubun nurak	Rebung	Bamboo shoot	<i>Bambusa spp., Phyllostachys spp.</i>	Salted, pickles
105	Kabura	Paku, Pakis	Edible fern	<i>Pteridium aquilinum</i>	Salted, dried
106	Kulat	Jamur	Mushroom		Salted, dried
107	Akar	Sagu	Sago palm	<i>Metroxylon spp.</i>	Flour, starch, sago pearl
<b>Sea weeds</b>					
108	Budu tasi	Anggur Laut	Sea weed	<i>Caulerpa racemosa</i>	Salted
109	Budu tasi	Agar-agar	Red algae, Graceful Red Weed	<i>Gracilaria</i>	Dried
110	Budu tasi	Agar-agar	Cottoni	<i>Kappaphucus alvarezii</i> Doty	Dried
<b>Aifuan</b>					
111	Sabraka, Saburaka	Jeruk	Tangerine orange	<i>Citrus sinensis</i>	Jus, marmalada, loke kulit
112	Sabraka-midar	Jeruk manis, Lemau manis	Mandarin orange	<i>Citrus aurantiaca, Citrus reticulata</i> var.	Jus, canned
113	Derok-lotuk, Sabraka-lotuk	Jeruk nipis	Lime	<i>Citrus aurantifolia</i> Christm. et Panz.	Jus, paste, loke kulit
114	Sabraka-masiin	Jeruk limun	Lemon	<i>Citrus limon</i> L.	Jus, paste, loke kulit
115	Sabraka-kiik	Jeruk limau	Calamondin	<i>Citrofortunella mitis</i>	Jus
116	Derok-fahi-inur	Jeruk purut	Kaffir lime	<i>Citrus hystrix</i> A.DC	Jus, paste
117	Jambua	Jeruk bali	Pomelo	<i>Citrus grandis</i> Osbeck	Jus, xarope loke kulit
118	N/A	N/A	Kumquat	<i>Fortunella japonica</i>	xarope
119	Hass/Haas	Manga	Mango	<i>Mangifera indica</i>	habai maran, puree, pickles
120	Hudi	Pisang	Banana	<i>Musa sapientum</i>	kripik sona, habai maran
121	Ananás, Ai-naná	Nanas	Pineapple	<i>Ananas Comosum</i> Merr.	Jus, jam, habai maran

Aneksu-3 :Rekursu Agrícola (Modo, Ai-fuan no produtu komérsiu seluk iha Timor-Leste)

	Tetun	Indonesian	English	Naran sientifiku	Uza
122	Goiabas	Jambu biji	Guava	<i>Psidium guajava</i> L.	Jus, puree
123	Abokat, Abokati	Advokat, Apokat	Avocado	<i>Persea americana</i> Mill.	
124	Durian	Durian	Durian	<i>Durio zibethinus</i>	Pickles
125	Mangis	Manggis, Manggistan	Mangostine	<i>Garcinia mangostana</i> Linn.	xarope, canned
126	Rambutan	Rambutan	Rambutan	<i>Nephelium lappaceum</i>	xarope, canned
127	Jambu-laun	Jamubu air	Java apple	<i>Syzygium samarangense</i> MARRY	
128	Uhak	Jambu merah	Rose apple	<i>Syzygium jambos</i>	
129	-	Mengkudu, Bengkudu	Indian mulberry	<i>Morinda citrifolia</i>	Jus, aimoruk
130	Ai-ata nona, Ai-nona, Nona	Buah nona, Srikaya, Serikaya	Sugar apple	<i>Annona squamosa</i>	
131	Ai-ata	Sirsak	Sour sop	<i>Annona muricata</i> L.	
132	Markisa, Markujas	Markisa, Markisah	Passion fruit	<i>Passiflora foetida</i> L.	Jus
133	Sawo	Sawo, Sauh Manila	Sapodilla Plum	<i>Manikara achras zapota</i>	aimoruk
134	-	Ara	Fig	<i>Ficus carica</i> L.	habai maran, xarope
135	Abruinhos	Prem	Plum	<i>Prunus salicina</i> L.	Jam, habai maran
136	Pesikus	Persik	Peach	<i>Amygdalus persica</i>	Jam, Jus
137	Nespra	N/A	Japanese loquat	<i>Eriobotrya japonica</i> ,	xarope
138	Masán	Apel	Apple	<i>Malus pumila</i> var. <i>domestica</i>	Jus, xarope, habai maran
139	-	Anggur	Grape	<i>Vitis spp</i>	Jus
140	-	Kurma	Jujube, Chinese date	<i>Ziziphus jujuba</i>	habai maran, aimoruk
141	Salak	Salak	Snake fruit	<i>Salacca edulis</i>	
142	Kulu, Kulu-tunu, Kulu-uhi	Sukun	Bread tree	<i>Artocarpus altilis</i>	kripik sona
143	Kulu-jaka, Kulu-naka	Nangka	Jackfruit	<i>Artocarpus heterophilla</i>	
144	Ai dila	Papaya, Pepaya	Papaya	<i>Carica papaya</i> L.	Pickles
145	Karanbola	Belimbing	Star fruit	<i>Averrhoa carambola</i>	Pickles, aimoruk
146	-	Belimbing asam	Cucumber tree	<i>Averrhoa bilimbi</i>	Pickles, aimoruk
147	Morangu fuik	Miik	Raspberry	<i>Rubus idaeus</i>	Jam
148	Morangu	Arbei	Strawberry	<i>Fragaria x ananassa</i> Duch.	Jam
149	-	Asem jawa	tamarind	<i>Tamarindus indica</i> L.	Paste, habai maran
<b>Produtu Komersiu Seluk</b>					
150	Kafé	Kopi	Coffee	<i>Coffea canephora</i>	Hemu
151	Kafé	Kopi	Coffee	<i>Coffea arabica</i> L.	Hemu
152	Kamii, Ai-kamii	Keminting, Kemiri	Candlenut tree	<i>Aleurites moluccana</i> WILLd	Cosmetics, condiment
153	-	Jarak pagar	Jatropha,	<i>Jatropha Curcas</i>	Mina
154	-	Jarak ulung	Bellyache Bush	<i>Jatropha gossypifolia</i> Linn.	aimoruk, Mina
155	-	Buah zaitun	Olive	<i>Olea europaea</i>	mina
156	Kajú, Ai-Kajú	Jambu mede, Jambu mente	Cashew nuts	<i>Anacardium occidentale</i> L.	habai maran nut
157	-	Ketapang	Tropical almond,Indian almond	<i>Terminalia catappa</i>	habai maran nut
158	Nuu	Kelapa	Coconuts	<i>Cocos nucifera</i>	habai maran, mina
159	Tohu	Tebu	Sugar cane	<i>Saccharum officinarum</i> L.	Sugar, Jus

Aneksu-3 :Rekursu Agrícola (Modo, Ai-fuan no produtu komérsiu seluk iha Timor-Leste)

	Tetun	Indonesian	English	Naran sientifiku	Uza
160	-	Aren	Sugar palm	<i>Borassus flabellifer</i>	Palm sugar
161	Kakau	Cokelat, Coklat	Cocoa	<i>Theobroma cacao</i>	Hemu
162	Tabaku	Tembakau, Tembako	Tobacco	<i>Nicotiana tabacum L.</i>	Fuma
163	Bua	Pinang	Betel nut palm	<i>Areca catechu L.</i>	mama
164	Malus	Sirih	Betel leaf	<i>Piper betel L.</i>	mama, aimoruk
165	Amora	Besaran, Bebesaran	Mulberry	<i>Morus indica L.</i>	Xa herbal, Jus
166	Rota, Rotan	Rotan	Rattan	<i>Calamus spp.</i>	Artezenatu
167	Kabas	Kapas, Katun	Cotton	<i>Gossypium herbaceum Linn.</i>	Artezenatu
168	-	Sisal	Sisal	<i>Agave sisalana</i>	Artezenatu
169	-	Kapok	Cotton tree	<i>Ceiba pentandra Gaertn.</i>	Artezenatu

Aneksu 4: Rekursu Naturál (Ai-horis Medisinál iha Timor-Leste)

No.	Family	Naran Botanical	Naran Inglesh	Naran	Uza spesifiku ba	Referensia
1	Acanthaceae	<i>Justica gendarussa</i> Burm f.	Willow-leaved justica		Anti-arthritic, anti-inflammatory activity	3,4
2	Agavaceae	<i>Agave sisalana</i>	Sisal hemp		Cytotoxic steroidal saponins	2,3,4,5
3	Agavaceae	<i>Cordyline indivisa</i> Hook.F.	Spikes, Dracena spikes		Food rich in linoleic acid, injury, acupuncture	2,3,4
4	Amaranthaceae	<i>Alternanthera sessilis</i> (L.) R.Br.	sessil joyweed		Hematitic activity	2,3,4
5	Anacardiaceae	<i>Mangifera indica</i> L.	Mango	Haas	Wounds	1,2,3,4,5
6	Anacardiaceae	<i>Mangifera timorensis</i> Blume	N.A.		Antioxidant, antiviral, antiparasitic, antiseptic, antitussive	2
7	Anacardiaceae	<i>Pleiogynium timoriense</i> (DC.) Leenh.	Scented maple		The decoction of bark:thrush and gastritis	2
8	Anacardiaceae	<i>Rhus taitensis</i> Guill.	smac		Antimycobacterial activity agianst Tuberculosis	3,4
9	Annonaceae	<i>Annona glabra</i> L.	Pond apple		Anticancer efect	2,3,4
10	Annonaceae	<i>Uvaria rufo</i> Blume	Calabao		Antitubercular activity	2
11	Apiaceae	<i>Centella asiatica</i> (L.)	Gotukola	Dareta		2,3,4
12	Apocynaceae	<i>Asclepias curassavica</i> L.	Tropical milkweed		Anticancer , cytotoxic activity to cancer cells	2
13	Apocynaceae	<i>Alstonia scholaris</i> R. Br.	Devil's bit, white cheesewood		Ayurvedic medicine called Dita.Antidiabetic, antihyperlipidtic, antibacterial, antioxidant, anticncer, antiinflamatory, analgesic activities and immunostimulating effect. Antitussive, anti asthmatic and expectorant activities.Hepatoprotective activity,antianxiety and anti depressant effect.Anti diarrhoeal and spasmolytic activity	2,3,4
14	Apocynaceae	<i>Plumeria rubra</i> L.	Plumeria		Antibacterial activity	3,4
15	Apocynaceae	<i>Tabernaemontana pandacaqui</i> Lam.	Banana bush		Anti-inflammatory, antipyretic and antinociceptive activities	2,4,5
16	Apocynaceae	<i>Thespesia peruviana</i> K. Schum.	Yellow oleander		Poisonous plant.antimicrobial activity	3,4
17	Apocynaceae	<i>Cerbera manghas</i> L.	Beach milkwood, dog bone		Lactation stimulant, poison	1,2
18	Apocynaceae	<i>Wrightia javanica</i> A.DC	N.A.		Antibacterial, antiviral, antifungal, antitumor, analgesic, hypotensive, antiinflammatory, and immune enhancing effects	2,4,5
19	Apocynaceae	<i>Dischidia major</i> (Vahl) Merr.	Raffles' Dischida		Antioxidative and tyrosinase inhibition activities, cosmetic use	2,4,5
20	Araceae	<i>Acorus calamus</i> Linn.				3,4
21	Araceae	<i>Amorphophallus paeoniifolius</i> (Dennst.) Nicolson	Elephant foot yam		Ayurvedic medicine, piles, abdominal pains, tumors, spleen enlargement, asthma and rheumatism	2,3,4
22	Araceae	<i>Colocasia gigantea</i> (Blume) Hook.f.	Elephant ear		Ayurvedic medicine, heal, revive and restore balance	2,3,4,5
23	Araliaceae	<i>Schefflera elliptica</i> (Bl.) Harms.	Climbing umbrella-plant		Barks: bronchodilator activity, Leves: relief of asthmatic attacks, inotropic action, bronchodilator action	2
24	Arecaceae	<i>Cocos nucifera</i> L.	Coconut palm	Nuu	Fractures	1,2,3,4,5
25	Arecaceae	<i>Caryota rumphiana</i> Mart.	Fishtail palm		Jaggery (unrefined sugar), starch	2,3,4,5
26	Arecaceae	<i>Metroxylon sagu</i> Rottb.	Sago palm	Akar	Antioxidant, food for allergy patient	2,3,4,5
27	Arecaceae	<i>Borassus flabellifer</i>	Lontar palm (Palmyra palm)	Akadiru	Food, fruits,	2,3,4,5
28	Arecaceae	<i>Arenga pinnata</i> Merr.	Sugar palm		Roots provide medicinal products, such as a tea decoction used to cure bladder trouble. The roots of <i>A. pinnata</i> are a useful insect repellent.	2,3,4,5
29	Asclepiadaceae	<i>Calotropis gigantea</i> (Willd) Dryand ex W.T.Ait	Akra		Latex used for Inflammation	2,3,4
30	Aspleniaceae	<i>Asplenium nidus</i> L.	Bird's nest fern		Antibacterial, antioxidative, Tyrosinaze inhibiting activity, asthma, sores and weakness	2,3,4,5

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No.	Family	Naran Botanical	Naran Inglesh	Naran	Uza spesifiku ba	Referensia
31	Asteraceae	<i>Chromolaena odorata</i> (L.) R.M.King & H.Rob.	Siam weed		Hemostatic and Wound Healing Properties	2,3,4,5
32	Asteraceae	<i>Melanthera biflora</i> (L.) Willd.	Sea daisy, beach daisy		Cold	2,3,4,5
33	Asteraceae	<i>Tridax procumbens</i> L.	Coat buttons		Anticoagulant, hair tonic, antifungal and insect repellent	2
34	Bombacaceae	<i>Bombax ceiba</i> L.	Silk cotton tree, red cotton tree		Hypotensive, Antioxidant, Analgesic, Antiangiogenic, Hypotensive and hypoglycaemic, Antimicrobial and antibacterial, Cytotoxicity, Hepatoprotective, Inhibitory effects on fatty acid syntheses, Antipyretic, Aphrodisiac activities	2,3,4
35	Bombacaceae	<i>Ceiba pentandra</i> (L.) Gaertn.	Kapok		Anti-fungal, Anti-diarrhoeal, Anti-ulcer, Hepatoprotective, Anthelmintic, Angiogenesis, Anti-inflammatory, Hypoglycaemic, Hypolipidaemic activities	2,3,4
36	Boraginaceae	<i>Cordia dichotoma</i> G.Forst.	Indian cherry		Normoglycemic and diabetes, Wound healing activity, Antimicrobial and antifungal Analgesic, antibacterial and cytotoxic, Degenerative disorder, Antidiabetic, Anthelmintic, Ulcerative colitis, Gastroprotective and antiulcer effect, Anti-inflammatory activity, Behavioral changes and hypoperfusion effect, Antimplantation activity. Ayurvedic medicine	2,3,4
37	Boraginaceae	<i>Cordia monoica</i> Roxb. subsp. <i>subpubescens</i> (Decne.) Reidl	Sandpaper saucer-berry		Significant activity against E.coli , Diarrhoea	2
38	Boraginaceae	<i>Tournefortia argentea</i>	Tree heliotrope, octopus bush		Antiviral, antibacterial, antioxidant and anti-inflammatory properties	2,3,4,5
39	Burseraceae	<i>Garuga floribunda</i> Decne.	Garuga		Leaves for antimalarial	3,4
40	Burseraceae	<i>Haplolobus floribundus</i> (K.Schum.) H.J.Lam.	N.A.		Veterinary medicine, plant decoction for cough of cattle	2
41	Fabaceae	<i>Senna sophora</i> (L.) Roxb., <i>Cassia sophora</i>	Kasunda, Baner		Leaves and seeds: Skin diseases, especially paste is applied to ringworm. Seeds: patches for psoriasis and psoriasis	3,4,5
42	Caesalpiniaceae	<i>Caesalpinia bonduc</i> (L.) Roxb.	Nicker nut		Seed coat extract for anti-inflammatory and analgesic activity	2
43	Caesalpiniaceae	<i>Caesalpinia furfuracea</i> (Prain) Hattink	Sun letthe		Antibacterial activity against some of coli and methicillin-resistant bacteria	2,4
44	Caesalpiniaceae	<i>Cassia fistula</i> L.	Golden shower		Antioxidant activity, Central Nervous System activities, Wound healing activity, Antifungal and Antibacterial activity, Antitumor activity, Antifertility activity, Anti-leishmaniac activity, Ayurvedic medicine.	2,3,4
45	Caesalpiniaceae	<i>Intsia bijuga</i> (Colebr.) Kuntze	Borneo teak		Gastrointestinal diseases, antiulcer activity	2
46	Caesalpiniaceae	<i>Senna surattensis</i> (Burm.f.) H.S.Irwin & Barneby	Golden senna, scruambled egg plant		Hypoglycemic plant. Antidiabetic	2,3,4
47	Caesalpiniaceae	<i>Senna timorensis</i> (DC.) H.S.Irwin & Barneby			Food and drink, medicine (antianemia), antiruritic	2
48	Caesalpiniaceae	<i>Senna tora</i> (L.) Roxb.	Shickle senna, Wild senna, Sensitive-plant		Skin and gastrointestinal disorders	2,3,4,5
49	Cannabaceae	<i>Trema tomentosa</i> (Roxb.) H.Hara	Poison peach		Poison to cattles and horses	2
50	Cannaceae	<i>Canna edulis</i> Ker.Gawl.	Edible canna	Kontas	Starch. Antioxidant,	3,4,5
51	Capparaceae	<i>Capparis sepiaria</i> L.	Indian caper		Leaves for diabetes	2
52	Capparaceae	<i>Cleome hassleriana</i> Chodat	Cat's whiskers cleome		Antimicrobial activity	2,3,4,5
53	Capparaceae	<i>Cleome viscosa</i> L.	sticky spider-flower		Ayurvedic medicine. rheumatic arthritis, hypertension, malaria, neurasthenia, and wound	2,3,4
54	Caricaceae	<i>Carica papaya</i> L.	Papaya	Ai-dila	Cancer, gastro treatments, leave extra used for dengue fever and malaria	1,2,3,4,5
55	Casuarinaceae	<i>Casuarina equisetifolia</i> J.R.Forst. & G.Forst.	Austrarial beefwood		Root extract used for dysentery, diarrhoea and stomach-ache, powdered bark is used for treating pimples	2,3,4,5
56	Ceratophyllaceae	<i>Ceratophyllum demersum</i> L.	Coontail, hornwort		Antiulcer	2
57	Clusiaceae	<i>Calophyllum soulattri</i> Burm.f.	Bitangor Bunut		Antiproliferative xanthone derivatives	2
58	Clusiaceae	<i>Mammea</i> sp.	Mamey		Antifungal property	2
59	Combretaceae	<i>Terminalia catappa</i> L.	Bengal almond		Antioxidant /hepatoprotective <b>properties</b>	2,3,4,5
60	Commelinaceae	<i>Commelina diffusa</i>	Climbing day flower		Antioxidant and antifungal, treat wounds	3,4



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No.	Family	Naran Botanical	Naran Inglesh	Naran	Uza spesifiku ba	Referensia
61	Compositae	<i>Artemisia indica</i> var. <i>maximowiczii</i>	Mugwort		The leaves and flowering stems are anthelmintic, antiseptic, antispasmodic, emmenagogue, expectorant and stomachic.	4
62	Convolvulaceae	<i>Hewittia sublobata</i> (L.f.) Kuntze	Wild morning-glory		Leaf: antioxidant, antibacterial, anti-inflammatory, antiviral, immune system stimulant and detoxification activities.	2
63	Convolvulaceae	<i>Ipomoea pes-caprae</i> (L.) R.Br. <i>subsp. brasiliensis</i> (L.) Ooststr.	Beacn morning-glory		Antifungal, antibacterial, anti-inflammatory and Analgesic activity	2,3,4,5
64	Crassulaceae	<i>Bryophyllum pinnatum</i> (Lam.) Kurz	Air plant, maternity plant		Gastroprotective effect	2,3,4,5
65	Cucurbitaceae	<i>Momordica charntia</i> L.	Bitter gourd	Baria	Malaria	1,2,3,4,5
66	Cucurbitaceae	<i>Diplocyclos palmatus</i> (L.) C.Jeffrey	Lollipop climber		Seed is poisonous.Indian medicine.rheumatic pain, cough, flatulence and various skin	2,3,4
67	Cyperaceae	<i>Eleocharis dulcis</i> (Burm.f.) Trin. ex Hensch.	Chinese water chestnut		Chinese medicine,wounds	2,3,4
68	Cyperaceae	<i>Scleria lithosperma</i> (L.) Sw. var. <i>lithosperma</i>	Florida Keys nutrush		Veterinary medicine, plant decoction for foot-and-mouth disease of cattle	2
69	Cyperaceae	<i>Scleria polycarpa</i> Boeck.	Nutrush		Antiplasmodial activity, antimalaria	2
70	Dioscoreaceae	<i>Dioscorea bulbifera</i> L.			Wild game poison	1,2,3,4
71	Dioscoreaceae	<i>Dioscorea affín transversa</i> R.Br.	Long yam		Extra give skin soothing and anti-inflammatory acitivity	2,3,4
72	Dioscoreaceae	<i>Dioscorea bulbifera</i> f. <i>domestica</i> L.	Air potato		Anticancer, Antioxidant, Antitumor Promoting / Constituents, Hepatotoxicity, Wound Healing, Antihyperglycemic / Antidyslipidemic, Myocardial Protective Effect, Anthelmintic, Analgesic / Anti-Inflammatory,Hepatotoxicity, Antidiabetic Activity, Nanoparticles using D. bulbifera / Synergism with Antimicrobial Agents.	2,3,4
73	Ebenaceae	<i>Diospyros maritima</i> Blume	Malaysian persimmon		Bark:Cytotoxic and antimicrobial constituents	2
74	Euphorbiaceae	<i>Suregada glomerulata</i> (Blume) Baill.	N.A.		Chinese medicine, $\alpha$ -Glucosidase inhibitory activity for diabetes	3,4
75	Euphorbiaceae	<i>Aleurites moluccana</i> (L.) Willd.	Kukui nut	Kumii	Post partum bleeding, internal bleeding	1,2,3,4,5
76	Euphorbiaceae	<i>Euphorbia atoto</i> G.Forst.	Spurge		Low quality breast milk	1,2,3,4
77	Euphorbiaceae	<i>Euphorbia heterophylla</i> L., <i>Euphorbia geniculata</i> Ortega	Mexican fireplant		Purgative and laxative	2,3,4
78	Euphorbiaceae	<i>Jatropha curcas</i> L.	Physic nut		Urinary tract infection	1,3,4
79	Euphorbiaceae	<i>Jatropha gossypifolia</i> L.	Bellyache bush, pignut		Toxic plant. Extra from seed: Analgesic activity, Neuropharmacological activities, Anti-diarrheal activity,	1,3,4
80	Euphorbiaceae	<i>Euphorbia antiquorum</i> L.	Antique Spurge Malayalam		Ayurvedic medicine. Antibacterial activity	2,3,4,5
81	Euphorbiaceae	<i>Macaranga tanarius</i> (L.) Mull.Arg.	Blush Macaranga, heart leaf		Anticancer activity, Antioxidant activity, Antimicrobial activity, Anti-inflammatory activity, acetylcholinesterase inhibitory activities(treatment of neurological disorders), antiplasmodial activities	2,3,4
82	Euphorbiaceae	<i>Mallotus mollissimus</i> (Geisler) Airy Shaw	Green kamala		Decoction of bark:Cold, skin disorders, ringworm, scabies, herpes, tumors. Milk sap:dysentery cure	2,3,4
83	Euphorbiaceae	<i>Mallotus philippensis</i> (Lam) Mull.	Kamala, spoonwood		Ayurvedic medicine, high blod pressure, purgative in cold water, extract from bark used for cosmetic because of promoting collagen production	2
84	Euphorbiaceae	<i>Melanolepis multiglandulosa</i> (Reinw. ex Blume) Reichb.f. & Zoll.	N.A.		Baby's gum aches, arthritis, snake bites as a local medicine	2,3,4
85	Euphorbiaceae	<i>Phyllanthus reticulatus</i> Poir.	Potato plant		Antibacterial activity	2,3,4
86	Euphorbiaceae	<i>Ricinus communis</i> Linn	Castor bean		Poisonous plant. Traditionally used as a laxative and a musle pain. Antioxidant activity, Antinociceptive activity, Anti-fertility activity, Antihistaminic Activity , Hepatoprotective activity, Anti-inflammatory activity, Antimicrobial activity, Antidiabetic activity, Wound healing activity, Lipolytic activity, Molluscicidal, Insecticidal and Larvicidal activity, Antiulcer activity	3,4,5
87	Euphorbiaceae	<i>Codiaeum variegatum</i> (L.) A.Juss. var. <i>moluccanum</i> (Decne.) Mull.Arg.	Croton		Gastric ulcers	2,3,4,5
88	Fabaceae	<i>Albizia lebbbeck</i> (L.) Benth.	Albizia		Pink eye	1,3,4
89	Fabaceae	<i>Pterocarpus indicus</i> Willd.	rosewood		Mouth sores, latex used for tumor and cancer	1,2,3,4
90	Fabaceae	<i>Tamarindus indica</i> L.	Tamarind		Sore joints, gastric and/or digestion	1,2,3,4,5

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91	Fabaceae	<i>Canavalia rosea</i> (Sw.) DC.	Bay bean		Plant shoot decoction has been used to treat tuberculosis, while the roots have been used for the treatment of ciguatera fish poisoning, aches, pains, rheumatism, and leprosy Leaf extracts relieve pain, promote healing of burns, stop bleeding, and counter some enteric infections caused by certain gram-positive bacteria.	2,3,4
92	Fabaceae	<i>Derris scandens</i> (Roxb.) Benth.	Malay jwellvine		Osteoarthritis.	2
93	Fabaceae	<i>Desmodium triflorum</i> (L.) DC.	Creepind tick trefoil		Diarrhoea, dysentery, and also as a mouthwash and antipyretic (Setyowati-Indarto & Brink, 1999). Laboratory studies also showed analgesic, anti-inflammatory, and antioxidant effects of <i>Desmodium triflorum</i> (Lai et al., 2009; Lai et al., 2010).	2,3,4
94	Fabaceae	<i>Leucaena leucocephala</i> (Lam) de Wit.	Miracle tree, white leadtree		Anti-microbial activity	3,4
95	Fabaceae	<i>Mucuna pruriens</i> (L.) DC. var. utilis (Wight) Burck	Velvet beans	Lehe	Anti-diabetic, aphrodisiac, anti-neoplastic, anti-epileptic, and anti-microbial activities, anti-venom activities, anti-helminthic activity, neuroprotective, analgesic and anti-inflammatory activity	3,4
96	Fabaceae	<i>Peltophorum pterocarpum</i> (DC.) Backer ex K.Heyne	Yellow poinciana		Bark for dysentery, tooth powder, eye lotion, embrocation for pains and sores	3,4
97	Fabaceae	<i>Uraria lagopodioides</i> (L.) Desv. ex DC.	Prickitch		Ayurvedic medicine, Analgesic, anti-inflammatory,	2,3,4
98	Fabaceae	<i>Erythrina variegata</i> L. var. <i>orientalis</i> (L.)	Coral tree		Indian medicine, antiobesity, menstrual disorder	2,3,4
99	Fabaceae	<i>Pueraria lobata</i> (Willd.) Ohwi	Kudzu		Chinese medicine: Cold. Starch. Source of Puerarin; Daidzein; Rutin; Isoflavones; Aglycones. Antioxidant activity. Antipyretic activity. Antispasmodic activity.	3,4
100	Fabaceae	<i>Entada phaseoloides</i> (L.) Merr.	Matchbox bean, Gogo		Seeds: anti-inflammatory effect	2,3
101	Flacourtiaceae	<i>Flacourtia sp. large leaves</i> (F. rukam)	Cape plum		Phytochemical, Anti-oxidant and Anthelmintic activities	2
102	Flacourtiaceae	<i>Flacourtia indica</i> (Burm.f.) Merrill	Governer's plum		Antioxidant, Hepatoprotective, Antimalarial, Antibacterial, Anti-Diabetic, Anti-Inflammatory and Antimicrobial, Hepato Protective, Hepatoprotective activities and Anti-Asthmatic Potential.	2
103	Gnetaceae	<i>Gnetum gnemon</i> L.	Spanish koint fir		Seed extract: Reduction of serum uric acid. Increase of HDL cholesterol level. It means benefit in the prevention of atherosclerosis	2
104	Goodeniaceae	<i>Scaevola taccada</i> (Gaertn.) Roxb.	Beach Naupaka		Antibacterial, Antifungal activity	2,3,4,5
105	Gossypieae	<i>Gossypium speciosum</i> L.	Mexican cotton		Ayurvedic medicine. arthritis, anorexia, cardiac debility	2
106	Hydrocharitaceae	<i>Ottelia alismoides</i> (Linn.) Pers.	Duck lettuce		Anticancer	2,3,4,5
107	Lamiaceae	<i>Ocimum basilicum</i> L.	Thai basil		Antidepressant and an antiseptic	3,4,5
108	Lamiaceae	<i>Ocimum basilicum</i> (L.) Back	Sweet basil		Memory retention	3,4
109	Lamiaceae	<i>Ocimum sanctum</i> Linn, <i>Ocimum tenuiflorum</i> L. var. <i>anisodorum</i> (F.Muell.) Domin	Holy basil		Bronchitis, bronchial asthma, dysentery, skin diseases, arthritis, painful eye diseases, chronic fever. Improvement of immune system	2,4,5
110	Lamiaceae	<i>Orthosiphon grandiflorus</i> Bold	Cat whiskers		Urinary stones	3,4,5
111	Lamiaceae	<i>Hyptis suaveolens</i> (L.) Poit.	Chinese mint		Antifungal activity, especially against <i>Aspergillus</i> species	2,3,4,5
112	Lamiaceae	<i>Tectona grandis</i>	Teak	Ai-teka	Antibacterial, Antioxidant, Antifungal, Anti-inflammatory, Antiasthmatic, Analgesic Activity, Diuretic Activity, Hypoglycaemic, Antidiabetic, Antipyretic, Wound Healing, Anti-ulcer, Antinociceptive, Antitumor, Anti-metastatic, Hair growth activities	3,4,5
113	Lamiaceae	<i>Gmelina philippensis</i> Lam.	Parrot's beak		Hepatitis	1
114	Lamiaceae	<i>Callicarpa candicans</i> (Burm.f.) Hocker.	Great wooly Malayan lilac		Chinese medicine, antitumor, skin cancer, fish poison	2
115	Lamiaceae	<i>Clerodendrum floribundum</i> R.Br.	Wild jasmin		Ayurvedic medicine. Antimalarial and Antioxidant activity. Antihepatoprotective Effects. Anti-Inflammatory, Antimicrobial, Antiviral, Antihemolytic, Antihypotensive, Antifungal activity	2
116	Lauraceae	<i>Persea americana</i> Mill	Avocado, alligator pear		Blood pressure reducing effect	3,4,5
117	Lauraceae	<i>Cassytha filiformis</i> L.	Love-vine		Anti-platelet and vasorelaxant activity, Cytotoxicity activity, Antioxidant activity, Anti-trypanosomal activity, Diuretic activity,	2
118	Lauraceae	<i>Litsea glutinosa</i> (Lour.) C.B.Rob.	Indian laurel, Bollywood,		Bark: Diarrhea, dysentery, rheumatic gouty joints, sprains, bruises. Leaves: Bruises and wounds, Roots: Rheumatism	2,3,4
119	Lecythidaceae	<i>Barringtonia asiatica</i> (L.) Kurz	Fish poison tree		inflammation	1,3,4

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120	Lecythidaceae	<i>Barringtonia racemosa</i> (L.) Spreng.	Powderpuff tree		Antioxidant and inflammatory activities	2
121	Leeaceae	<i>Leea indica</i> Merr.	Bandicoot berry		Diarrhea	1
122	Leguminosae	<i>Adenantha pavonina</i> L.	Red sandal wood		Wounds, boils, rheumatism, and arthritis	2,3,4
123	Leguminosae	<i>Sesbania grandiflora</i> (L) Pers.	Agati, Corkwood tree		CNS depressant, hypotensive, cardiac depressant, diuretic, anti-inflammatory, antibacterial, antipyretic, analgesic, hypoglycaemic and cytotoxic activity.	3,4,5
124	Leguminosae	<i>Sesbania grandiflora</i> (L) Pers.	Agati, Corkwood tree		CNS depressant, hypotensive, cardiac depressant, diuretic, anti-inflammatory, antibacterial, antipyretic, analgesic, hypoglycaemic and cytotoxic activity.	3,4,5
125	Liliaceae	<i>Gloriosa superba</i> L.	Flame lily		Poison, antiperiodic, antihelminthic	2,3,4
126	Loganiaceae	<i>Strychnos lucida</i> R. Br.	Strychnine Bush		Growth inhibition on <i>P. falciparum</i> , anti-malarial activity	3
127	Lythraceae	<i>Pemphis acidula</i> J.R.Forst. & G.Forst.	Pemphis		Antibacterial activity	2,3,4,5
128	Malpigiaceae	<i>Hiptage benghalensis</i> (L.) Kurz	Helicopter flower		Indian medicine. Leaves and bark: cough, burning sensation, and inflammation, skin diseases, particularly useful for dermatitis, scabies, rheumatism and asthma	2,3,4,5
129	Malvaceae	<i>Sida acuta</i> Burm.f.	Wireweed		Antimicrobial activity, treatment of opportunistic infections	4,5
130	Malvaceae	<i>Sida retusa</i> Linn	Paddy's lucern		Roots: lumbago and rheumatism	4,5
131	Malvaceae	<i>Sida rhombifolia</i> L.	Bloom weed		Anti-inflammatory and anti-oxidant properties	4,5
132	Malvaceae	<i>Sida spinosa</i> L.	Prickly fanpetals		Antimicrobial activity. Leaves and flowers: bronchitis and coryza	4,5
133	Malvaceae	<i>Sterculia foetida</i> L.	Java-olive skunk tree		Chinese medicine, aperient, diuretic	2,3,4
134	Malvaceae	<i>Thespesia populnea</i> Sol. ex Corréa	Indian tulip tree		Antidiabetic and antihyperlipidemic effects	2,3,4
135	Malvaceae	<i>Urena lobata</i> L.	Caesar weed		Antifertility, antidiarrheal	2,3,4
136	Malvaceae	<i>Hibiscus tiliaceus</i> L.	Sea hibiscus, beach hibiscus		Antidepressant-like effects	2,3,4
137	Melastomataceae	<i>Memecylon</i> sp.	jaywree		Antipsoriatic activity	2
138	Meliaceae	<i>Azadirachta indica</i> A. Juss.	Neem		Sore joints	1,2,3,4
139	Meliaceae	<i>Aglaiia argentea</i> Blume	N.A.		Bioantifungal Activity, Effective to root rot	2
140	Meliaceae	<i>Aphanamixis polystachya</i> (Wall.) R.N.Parker	Rohituka tree		Cell growth inhibition, Analgesic activity, CNS depressant activity, Antimicrobial, Cytotoxic activities, antioxidant activity, reduces radiation-induced chromosome damage, Membrane Stabilizing Activity, Anthelmintic activities ,	2
141	Meliaceae	<i>Dysoxylum parasiticum</i> (Osb.) Kosterm.	Yellow mahogany		Ayurvedic medicine, used for dysentery	2,3,4
142	Meliaceae	<i>Dysoxylum acutangulum</i> Miq. subsp. <i>foveolatum</i> (Radlk.) Mabb. (opp lvs)	Persian lilic		Arthritis, anorexia, cardiac debility	2
143	Meliaceae	<i>Dysoxylum gaudichaudianum</i> (A.Juss.) Miq.	Vella akil		Antiviral activity against respiratory syncytial virus (RSV), spasmolytic activity, Cytotoxicity	2
144	Meliaceae	<i>Dysoxylum setosum</i> (Span.) Miq.	Miva mahogany		Decoction of bark: arthritis, anorexia, cardiac debility, to remove intestinal worms, inflammation	2
145	Meliaceae	<i>Swietenia mahogani</i> Jacq.	Mahogani		Ayurvedic medicine. Antibacterial activity, Antimicrobial Activity, Antioxidant activity, Anti ulcer activity, Antifungal activity, Anti – HIV activity, Anti-inflammatory, Analgesic and Antipyretic activity, Hypoglycemic activity, Platelet Aggregation Inhibitors activity	3,4
146	Meliaceae	<i>Swietenia macrophylla</i> King	Broad-leaved mahogani		Anti-hyperglycaemic activity	3,4
147	Melastomataceae	<i>Melastoma malabathricum</i> L.	Indian-rhododendron		Antiinflammatory, antagonistic activity towards platelet activating factor	3,4,5
148	Menispermaceae	<i>Tinospora smilacina</i> Benth.	Snake vine		Lice infestation, snake bite	1
149	Menyanthaceae	<i>Nymphoides indica</i> (L.) Kuntze	Water snowflake		Ayurvedic medicine, anti-fever of Malaria	2,3,4,5
150	Moraceae	<i>Antiaris toxicaria</i> Lesch. var. <i>macrophylla</i> (R.Br.) Corner	Upas tree		Dart and arrow poison, Anticonvulsant Effect	2
151	Moraceae	<i>Ficus hispida</i> L.f.	Devil fig, hairy fig		Hypoglycemic activity, Cardioprotective effect, Antidiarrheal activity, Antiulcerogenic effect, Sedative and anticonvulsant effects, Neuroprotective effects, Hepatoprotective effect, Antineoplastic activity, Anti-inflammatory and antipyretic.	2,3,4,5
152	Moraceae	<i>Ficus microcarpa</i> L.f.	Laurel Fig, Indian Laurel Fig		Ulcerous wounds of a diabetic patient	2,3,4,5
153	Moraceae	<i>Ficus racemosa</i> L.	Audumber or Umber		Diabetes and high cholesterol, antioxidant, antifungal and antibiotic	2,3,4,5
154	Moraceae	<i>Ficus sagittata</i> J.Konig ex Val	Trailing fig		Antioxidant properties	2,3,4,5
155	Moraceae	<i>Ficus septica</i> Burm. F.	Open fig		Antibiotic, cytotoxic effect on breast cancer	2,3,4
156	Moraceae	<i>Ficus superba</i> (Miq.) Miq.	cedar fig		Juice of leaves: Blister plaster, aerial roots: acute mastitis	2,3,4

Aneksu 4: Rekursu Naturál (Ai-horis Medisinál iha Timor-Leste)

No.	Family	Naran Botanical	Naran Inglesh	Naran	Uza spesifiku ba	Referensia
157	Moraceae	<i>Streblus affinis taxoides</i> (Heyne ex Roth) Corner	N.A.		Bark for headache, antiulcer drug	3
158	Myrtaceae	<i>Psidium guajava</i> Linn	Guava		Leaves: hyperactive gut disorders, stabilizer	2,3,4,5
159	Myrtaceae	<i>Rhodamnia cinerea</i> Jack	Silverback		Carbohydrate metabolic disorder	2
160	Myrtaceae	<i>Syzygium nervosum</i> DC.	Wax apple		Chinese medicine, antimicrobial and inhibitor of protease	3,4,5
161	Myrtaceae	<i>Syzygium sp. affinis S. samarangense</i>	Java apple		Potent Antimicrobial and Inhibitor	3,4,5
162	Nyctaginaceae	<i>Pisonia aculeata</i> L.	Four o'clock flower		Inflammation, pain, and oxidative stress associated diseases.	3
163	Nyctaginaceae	<i>Pisonia umbellifera</i> (J.R.Forst. & G.Forst.) Seem	Bird lime tree		Antitubercular activity	2
164	Nyctaginaceae	<i>Boerhavia glabrata</i> Blume	Red spiderling		Ayurvedic medicine. antioxidant, thrombolytic activity and less cytotoxic activity	2,3,4
165	Oleaceae	<i>Ximenia americana</i> L.	Wild plum, sour plum		Bioactive polyphenols. throat infections, amenorrhea, as tonic, for wound healing and against pain.	2
166	Opiliaceae	<i>Opilia amentacea</i> Roxb.	N.A.		Antidiabetic and Antihypertensive Activities, to cure dermatitis	3
167	Pandanaceae	<i>Pandanus tectorius</i> Parkinson	Screw pine		Traditional medicine for leprosy, smallpox, fever, wounds, stomach spasms and strengthens the gum	2,3,4,5
168	Passifloraceae	<i>Passiflora foetida</i> L.	Bush passion fruit		Antiulcer and antioxidant activity, antibacterial properties: diarrhea, intestinal tract, throat, ear infections, fever and skin diseases.	3,4,5
169	Phyllanthaceae	<i>Bridelia tomentosa</i> Blume	Pop-gun Seed		Leaves are used as medicine for traumatic injury; the roots are used to treat epidemic influenza and neurasthenia	2
170	Phyllanthaceae	<i>Breynia cernua</i> (Poir.) Mull.Arg.	Breynia, fart bush		Antifungal, anti bacterial activity	2
171	Piperaceae	<i>Piper betle</i> L.	Betel leaf		Anticancer benefits and bio-guided fractionation	2,3,4,5
172	Piperaceae	<i>Piper sp. affinis P. retrofractum</i> Vahl	Long pepper		Diabetes prevention	3,4
173	Piperaceae	<i>Pothomorphe subpeltata</i> (Willd.) Miq.	Wild pepper		Neurasthenia	3,4
174	Pittosporaceae	<i>Pittosporum moluccanum</i> (Lam.) Miq.	N.A.		Antioxidant	3,4
175	Poaceae	<i>Imperata cylindrica</i> (L.) P. Beauv.	Cogon grass		Helminth worm infection, Anti hyper-tension	1,3,4,5
176	Poaceae	<i>Bambusa vulgaris</i> Schrad. ex Wendl.	Common bamuboo		Antioxidant and antibacterial activity	2,3,4
177	Poaceae	<i>Cymbopogon nardus</i> (L.) Rendle	Citronella grass		Culinary use, perfumery use. Essential oil: Insect repellent, Antimalaria activity, Herbal tea: Cold fever, Jaundice	2,3,4
178	Poaceae	<i>Phragmites vallisneria</i> (Pluk. ex L.) Veldkamp	N.A.		Diabetes	2,3,4,5
179	Poaceae	<i>Spinifex littoreus</i> (Burm.f.) Merr.	Spiny rolling grass		Abdominal pain, contortion, arthritis and inflammation	4,5
180	Polygonaceae	<i>Persicaria barbata</i> (L.) H.Hara	Water pepper		Seasoning, anti-inflammatory activities	2,3,4
181	Polypodiaceae	<i>Drynaria quercifolia</i> (L.) J. Sm.	Basket ferns		Throat infections	1,3,4,5
182	Portulacaceae	<i>Portulaca australis</i>	N.A.		Stimulant, food	2,4,5
183	Rhamnaceae	<i>Gouania javanica</i> Miq.	mao ju qian		Leaf extract: antiviral, antifungal, anti-inflammatory and cytotoxic activities	2
184	Rhamnaceae	<i>Ziziphus celtidifolia</i> DC.	jujube		Sedative properties	2,3,4,5
185	Rhizophoraceae	<i>Carallia brachiata</i> (Lour.) Merr.	Fresh water mangrove		Wounds	2
186	Rhizophoraceae	<i>Rhizophora stylosa</i> Griff.	Red mangrove		India, diabetes and after boiling used as an astringent for diarrhea, nausea	3,4,5
187	Rubiaceae	<i>Nauclea orientalis</i> (L.) L.	Cheeswood, yellow cheesewood		Anti-staphylococcal activity, Antianthelmintic activity, pink eye, post partum bleeding, internal bleeding	2
188	Rubiaceae	<i>Saprosma sp.</i>	Madders		Antifungal activity	2
189	Rubiaceae	<i>Guettarda speciosa</i> L.	Beach gardenia		Epilepsy	2
190	Rubiaceae	<i>Ixora timorensis</i> Decne.	Native ixora		Leaves used for stomach problems	2

Aneksu 4: Rekursu Natural (Ai-horis Medisinál iha Timor-Leste)

No.	Family	Naran Botanical	Naran Inglesh	Naran	Uza spesifiku ba	Referensia
191	Rubiaceae	<i>Morinda citrifolia</i> L.	Noni, Great morinda		Arthritis, diabetes, high blood pressure, muscle aches and pains, menstrual difficulties, headaches, heart disease, AIDS, cancers, gastric ulcers, sprains, depression, senility, poor digestion, atherosclerosis, circulation problems, and drug addiction.	2,3,4,5
192	Rutaceae	<i>Citrus hystrix</i> DC.	Kaffir lime	Sabraka fahi inur	Hepatitis, inflammation	1,2,3,4,5
193	Rutaceae	<i>Aegele marmelos</i> L. Correa ex Roxb.	Bengal quince		Anticancer effect	2,3,4
194	Rutaceae	<i>Micromelum minutum</i> (G.Forst.) Wight & Arn.	Lime berry		Cytotoxicity: antibacterial activity	2,4,5
195	Santalaceae	<i>Exocarpos latifolius</i> R.Br.	Broad Leaved Ballart		Aboriginal use:the twigs provided a bitter tonic and astringent for stopping infection on sores and cuts. Leaves were used to create a smoke for repelling insects, woman's sterilizations	2
196	Santalaceae	<i>Santalum album</i> L.	sandal wood		Ayurvedic and Chinese medicine. urogenital (internal) and skin (external) antiseptic.	2,3,4
197	Sapindaceae	<i>Allophylus cobbe</i> (L.) Raeusch.	Mangrove titberry		Fever and stomach ache, antimicrobial and brine shrimp lethality (fish poison)	2,3,4
198	Sapindaceae	<i>Cardiospermum halicacabum</i> L.	balloon vine		Antibacterials	2,3,4,5
199	Sapindaceae	<i>Dimocarpus longan</i> Lour. subsp. malesianus Leenh.	Longan, cat's eye		Antioxidant, Chinese medicine for promoting blood metabolism, soothing nerves, and relieving insomnia	2,3,4
200	Sapindaceae	<i>Pometia pinnata</i> J.R. & G. Forst.	Matoa		Leaves for Anti-HIV medicine	2
201	Sapindaceae	<i>Schleichera oleosa</i> (Lour.) Oken	Kusum tree		Menorrhoea, Kusum oil from seed for hair oil, itching, acne and massage oil to relieve pain of rheumatism.	2
202	Sapindaceae	<i>Lepisanthes rubiginosa</i> (Roxb.) Leenh.	Varied		Root: fever, seed: cough?	2
203	Sapotaceae	<i>Mimusops elengi</i> L.	Spanish cherry		Antibacterial, antifungal, anticariogenic, free radical scavenging, antihyperglycemic, antineoplastic, gastroprotective, antinociceptive and diuretic effects	2
204	Sapotaceae	<i>Pouteria obovata</i> (R.Br.) Baehni	Lukuma,		Antioxidant, dietary fiber, vitamins and bet carotene, niacin and 14 minerals	3
205	Smilacaceae	<i>Smilax australis</i> R.Br.	Lawyer vine		Antidiabetic	2
206	Smilacaceae	<i>Smilax blumei</i> A.DC.	N.A.		Prevention of muscular spasms and cramps, increasing sex drive in females	2,3,4
207	Solanaceae	<i>Solanum lycopersicum</i> Linn, Lycopersicum esclurentum Mill	Tomato		Antibacterial activity, antioxidants : prevent prostate, lung, stomach, pancreatic, colorectal, esophageal, oral, breast and cervical cancers	3,4,5
208	Solanaceae	<i>Solanum tuberosum</i> L.	Potato		Anti-diabetes. Antioxidant effects and protease inhibitor action	3,4,5
209	Sterculiaceae	<i>Helicteres isora</i> L.	East Indian screw tree		Snake bite, diarrhoea and constipation of new born baby	2,3,4,5
210	Sterculiaceae	<i>Melochia umbellata</i> (Hout.) Stapf	N.A.		Hepatoprotective and antioxidant activity, antibacterial activity, anthelmintic activity	3
211	Sterculiaceae	<i>Kleinhovia hospita</i> L.	Guest tree		Antioxidant Activity and moderate cytotoxicity on HepG2 liver cancer cells	2
212	Surianaceae	<i>Suriana maritima</i> L.	Bay cedar		Wounds	3,4
213	Taccaceae	<i>Tacca palmata</i> Blume	Black bat flower		Recovery during the postpartum period	2
214	Verbenaceae	<i>Lantana camara</i> L.	Lantana		Antibacterial activity, Antifungal activity, Antiulcerogenic activity, Hemolytic activity, Antihyperglycemic activity, Wound healing activity, Antimotility activity, Mosquito controlling activity, Antifilarial activity, Antiinflammatory activity, Anti fertility activity (Embryo toxicity), Antirolithiatic activity, Anticancer and antiproliferative activity, Anti mutagenic activity, Antioxidant activity.L. camara is one among the most toxic plants known so far, possibly with in top ten	2,3,4,5
215	Verbenaceae	<i>Phyla nodiflora</i> (L.) Greene	Turkey tangle frogfruit		Acnes, pimples	2,3,4
216	Verbenaceae	<i>Vitex pubescens</i>	Leban,hairy-leafed molave		Antidysentery, analgesic, anti-inflammatory and anti-tumor activities	2
217	Verbenaceae	<i>Vitex rotundifolia</i> L.f.	Beach vitex		Chinese medicine for asthma and other allergic diseases	2,3,4,5
218	Verbenaceae	<i>Vitex trifolia</i> L.	Indian three-leaves vitex		Rheumatism and inflammatory joint conditions	2,3,4,5
219	Vitaceae	<i>Cayratia japonica</i> (Thunb.) Gagn.	Bush killer		Chinese medicine. Leaves and stems:Deuretic, painkiller, neuralgia,	2,3,4,5
220	Vitaceae	<i>Cayratia trifolia</i> L.	Bush grape		Whole plant used for diuretic, in tumors, neuralgia and splenopathy	2,3,4

Aneksu 4: Rekursu Naturál (Ai-horis Medisinál iha Timor-Leste)

No.	Family	Naran Botanical	Naran Inglesh	Naran	Uza spesifiku ba	Referensia
221	Zingiberaceae	<i>Alpinia zerumbet</i> (Pers.)B.L.Burt and R.M. Smith	Shell ginger		Antioxidant and skin diseases	3,4
222	Zingiberaceae	<i>Kaempferia galanga</i> L.	Sand lily		Anti-inflammatory and analgesic activity, Nematicidal activity, Mosquito repellent and larvicidal activity, Vasorelaxant activity, Sedative activity, Antineoplastic and apoptotic activity, Anti-oxidant activity, Antimicrobial activity	3,4
223	Zingiberaceae	<i>Zingiber zerumbet</i> (L.) Sm.	Shampoo ginger		Indigestion	2,3,4
224	Zygophyllaceae	<i>Tribulus cistoides</i> L.	Jamaican feverplant		Cardioactive Steroid Saponins and Other Glycosides	2

Notes: These data were compiled by Yoko Nagata.

For providing the list, several sources were used.

1: Sean WM Collins, Xisto Martins, Andrew Mitchell, Awegechew Teshome and John T Arason "Fataluku medicinal ethnobotany and the East Timorese military resistance" (2007)

2:Northern Territory. Dept. of Natural Resources, Environment, the Arts and Sport., "A survey of flora and vegetation of the proposed Jaco, Tutuala, Lore National Park, Timor-Leste (East Timor) : report to Birdlife International from Northern" Territory Herbarium / Ian Cowie (2006)

3: Observed by Mr. Mariano

4: Observed by Yoko Nagata

5: Observed by Takaaki Kagawa

## **Aneksu-5: Koñesimentu no abilidade báziku sira kona-ba marketing**

### **Introdusaun**

Objetivu hosi manual ne'e mak atu familiariza komunitade ho merkadu no sira rasik halo atividade marketing effesiente bazeia ba koñesimentu no abilidade ne'ebe sira iha.

Fasilitador tenke komprende koñesimentu no abilidade sira ne'e no fó ezemplu realistiku hodi halo ema iha komprendesaun diak.

### **I. Definisau marketing**

Marketing mak termus no konseitu foun ida ba grupu feto sira iha Timor-Leste. Tanba ne'e ita presija atu komesa hosi esplikasaun konaba definisau "Marketing" "ofisialmente" no iha "moris lor-loron nian".

Definisau ofisial hosi marketing define hanesan tuir mai ne'e;

- Marketing signifika prosesu hosi planeamentu no ezekusaun konseitu, presu, no servisu hodi kria interkambiu ida ne'ebé satisfas objetivu individual no grupu.
- Marketing signifika kriasaun no distribusaun hosi standard moris ida.
- Prosesu sosial fundamental ne'ebé evolve iha sosiadade ida nia laran hodi fasilita rezulusaun effetivu no effesiente ba nesesidade sosiadade nian hodi troka "valor konsumsaun"
- Marketing signifika prosesu Jestaun liuhusi sasan no servisu muda hosi konseitu ba kliente/konsumidores. Ida ne'e inklui kordenasaun hosi elementu hat hanaran the **4 P's (Product (produ), Price (presu), Place (fatin) no Promotion (Promosaun))** hosi marketing:
  - (1) Identifikasaun, selesaun no Dezenvolvimentu hosi **produ** ida,
  - (2) determinasaun **presu**,
  - (3) selesaun hosi kanal distribusaun hodi to'o ba konsumidores sira nia **fatin**, no
  - (4) dezenvolve no Implementasaun hosi **stratejia Promosaun**.

Iha moris lor-loron nian, marketing define hanesan tuir mai:

- Marketing komesa hosi hanoin kona-ba negosiu in termus nesesidade konsumidores nian/demanda no sira nia satisfasaun.
- Marketing diferente ho faan tanba" faan" prekupa ho tatika no tékniku hodi hetan ema troka sira nia osan ho ita nia sasan. Marketing la prekupa ho valor ne'ebé halo iha prosesu faan. No nia laos, hanesan invariable marketing halo, hare ba prosequ negosiu tomak tanba kompostu hosi esforsu intregadu hotu hodi diskobre, kria, dada ema no satisfas nesesidade konsumidores sira."

## II. Variábel lima hosi marketing

Iha variábel lima iha marketing hodi konsidera bainhira atu komesa negosiu.

1. Tarjetu: Lista pelumenus lima (5) **segmentu merkadu ne'ebé viável**
2. Tipu negosiu: halo diferensia liuhusi ezemplu entre servisu no **produitu fiziku**
3. Mistura 4 marketing: esplika interasaun iha no entre **element hat hosi “mistura marketing”**
4. Pozisaun: enumera maneira “ **pozisaun**” kombina elementu sira seluk hosi mistura marketing
5. Kompetisaun: Identifika possibilidade **kompetisaun** ho ita nia produitu rasik.

### 1) Tarjetu

Karik ita hakarak atu hetan lukru hosi ita nia produitu, importante tebes atu hatene merkadu, atu hatene kona-ba sosa nain sira/konsumidores-sira nia presija no hakarak.

1. Produitu saida mak popular no iha demanda?
2. Presu folin hira?
3. Hira mak faan ona iha loron ida?
4. Semak halo produitu sira ne'e?
5. Oinsá no iha ne'ebé sasan sira ne'e faan?

Atu hatene neseseidade no demanda hosi sosa nain sira/konsumidores sira, ita tenke survey ba tarjetu variabel sira. depois ita bele komprende demanda real hosi sira.

Tarjetu variável inklui

- tinan
- rendimento
- Edukasaun
- Raça
- Jenéru
- Relijiaun
- Nasionalidade orijen
- Fatin residencia
- Vida moris (estilo de vida)

Iha kazu Timor-Leste, ita nia tarjetu make ema lokál ka ema estranjeiru. Ita presija atu tau presu naton karik mak tarjetu ba ema lokál. Iha parte seluk, ita presija atu konsidera qualidade hosi produitu karik mak ita nia tarjetu ba ema estranjeiru.

### 2). Diferensia sira entre Servisu no Produitu

#### Servisu

- Servisu mak asaun intangível, obras no fizikamente labele prosesu. Valor hatur iha



esperensia no titlu transferensia

- Normalmente ladura kleur, porsaun lauza ne'ebé labele rai
- Kualidade labele separa hosi ema ne'ebé fornese servisu
- Diferente iha kualidade tuir tempu no difisiil atu standardiza tuir tempu

### **Produutu**

- Produutu mak objetu ka sasan sira ne'ebé bele kaer. Valor hatur iha propriedade no uza no titlu transfer hola fatin
- Bele rai, no porsaun lauza bele uza iha tempu tuir mai.
- Kualidade bele diferensia hosi kanal kualidade membru nian
- Produutu bele standardiza no produs barak no iha possibilidade kontrola kualidade

## **2) Mistura Marketing(4 Ps)**

Komponente mistura marketing mak “ Product (produutu),” Price (Presu)” Place (fatin)” no Promotion (promosaun)”.

### **Mistura Produutu**

Klasifikasaun hosi sasan no servisu ne'ebé tenke mantein atu hatan ba nesesidade konsumidores nian.

#### **Servisu hanesan produutu ida**

- Servisu hanesan produutu ida atu halo distribusaun; ida ne'e bele kria avansadumente ka halao bainhira prontu
- Servisu ne'e labele sentralmente produs, inspekta, stockpiled, ka armazenamentu. Normalmente distribusaun ba konsumidores, hosi ema depois de imediata influensia hosi jestaun.
- “Produutu” labele demonstra,ka labele halo sample hodi haruka ba aprovasaun
- Pesoal ne'ebé simu servisu ne'e laiha buat tangível ruma, valor depende ba esperensia personal
- Esperensia labele faan ka pasa ba terseiru parte
- Servisa ida labele relembra ka repete
- Asegura kualidade tenke akontese molok produsaun do que depois Produsaun, bainhira produs produutu.
- Distribusaun servisu presija interessaun ema nian;sosa nain no negociante tenke halo kontaktu ho relativamente maneira personal ruma hodi kria servisu.
- Simu nain sira nia espetativa mak integral ba sira nia satisfasaun, no subjektivu boot tebes

- Ema barak liutan mak konsumidores sira hasoru durante distribusaun servisu, kiik liutan posibilida ema ida sei satisfas ho servisu ne'e

### **Rezultadu**

- Klase produktu final mak rezultadu antisipada hosi sasan no servisu

### **Produtu**

- Benefisiu no rezultadu positivu (Rezultadu) ne'ebé ita nia konsumidores sira hetan liuhusi negosiu ho ita no uza servisu ne'ebé ita oferese ba sira.

### **Persepsaun Konsumidores kona-ba Produtu**

- Revlon: Faan kosmetika “esperansa”
- Coca cola: la faan bebidas maibé faan “istoria”

### **Paradigma foun hosi ita nia produtu**

Ezemplu. Grupu fetu fó tempu konfortável ba konsumidores sira bainhira sira koko ita nia produtu

### **Persepsaun Konsumidore ba Grupu Fetu sira**

- Grupu fetu: faan hahan ne'ebé saudavel no gostu “tempu atu kura”

## **Presu**

Kustu ka impaktu negativu ne'ebé konsumidores tenke hetan atu nune'e halo negosiu ho ita, uza ita nia servisu iha maneira ne'ebé ita oferese ba sira.

### **Konsiderasaun presu**

- Natureza hosi merkadu tarjetu (mentiona ona iha leten)
- Natureza hosi kompetisaun
- Kustu merkadoria (Ezemplu, pratika sosa ne'ebé susesu hosi manager supermerkadu)
- Familiariza konsumidores ho presu oi-oin

### **Tau presu**

#### **Prosesu tau presu**

- Prosesu tau presesu involve etapa lima (5):
  - Estabelese objetivu hosi tau presu
  - Estabelese politika tau presu
  - Dezenvolve statejia tau presu ida
  - Implementa stratejia
  - Halo ajustamentu nesesariu (fine tuning)

### **Objetivu kompetetivu**

- Hatan ba nesesidade kompetisaun
- Lidera presu sasaun
- Ofereze presu ne'ebé kiik
- Hasa'e volume faan
- Prevene kompetisaun
- Neutraliza presu liuhusi meu laos-presu

### **Objetivu Finansial**

- Maximiza lukru tempu-badak
- Maximiza faan tempu-naruk
- Stabiliza rendimentu
- Muda item ne'ebé ho margin-aas
- Muda item ne'ebé neneik
- Mantein nivel gross profit balun

### **Objetivu Merkadu**

- Hari'i saham merkadu
- Hari'i traffiku
- Hametin imagem presu kiik
- Desensitiza konsumidores ho presu
- Kria atensaun no interese
- Atinji kresimentu ba futuru
- Mantein saham merkadu aktual

### **Opsaun Politika ba Presu**

- Politika "Presu - ida"
- Politika presu Variable

### **Razaun tau presu diferente ba sasan ne'ebé identikal**

- Hetan ho kustu ne'ebé diferente
- Kustu ba record keeping ne'ebé aumenta
- Kustu kreditu ba konsumidores sira ka terseira parte
- Kustu distribusaun
- Frekuensia konsumidores sira sosa

### **Statejia Tau presu**

- Bazeia ba kustu
- Bazeia ba demanda
- Bazeia ba kompetisaun

### **Konsiderasaun kustu bainhira Determina Presu**

- Publikasaun no tipu promosaun seluk tan
- Diskontu oi-oin ba konsumidores
- Returns
- Distribusaun
- Kreditu no kustu osan seluk
- Kustu Administrasaun
- Despejas faan
- Kustu seguransa

### **Stratejia tau presu**

- Presu bazeia ba demanda relasiona ba konsumidores sira nia hakarak atu sosa

### **Presu Elasticity no Inelasticity**

- Presu “Elastic”  
Presu = \$1.00, 100 faan ba unidade = \$100.00  
Presu = \$0.50, 300 faan ba unidade = \$150.00  
Presu = \$1.50, 50 faan ba unidade = \$ 75.00
- Presu “Inelastic”  
Presu = \$1.00, 100 faan ba unidade = \$100.00  
Presu = \$0.50, 125 faan ba unidade = \$62.50  
Presu = \$1.50, 75 faan ba unidade = \$112.50

### **Fatin**

Karakteristika fiziku no fatin (besik ka dook) mak halo posibel, fasil ka difisil ba konsumidores sira atu uza ita nia produtu no servisu.

### **Maneira atu Manipula fatin**

- Distribusaun
- Parking/parajen
- Drive-in windows
- Interior design and atmospherics
- Exterior appearance

- Telefone

### **Telefone hanesan Asset ida**

- Telefone hodi mantein sosanain sira nia interese
- Telefone ba sosanain sira hodi avalia konsumidores sira nian progresu no satisfasaun
- Telefone ba sosanain foun sira iha komunidade hodi alerta sira kona-ba ita nia servisu
- Telefone ba sosanain tuan sira ne'ebé sai ona inativu hodi hatene sira nia razaun

## **Promosaun**

Importante tebes hosi “P”

### **Publikasaun**

Tuir Asosiasaun Marketing America nain :

“Mass, selu ba komunikasaun, intensaun mak atu fahe informasaun, dezenvolve attitude, no induz asaun favorabel ba publikador sira.”

### **Tanba sa halo publikasaun?**

- Atray atensaun
- Induz interese
- Dezenvolve hakarak atu sosa no
- Halo ativa faan produktu

### **Apropriamente no Orsamentu ba advertising/publikasaun**

- Estabelese Objektivu ba publikasaun
- Determina tipu no montante hosi publikasaun nesesariu hodi atinji objektivu sira
- Determina kustu jeral hosi publikasaun ne'e
- Orariu publikasaun loron ba loron

### **Tipu hosi publikasaun**

- Fokus institusional ba servisu grupu fetu nian
- Merkadoria – hametin liu produktu no servisu

### **Seleciona Media Publikasaun ne'ebé Apropiadu**

- POP (Pontus hosi publikasaun sosa)
- Exhibisaun

- Jornal
- Radio
- Televizaun

### **POP**

- Eye-catcher
- Banner
- Brosur
- Poster

### **Exhibisaun**

- Dala ida ka rua kada tinan, tipu exhibisaun ba produktu lokál. Ida ne'e oportunidade diak atu demonstra ita nia produktu.
- Dalaruma ita bele demonstra prosedimentu prosesu iha ema barak nia oin.

### **Jornal**

- Jornal lokál – ema barak mak lee
- Konta ba porsentu 30 hosi gastus hotu ba publikasaun
- Desadvantajem – sirkulasaun dalaruma luan liña area negosiu supermerkadu nian

### **Radio**

- Bele atrai liu ema nia interese kompara ho material ne'ebé print deit
- Iha grau geographic ne'ebé aas no publiku hodi selesiona
- Radio lokál – presija repetisaun, brevidade
- Menus reinfosamentu ne'ebé visual

### **Televizaun**

- Media publisidade ne'ebé klaru teb-tebes
- Produktu ka servisu atray ema barak nia interese

### **Konsiderasaun ba publikasaun**

- Konsidera ho klaru hodi define metas marketing
- Publikasaun mak maneira ne'ebé diakliu hodi atinji ita nia intensaun ka lae? Ka, karik publikasaun mak hanesan opsaun ne'ebé diak liu?
- Ita distribui saida mak ita promove?

## **Pozisaun**

- Pozisaun – sura total hosi produktu ida, presu, fatin, no atividade promosaun
- Ita bele kombina ita nia pozisaun (asumi ita hetan tiha ida ona)?
- Persepsaun sai realidade

## **Kompetisaun**

### **Kriteria ba susesu**

Ba susesu marketing iha grupu ida, ita presija atu komprende requijitus hosi susesu hanesan

- Hetan no mantein konsumidores
- Iha maneira ne'ebé konsistente ho evaluasaun konsumidores
- Kontinua moris no hetan lukru regularmente
- Defini intensaun, planu no komunitade
- Dezenvelope sistema ida ba premiu no sansaun sira

### **Stratejia servisu**

- Formatu distintivu ba distribusaun servisu
- Vizaun hola parte iha papel importante
- Julgamentu, kreatividade, no abilidade hodi hanoin iha nivel global – Nesesariu atu “tau matan ba floresta”
- Prinsipiu organiza permite ema sira iha servisu emprenea hodi kanaliza sira nia esforsu ba servisu orienta ba lukru ne'ebé halo diferensia iha matan konsumidores sira nian.
- Konseitu esplika valor ne'ebé sei oferese
- Bele fó fila bainhira promete ona
- Simu esplikaun ida kona-ba oinsá problema ida akontese
- Fornese hau ho informasaun atu nune'e hau hatene numera saida mak hau tenke liga ba.
- Bele kontaktu ho lais bainhira rezolve problema ida
- Bele premite atu koalia bainhira authoriza atu koalia
- Bele hetan informasaun sei uza tempu hira hodi rezolve problema ida
- Bele hetan alternativu útil karik ida uluk labele
- Bele hetan tratamentu hanesan ema ida, laos kuantidade deit
- Bele hetan informasaun atu prevene problema mosu iha futuru

- Bele hetan relatoriu progresu karik problem ida la bele rezolve imediatamente

### **Konfiabilidade ba servisu –Ligasaun ba Rekoperasaun**

- Problema ne'e reinforces padraun atu la bele akontese fali problema anterior
- Esforsu Rekoperasaun faila atu satisfas konsumidores

### **Influente sira ba Assesmentu Kualidade**

- Konfiabilidade
- Bele kaer/Tangibles
- Iha responde/Responsivene
- Garantia
- Empatia

### **Reklamasau sira**

Reklamasau sira hosi konsumidores :

Konsultasaun ne'ebé ladun karun ne'ebé ita bele hetan

- Rata-rata negosiu nunka rona hosi porsentu 96 hosi konsumidores ne'ebé la kontente ho produ tu ida
- Reklamador sira bele kompara ho laos-reklamador halo negosia fali ho kompania ne'ebé hirus sira
- Hosi konsimores sira ne'ebé rejistu halo reklamasau, entre 54 no 70% sei halo negosiu fali wainhira sira nia reklamasau ne'e rezolve ona
- Rata-rata hosi konsumidores ne'ebé iha ona problema ho organizasaun ida hatete ema 9-10 kona-ba ida ne'e

### **Audit ba Merkadu**

- Analiza methodical ida kona-ba operasaun, tatika, no stratejia uza iha marketing
- Examinasaun ba-aan rasik

### **Persija Merkadu**

Maneira ne'ebé efetivu liu ba grupu fetu atu buka hatene nesesidade no attitude hosi konsumidores atu nune'e ho efetivamente faan sira nia servisu/produ tu

- Koko-ann rasik : saida mak ita hatene no lahatene kona-ba marketing
- Formatu survey konsumidores: informasaun importante ba ema ne'ebé ita servi no hakarak atu servi

### **Konkluzau**

Marketing ita nia servisu no produ tu-atinji konsumidores sira no ita nia satisfasaun!



## **Aneksu-6: Oinsá atu halo promosaun badak**

### **Saida mak publikasaun POP?**

Iha mundu negosiu “POP” ema uza hodi refere ba hatudu pontu publikasaun faan. Point of Purchase advertising ka POP mak publikasaun iha loja sira ne'ebé nia intensaun atu atray attensaun hosi komprador sira bainhira sira iha ka besik loja ida.

Tipu publikasaun ida ne'e uza iha maneira barak liu mak print-out, static signage, banner, shelf call-outs, end cap displaus<sup>1</sup>, no sira seluk ne'ebé atu hanesan. Expozisaun liuhusi POP bele iha forma oi-oin, inklui shelf-mounted signs, poster tara no barak tan.

Desde estimadu 70% desijaun sosa halo iha loja retail laran, expoizisaun POP ne'ebé efetivu bele iha impaktu dramatic hodi faan kategoria ka merek produktu balun.

Ida ne'e hanesan maneira simples entre media publikasaun oi-oin. Ida ne'e dalabarak hakerek no material ilustra iha surat tahan.

### **Kontéudu hosi POP**

- ✓ Catch copy
- ✓ Esplikasaun kona-ba produktu ho presu ka la ho presu
- ✓ Ilustrasaun liman

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<sup>1</sup> In retail marketing, an **end cap** is a **display** for a product placed at the end of an aisle. It is perceived to give a brand a competitive advantage. It is often available for lease to a manufacturer in a retail environment.

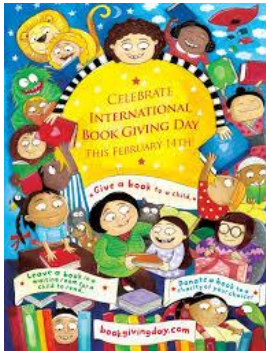
Sample hosi POP no publikasaun seluk



Sales flyer



Informasaun produktu



Posters



Sasanfolin



Menus



Big sales



Direct mail (Post card)





Sample hosi POP Japanese  
nian



Sample hosi POP Japanese nian

## Aneksu-7: Oinsá atu halo brosur ida

### Fator importante sira hosi “5W1H” iha brosur

5W signifika ‘When (wainhira)’, ‘Where (iha ne’ebé)’, ‘Who (se)’, ‘What (saida)’ no ‘Why’(tanba sa). 1 H signifika ‘How’(oinsa). 5W1H mak fator baze atu fó mensajen exata ba ema. Karik brosur iha fator 5w1H sira ne’e, konsumidores bele ho fasil komprende no dada sira atu iha motivasaun hodi sosa produtu.

1. Wainhira: loron no tempu ka periodu
2. Iha ne’ebé: enderesu hosi fatin ka kontaktu
3. Se): Se→promotor, ba se→tarjetu
4. Saida :saida mak ita hakarak atu informa ba tarjetu? Saida mak ita hakarak atu halo? Saida mak ita hakarak atu faan?
5. Tanba sa :intensaun hosi loke loja ida, faan, atray konsumidores no nst.

+

1. Oinsa :sasukat no metodu hosi distribusaun

Favor halo klaru tanba sa (intensau) no ba se (tarjetu). Dezeñu hosi brosur sei desidi liuhusi objetivu hanesan ba se ita hakarak atu hato’o no ba se ita hakarak atrai. Maneira distribusaun sei desidi liuhusi sexo ka jersaun hosi tarjetu

### Oinsá atu halo brosur

Funsaun brosur mak atu hato’o ita nia liafuan hodi publika no promove ita nia produtu. Dalauluk ita tenke fó hatene ema hodi bele nota brosur ne’e. tuir mai ita hakarak sira halo buat



ida kona-ba ne’e.

#### 1. hakerek título

#### halo simples, no halo boot!

- Título tenke labele liu husi liafuan lima, apar iha liña iha pajína, no tau ba parte klaran iha surat tahan
- Letra iha título tenke boot liu letra seluk iha brosur.
- Letra boot/kapital iha modelu font POP nian.
- Karik uza kor. Diak liu uza kor ne’ebé han malu

ho imajen ne'ebé iha brosur.



## 2. Mantein mensajen simples

### Labele halo ema "Lee" ita nia brosur

- Komunika ita nia mensajen iha nivel pelumenus intuitiva
- Titlu ne'ebé bele halo ita hakfodak? Se karik mak ita hanesan ho ema maioria, "PRESU DIAK" atrai kedan ita nia atensaun. Ida ne'e laos tanba ema hotu gosta folin baratu, ida ne'e tanba kor mean nabilan ne'ebé naturalmente ema bele nota lalais.



## 3. Aumenta imajen no ilustrasaun

depois de hetan ona atensaun hosi ema sira ne'ebé lee, foti vantejen hosi ne'e! fó lee nain sira buat ida atu sira bele hare---ema barakliu lembra mensajen ida diakliu karik iha imajen ne'ebé bele liga ho produtu refere.

- Uza imajen- edit aplikasaun hodi hasae kor imajen ne'e; ida ne'e sei halo imajen ne'e bele halo ema nota ho diak liu hosi dook bainhira imajen ne'e print ona iha surat tahan.
- Imajen ne'e tenka tau iha parte klaran, no nia area labele liu husi 1/3 pajina.
- Koko atu uza imajen ida deit karik bele. Karik absolutamente nesessariu, ita bele tau imajen rua iha

sori-sorin, maibé karik liu hosi rua sei halo imajen konfundi ema, ne'ebé sei la atrai ema nia interese.



## 4. Tau deskrisaun produtu iha imajen nia okos

- ita dada ona lee nain nia interese, no sira mai hakbesik atu hetan informasaun detailus. Halo ita nia deskrisaun informasaun badak no klaru no detailu liu diak liutan; informasaun ne'e tenke liña rua ka barak liu tolu.
- Hametin ka enfatiza liafuan xave, uza letra kapital, nabilan no metan uituan, italics, no seluk tan – maibé labele uza opsaun sira ne'e dalaida deit tanba bele halo ita nia brosur sai

ladiak bainhira ema lao ansi hela. Uza liafuan no fraze ne'ebé halo ita nia oferese bele



kesi ema: *free, reliable, only, REWARD.*



### 5. Aumenta ita nia informasaun atu ema bele kontaktu

- karik mak importante atu kontaktu ita hodi bele hetan resposta ba ita nia brosur, aumenta ita nia naran no informasaun kontaktu ne'ebé ita prefere – numeru telephone, email, nst.
- Ita mos bele uza metodu "tear off" ka "les fahe": kria ita nia brosur ho versaun ne'ebé badak no font ne'eb'e kiik, depois halo rotasaun ba grau 90 no repete dala lubun iha brosur nia okos. Les ona sorin

atu ema bele les informasaun hodi bele kontantu ita ho konviente.



### 6. Asegura katak ita nia brosur ne'e fasil atu bele nota

- taka iha odomotan ka quadru avizu ida no ses ba kotuk metro 3 hosi brosur ne'ebé ita taka .
  - Pontus prinsipal iha brosur ne'e halo ita hakfodak?
  - Hare ba sample brosur iha sorin,
  - Ita bele hare kedan katak iha lost kitten (busa oan lakon)—photo ne'ebé kapas dada ita atu hakarak fô ajuda,
  - No iha premiu ne'ebé boot ba ida ne'e!
- Husu ba kolega ka membru familia ne'ebé sedauk hare brosur ne'e atu hare brosur ne'e, karik sei bele nota mensajen iha brosur ne'e ho lalais.

### 7. Halo kopia

Tanba agora ita halo kompletu ona ita nia brosur no koko ona, print out kopia barak tuir ita nia presija.

- **Kopia metan-mutin (Black-and-white)** mak jeralmente baratu kompara ho kopia ho kor. Karik ita desidi atu halo deit kopia metan-mutin, ita karik bele koko ida ne'e; do que print out titlu ho liafuan sira iha kor, **husik** hela seksaun sira ne'e mamuk **no hakerek liafuan sira ne'e ho liman ho lapis/lapizeira kor.**

### 8. Taka ita nia brosur

Iha ne'ebé ita tenke taka ita nia brosur ne'e? Diak, se mak ita hakarak atu ita tarjetu ba?

- Nota katak area urbana dalabarak iha restriksaun ba saida mak it abele taka, no iha ne'ebé – desde fasil tebes atu buka ita, labele viola regulamentu!
- Koko iha restaurante kafe, kuadru avizu publiku, no karik ita hare besi rin ne'ebé taka ho brosur—ne'e justu atu bele taka!

## Aneksu-8: Matadalan ba Treinamentu kona-ba Bookkeeping

### Bookkeeping ba grupu feto

Bookkeeping mak abilidade nesesariu ba grupu ruma atu bele maneija osan. Importante ba membru sira atu iha abilida diak kona-ba bookkeeping. Maibé, diak liu atu la introdus ida ne'e mak difisil ne'ebé bele halo Membru sira hadoak-an atu pratika no aumenta erru barakliutan karik Membru sira laiha esperensia. Introdus forma no metodu ida ne'ebé simples no fasil atu komprende iha etapa inisiu.

Karik se diak liutan ita konsidera atu halo treinamentu ba partisipante ida-idak tuir sira nia nivel komprensaun

**Preparasaun:** material fasilitasaun, surat tahan formatu cashbook (suficiente ba numeru partisipante), lapizeira ba partisipante sira, flip chart.

Material fasilitasaun ba Bookkeeping:

<p><b>Kontéudu:</b> Importansia no signifika hosi mantein cashbook</p> <ul style="list-style-type: none"><li>Saida mak cashbook?</li><li>Oinsa atu mantein cashbook</li><li>Ezemplu hosi cashbook</li><li>Issue importante bainhira mantein cashbook</li></ul>
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### **Fasilitasaun:**

Uluk nanain, importante ba audensia sira atu komprende konseitu no importansia hosi bookkeeping, ne'ebé sei influensia tebes sira nia pratika depois de treinamentu. Ema bele pratika mesak bainhira sira rekoñese nesesidade atu iha abilidade suficiente. Tanba ne'e, esplika importansia hosi hakerek cashbook iha situaun pratikal hanesan ezemplu durante fasilitasaun.

Ba daruak, esplika oinsá sira tenke mantein cashbook, inklui bainhira (bainhira transaksaun ida halo), ba transaksaun saida deit (ba transaksaun incoming no outgoing), kompatibilidade ho osan, aneksu ho dokumentu evidensia hanesan recibu.

Depois, esplika oinsá atu hatama kada transaksaun ba iha livru ne'e, lao etapa ba etapa, komesa hosi esplikasaun format

**Ezersisiu hosi partisipante sira:**

Depois de esplikasaun liuhusi apresentasaun, husik Audensia sira pratika rejistu ba iha formatu cashbook ho ezempu transaksaun.

**Ezemplu transaksaun**

1. Iha balansu hosi fulan kotuk \$1,250
2. sosa modo musan iha dia 5 Novembru 2012 ho kustu \$ 15
3. sosa adubu iha dia 13 Novembru 2012 ho kusut \$150
4. grupu faan modo ho total \$ 400 iha dia 20 Novembru 2012

- Prepara surat tahan formatu cashbook mamuk ida ba partisipante ida-idak atu prenxe no flip chart ida ho formatu mamuk.
- Distribui formatu cashbook mamuk ida ba partisipante ida-idak.
- Lee Ezemplu hosi transaksaun osan ida por ida (ida ne'ebé iha liman sorin prepara hosi Fasilitador), no husik partisipante sira kompleta servisu ne'e.
- Fó tempu suficiente atu kompleta servisu ne'e.
- Husu partisipante ida atu prenxe formatu ne'e ba flip chart hodi esplika ba partisipante seluk. (ida ne'e koko laos teste ba partisipante maibé atu halo partisipante sira fiar-an. Tanba ne'e, labele akuza sira nia sala maibé enkoraja sira atu koko!!)
- Halo esplikasaun adisional bainhira nesessariu .

Sample resposta ida

Data	Particular	No. Recibu	Incoming	Outgoing	Balansu
01/11/2012	Balansu hosi fulan kotuk		1,250	-	1,250
05/11/2012	Modo musan	1	-	15	1,235
13/11/2012	Adubu	2	-	150	1,085
20/11/2012	Faan modo	3	400	-	1,485

## Orsamentu no Presu

### Orsamentu ba atividade grupu

Ba grupu to'os nain sira halo ida ne'e ba halo to'os, ba prosesamentu, ka intensaun seluk, orsamentu simples bele halo sira nia atividade iha Rezultadu diak liutan, liuhusi Planeamentu finanseiru hare ba sira nia atividade hotu.

#### 1. Analiza kustu

Iha inisiu, husik feto sira atu bele identifika kustu direita hotu hosi sira nia atividade tanba iha kustu balun dalaruma haluha tau hanesan kustu.

Sira sei presija atu konsidera kategoria sira tuir mai ne'e;

1. Kustu Manufacturing (kustu direktamente halo ba Produsaun sasan particular ida)
  - Material direita
  - Direct labor
  - Manufacturing overhead (kustu ba operasaun hosi manufacturing)
2. Kustu Non-manufacturing
  - Kustu administrativu jeral
  - Kustu faan (despeja sira ne'ebé presija iha prosesu marketing)
3. Kustu indereta seluk

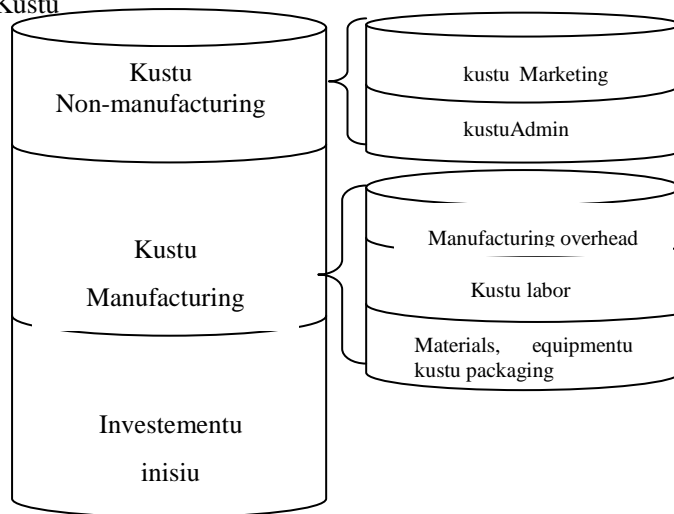
Ezemplu hosi kustu ne'ebé presija konsidera

**Materials** – ida ne'e inklui material matak, ingrediente sira ba produtu ida, fini, no mos materials ba packing. Ida ne'e fasil liu atu identifika, no dalabarak sosa barak kedan no utiliza ba intensaun diferente sira seluk.

**Equipmentu**- Utensils, equipmentu no makina nst. ba prosesu produsaun bele identifika no sei kalkula hanesan kustu ida. Ida ne'e komplikadu uituan atu kalkula hanesan kustu tanba equipmentu sira ne'e balun bele dura kleur no bele utiliza dalabarak, maibé presija atu kalkula kustu ba kada unidade hosi produtu.

**Kustu Labor**- Bainhira grupu ida halo operasaun rasik ba sira nia atividade, kustu labor (tenaga biaya kerja) karik sei la sura hanesan kustu maibé inklui iha sira nia lukru ne'ebé hetan. Maibé, nesesariu tebes atu kalkula salariu no kustu labor bainhira grupu ne'e lao ba oin hanesan grupu negosio ka enterprise ida.

Kustu



**Kustu Operasional Seluk**-kustu atu opera atividade produsaun hanesan irigasaun, kustu ba kultivasaun, kustu ba makina halo operasaun, ai sunu hodi tein ba prosesamentu aihan.

**Kustu administrasaun**-hanesan stationeries edefisiu, kustu viajen, mantein grupu funsiona sira.

**Kustu Marketing**-hanesan transporta produktu, selu ba fatin faan sasan nian, publikasaun, no mos promosaun.

### Oinsá atu kalkula kustu exata

Kustu exata, ne'ebé nesesariu presija kria tanba montante produktu, tenke kalkula hosi total kustu fahe (divider) ho numeru produktu.

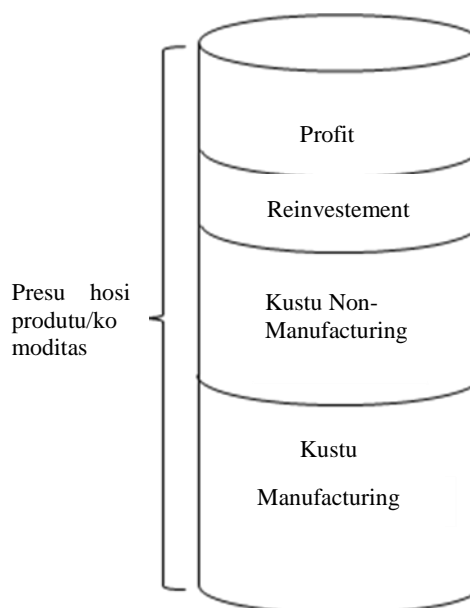
ezemplu. utensil

Utensil ba prosesamentu, ne'ebé ho kustu \$360, bele uza hodi servi ita nia intensaun pelumenus tinan 1, produs 10kg produktu kada fulan

- ◆ Kalkuka kustu utensil kada produktu (per kg)!!  
 $\$360 / (10\text{kg} \times 12 \text{fulan}) = \$3$  ba kada 1 kg produktu.

## 2. Tau presu

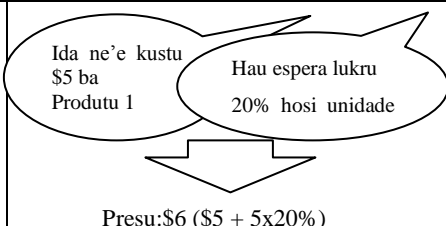
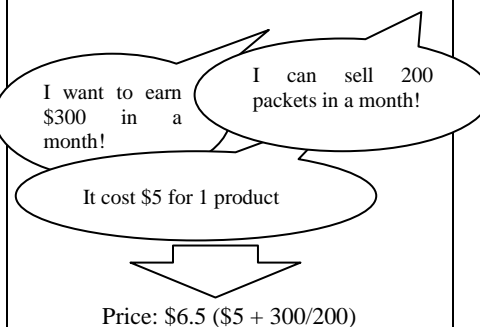
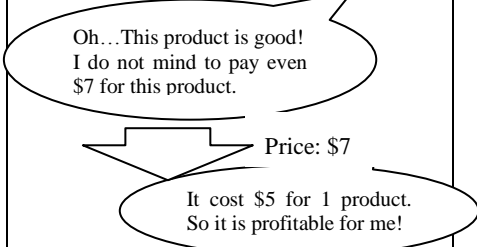
Iha leten ita sei to' o ba total gross kustu iha pontu faan. Atu tau presu ba produktu sira sei presija aumenta margin lukru ne'ebé mak operasional no dezvoltamentu. Operasional tenke halao iha Produsaun loro-loron nian no Dezenvolvimentu tenke mantein ba expansaun. Margin iha komponente rua iha leten tenke desidi liuhusi foti presu merkadu nian ba produktu ne'ebé hanesan. Karik presu iha merkadu menus liu ita nia produktu ne'ebé sei lori ba merkadu tanba iha fatin seluk iha sasan folin baratu/ekonomik liu kompara ho manufaktur kiik ida, antaun sira presija aumenta valor ba sira nia produktu hanesan produktu real/original hosi area ne'e, ne'ebé sei hetan folin diak ba sira nia produktu no sosa nain sira sei la prekupa atu selu ba produktu ne'ebé aumenta ona folin. Maibé, presu tenke mantein nafatin no la bele tun sae tanba dalabarak produser kiik sira hakarak hetan lalais osan iha sira nia liman mesmo sira faan ho presu ne'ebé menus no dalabarak la dura kleur iha negosiu.



Fatores tuir mai tenke konsidera bainhira tau presu

- ✧ **Kustu:** presu ne'ebé ita tau kobre hotu ona kustu sira ka lae?
- ✧ **Lukru:** bele ka lae produhu hosi produsaun ne'e hasae rendimentu?
- ✧ **Presu Merkadu:** Presu merkadu ne'e justu ba konsumidores tarjetu sira?  
Ema iha hakarak atu sosa ho presu ne'ebé estabese?  
Presu ne'e iha kompetisaun ho produhu seluk ne'ebé hanesan?
- ✧ **Sustentabilidade:** presu ne'e kobre ona kapital ba reinvestimentu hodi dezenvolve produsaun?

Metodu diferente ba tau presu

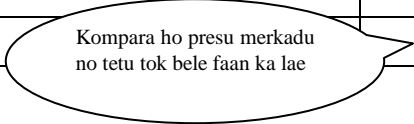
	<b>Konseitu</b>	<b>Simplifika Ezemplu kalkulasaun</b>
<b>Kustu bazeia ba presu</b>	presu determina hosi kustu ho rasio balun hosi profit margin. Profit/lukru depende ba volume produhu ne'ebé faan.	 <p style="text-align: center;">Presu: \$6 (<math>\\$5 + 5 \times 20\%</math>)</p>
<b>Target osan fila bazeia presu</b>	presu determina hosi total osan fila ne'ebé ita espera no espera hanesan lukru dividir ho volume espera no inklui ida presu unidade hosi produhu ne'e.	 <p style="text-align: center;">Price: \$6.5 (<math>\\$5 + 300/200</math>)</p>
<b>Valor bazeia ba presu</b>	presu determina hosi valor produhu julga hosi konsumidores, montante ne'ebé konsumidores sira karak selu ba produhu ne'e	 <p style="text-align: center;">Price: \$7</p> <p style="text-align: center;">It cost \$5 for 1 product. So it is profitable for me!</p>

Ezemplu tau presu bazeia ba kustu plus profit

ezemplu.: 1 kg hosi produhu ida

<b>Kustu produsaun</b>	Kustu Material	Ingrediente no utensils	\$40
	Kutu Packaging	Pakote Packing, label, surat tahan presu	\$10
	Kustu Labor	Pagamentu ba produser	\$30



<b>Kustu operacional</b>	Ema hein loja	Pagamentu ba ema hein loja	\$10
	Kustu Admin	Stationeries	\$ 5
<b>Kustu Marketing</b>	Promosaun	Display, posters, POP	\$10
	Transportasaun	Transportation ba provizaun	\$5
<b>Reinvestmentu</b>		Rai osan ba permanent sales point	\$20
<b>Profit</b>			\$20
<b>Presu hosi produktu</b>			\$150

## Valor adisional no presu

Tanba sa aumenta valor hetan lukru barak liu?

Produitu ne'ebé aumenta valor iha vantajen no hetan lukru barak liu bainhira responde ba ema nia hakarak, serve liu ba nesiedade particular/okuzaun particular., hanesan prezente, produitu fo impaktu diak ba saude, nst. ka menus los produitu sira ne'e hetan demanda barak kompara ho supply ne'ebé iha. utilizausaun konsumidores nian hotu ne'ebé aumenta tanba ema prefere liu atu iha produitu ne'ebé iha qualidade kapas no diak liu mesmu sira selu ho presu ne'ebé boot.

### Ezemplu hosi komparasaun

	Produitu normal	Produitu ne'eb'e aumenta valor
Kustu	\$3.0	\$3.2 (diferente kustu tanba aumenta ona valor)
Presu faan	\$3.5	\$4.0 (bele faan aas liutan karik liga ho konsumidores sira nian gostu)
Lukru	\$0.5	\$0.8

### ➤ Pratika!!!

Metodu: Prepara sample kazu hosi prokuramentu, Produsaun, marketing nst. no husik produser sira demontra kalkulasaun presu. Komesa ho Ezemplu simples mesmo ne'e la kobre kustu komplikadu hotu iha inisiu.

	<i>Produitu A</i>	<i>Produitu B</i>
<b>◆ Produsaun (inklui packaging)</b>		
<i>Materials matak:</i>	Sosa lokalmente ho presu \$10/1 kg produitu	Ingridiente principal lokalmente kolekta \$0 Ingridiente balun sosa ho kustu \$3/1 kg produitu
<i>Transportasaun ba prokuramentu</i>	Fila fali ba aldeia XX. \$3 hodi lori materials 30kg produitu	Fila fali ba aldeia YY. \$50 hodi lori material ba 25 kg produitu
<i>Packaging</i>	Materials packing \$12 (hodi pack 40kg produitu)	Materials packing \$50 (suficiente atu pack 50kg produitu)
<i>kustu Labor</i>	\$15 / 10kg produitu	\$9/10kg produitu
<b>◆ Marketing(estabelese fatin faan, transportasaun produitu, display)</b>		
<i>Displaying materials</i>	\$60 (durasau ba fulan 6)	\$60 (durasau ba fulan 4)
<i>Transportasayb</i>	\$10 per 20kg	\$8 per 20kg
<b>◆ Administration cost</b>		
<i>Stationary no equipamentu</i>	\$ 50 (durasau/suficiente atu uza ba fulan 5)	\$60 (durasau ba fulan 4)
<b>◆ Profit/lukru</b>		
<i>Lukru ne'ebé espera</i>	\$1.5	\$2.0
<i>Expected sales per month (kg):</i>	100kg/fulan	150kg/fulan

<i>Presu per kg</i>	\$ _____	\$ _____
<i>Presu merkadu ba produktu ne'ebé hanesant</i>	\$ _____	\$ _____

### 3. Mantein rejistu iha jestaun faan

#### Stock taking

➤ Lojika hosi stock taking

Stock taking mak atu maneja koñesementu hosi produktu ne'ebé mak faan diak, produktu hira hosi kada produktu mak faan ona, produktu hira mak produs no rai iha stock, ne'ebé produktu sira ne'e sei produs tan. Ida ne'e sei rezulta marketing diak liuhusi komprende nesesidade hosi marketing.

➤ Oinsá atu mantein rejistu stock

Stock taking atu konfirma situasaun hosi produktu iha stock. Buat baziku ne'ebé sei konfirma mak hanesan tuir mai;

- Numeru produktu ne'ebé ezisti iha stock
- Numeru produktu ne'ebé foin rai tan iha stock
- Numeru produktu ne'ebé faan ona
- Numeru produktu ne'ebé sei iha stock

Record sira ne'e sei mantein iha surat tahan ka sheet ida ba produktu ida.

**Sample record;**

Balansu hosi loron anterior (tenke hanesan ho 'balansu' hosi loron anterior)

Numeru produktu foun lori hosi produser sira

**narán Item:** Fehuk adar maran

=Balansu antes + supply foun

=Total iha loja - faan

Data	Balansu antes	Supply foun	Total iha loja	Faan	Balansu	Asinatura
2012/6/19	0	10	10	3	7	
2012/6/20	7	5	12	8	4	
2012/6/21	4	10	14	3	11	
2012/6/22	11	0	11	5	6	
2012/6/23	6	10	16	0	16	
2012/6/24	16	5	21	9	12	
Total iha fulan ne'e		40		28	12	

Total numeru produktu hosi fulan ne'e

Total numeru faan iha fulan ne'e

Balansu restu hosi produktu iha fin de fulan ne'e

### Mantein record faan

- Nesesita atu mantein record faan

Aparte hosi bookkeeping, Nesesariu atu mantein record faan iha loron ida. Depois de check tiha stock, produitu hotu iha loka tenke rejistu molok komesa faan. Kada tempu faan produitu, tenke rejistu liuhusi tau marka iha record sheet/surat tahan rejistu.

Bainhira sira mantein rejistu item/sasan ne'ebé faan no maneja osan hanesan presu ho propriu, kalkulasiun rendimentu no balansu restu bele halo depois de taka loja. Rendimentu tenke konfirma ho osan/cash atual iha liman no balansu restu hosi item tenke konfirma ho produitu atual iha fatin faan produitu molok loron ida remata.

### Rejistu faan/Record sales

Data: 21/6/2012

Naran ema ne'ebé halo rejistu: \_\_\_\_\_

Items	Presu unida de	No Balansu. hosi item	No.sas an foin tama	No. item iha loja	No. item faan	Gross rendim entu (\$)	Balansu restu hosi item	Asinatura hosi ema ne'ebé halo rejistu	Asinatura ba aprovasaun
Kripik fehuk	20	10	5	15	4	80	11		
Sha herbal	80	8	2	10	3	240	7		
Fehuk maran	100	5	3	8	5	500	3		
<b>Total</b>						<b>820</b>			

Record/rejistu tenke konfirma hosi ema ne'ebé mantein rejistu/record iha loron ida no aprova hosi ema ne'ebé responsabel. Bainhira rejistu ne'e mantein ho diak konfirma ho osan cash no produitu iha liman, ida ne'e bele maneja liuhusi maneira rotasaun ema ne'ebé hein loja entre Membru grupu sira.

◆ **Pratika!!!**

**Mantein rejistu faan/Sales Record keeping**

Metodu:

Fahe partisipante iha grupu 2 no pratika no simulasaun faan no sosa.

Grupú ida iha funsaun hanesan konsumidor no ida seluk mantein rejistu faan hanesan ema ne'ebé hein loja.

1. Grupú rua rejistu sira nia produktu iha format no prepara loja
2. Grupú ida atu sosa hosi grupú seluk. Ema ne'ebé hein loja mantein rejistu faane
3. Troka no muda funsaun ne'e ba Membru seluk. Grupú ida seluk bele pratika fali funsaun hanesan registu faan
4. Grupú rua ne'e kalkula sira nia faan no konfirma ho stock restu iha kada loja
5. Apresenta sira nia faan

Preparasaun:

Osan falsu, kartaun produktu, surat rahan rejistu









## **Aneksu-12: Matadalan ba diskusaun rai osan iha grupu**

### **PARTE 1: RAI OSAN**

#### **Kapítulu 1: Rai osan ba dahuluk**

##### **Saida mak Rai osan?**

**Rai osan:** ne'e signifika kaer metin buat ida ne'ebé iha valor hodi uza iha futuro. Iha elementu rua iha atividade rai osan.

- 1) **Disiplina no Sakrifisiu:** kaer metin buat ida ho valor ba uza iha futuro do que uza hotu agora.
- 2) **Planu ba futuro:** rai osan ne'e ba futuro.
  - ♦ Antisipa no prepara ba risku ne'ebé posibel no situasaun emerjensia (koileta ladiak, moras ka mate),
  - ♦ Prepara ba eventu no gastus ne'ebé sei mosu (pagamentu osan eskola, kaben, tempu katuas ka mate)
  - ♦ Komesa negosiu foun ida ka habelar ida ne'ebé ezisti ona.

##### **Tanba sa ema rai osan?**

Ema hotu rai osan, mesmo sira ne'ebé kiak, so que ema kiak sira iha rekursu ne'ebé menus atu komesa ho, no bele rai deit osan ho montante ne'ebé kiik.

Ema rai osan ba razaun oi-oin:

- Atu prepara ba situasaun emergensia no risku sira iha futuro (dizastre natural, kanek, mate).
- Atu hadiak rendimentu no gastus: rai osan durante osan sei barak hodi uza durante tempu difisil.
- Atu eduka sira nia oan.
- Atu prepara ba tempu katuas no labele ona servisu.
- Atu investe iha oportunidade potensial ne'ebé iha lukru (sosa krau, komesa negosiu kiik, sosa foos no faan ho presu diak, nst.).
- Atu halo tuir obrigasaun sosial no relijioza (kaben, mate).

##### **Oinsá ema rai osan**

Ema rai osan iha maneira oi-oin, hanesan individual ka iha grupu ida. Sira bele rai osan ho modelu sasan ou rai osan direktamente (iha uma ka iha banku ida), ka liuhusi maneira Fó.

- **Iha maneira sasan:** bainhira presu kontinua sae makaas (inflasaun aas), bainhira iha deit osan uituan iha liman hodi halo sirkulasaun (ekonomia barter), ka bainhira laiha banku ne'ebé besik, rasional duni atu rai osan iha maneira sasan. Rai osan iha maneira sasan normalmente iha modelu aihan musan, hanesan batar ka fos, ka animal hanesan krau, bibi, ka manu, no dalaruma iha item hanesan osan mean ka sasan valor seluk ne'ebé sae iha valor bainhira presu aumenta no bele fasil atu fan fali hodi hetan osan iha tempu tuir mai. Desvantajen hosi rai osan iha maneira sasan mak sei ita labele lori tutuir, difisil liu atu rai no mantein (krau vulnerabel liu ho moras. Aihan musan bele hetan atake hosi insekta ka laho), la fasil atu muda lais ba osan, no bele hare ho fasil (dalaruma ema lakohi atu ema seluk hare sira iha manu ka krau barak kompara ho sira nia situasaun antes).
- **Iha maneira Osan:** Maioria ema hotu, inklui sira ne'ebé kiak liu, iha presija ba osan: atu sosa aimoruk ka selu osan eskola ka sosa ropa foun, nst. vantajen principal hosi rai osan mak ita bele lori tutuir, bele rai, ema labele hare no bele troka ho pelumenus ho buat hotu. Iha observasaun ba figura ida ne'e, rai osan jeralmente ema prefere liu. Fraqueza hosi rai osan cash mak osan ne'e nia folin bele tun durante inflasaun aas. Tanba ne'e ema barak mak uza stratejia kahur rai osan no rai sasan.
- **Rai osan iha uma ka iha banku:** rai osan iha uma iha nia benefisu. Osan ne'ebé rai besik no fasil atu foti, maibe ida ne'e signifika mós fasil atu hetan asesu hosi Membru familia sira ka bele fasil para ema naok.

Rai osan iha banku mak opsaun ne'ebé seguru liu. Nia problema mak banku so simu deit osan cash, kustu loke no mantein rai osan iha konta bele aas no ladun iha banku mak karik sei lokaliza iha area rural.

- **Liuhusi F6:** ema balun f6 presente ka oferese servisu ho generosidade, maibé mós dalaruma ho esperansa atu simu buat seluk bainhira presija.

Ezemplu tipikal mak hanesan servisu voluntariu hodi ajuda viziñu koileta nia aihan. Liuhusi halo ida ne'e, ita nia espetativa hosi ema ne'e mak atu ajuda fali ita bainhira iha tempu koileta ita nia aihan.

## Oinsá kona-ba Impresta?

Impresta iha termus jeral signifika, uza ema nia osan no depois selu fila fali, hare fasil kompara ho rai osan. Impresta la presija sakrifisiu imidiata. Ita bele hetan osan ho lais no ladun prekupa ho selu fali kedan to'o nia tempu atu selu fali osan ne'e, maibé fasil liu kompara ho rai osan?

- **Impresta bele sai karun:** ema ne'ebé impresta osan sei selu fila osan ne'ebé nia foti, no selu mos osan funan ba montante osan ne'ebé nia impresta. Ida ne'e bele sai karun tebes! Tanba bele mós iha funan “subaran (bunga tertutup). Ezemplu, loja nain ida karik sei fó nia sasan ema debe sem koa kedan funan direktamente, maibe nia hasae sasan folin ba ema ne'ebé debe sasan tenke selu ba nia (Ezemplu; aimoruk, hahan, sasan uma laran seluk).
- **Impresta ne'e risku boot ida:** desde ema kiak sira vulnerabel los hetan risku kauza hosi klima, rendimentu ne'ebé la stabil, moris, hetan naok no mate, sira dalabarak iha problema atu selu fali tusan. Ezemplu ida mak babain depois de impresta tiha osan membru familia balun hetan moras. Osan ne'e karik sei gasta hodi sosa aimoruk do que halo planu investementu. Ida ne'e sei halo difisil hodi selu fali tusan no halo aat tan sita nia situasaun.
- **Impresta bele difisil:** ba razaun sira iha leten, ema kiak sira sei mós iha difikuldade atu hetan impresta duke ema riku sira. ema ne'ebé fó impresta bele ita nia kolega ida, uniaun kreditu osan lokal ka banku, sei la fó impresta ba ema ne'ebé sira senti sei iha problema atu selu fali osan ne'ebé impresta.
- **Impresta osan bele aumenta stress:** impresta involve promete ida hodi selu fali ba ema ne'ebé fó impresta osan. Normalmente montante kompletu tenke selu fali iha periodu ida ne'ebé termina ona, dalabarak ho osan funan. Faila selu fali osan ne'ebé impresta signifika sei lakon propriadade valor ruma (hanesan osan mean, kkrau, rai no seluk tan) ka ema ne'ebé impresta nia reputasaun, sei hetan ameasa no/ka sai tusan barak tanba multa no osan funan hosi osan ne'ebé impresta.

## Oinsá ema kiak sira bele rai osan?

Ema kiak sira mós poupa ka rai osan. Ida ne'e karik foos saku balun deit, osam atu selu oan nia eskola, maibé sira babain rai buat ida. Mesmu nune'e, sira iha difikuldade atu bele hadia moris desde sira infrenta problema barak. Liuhusi adopta aprosimasaun rai osan ho maneira forma grupu sira bele rezolve problema balun ne'ebé sira infrenta.

Mai ita hare Hamutuk oinsá.

- Ema kiak sira bele rai deit **montante uituan kada ema individu**, ne'ebé babain la suficiente atu investe iha rekursu ne'ebé produtivu.



Lihusi rai iha grupu ida, ema kiak sira bele akumulula montante osan ne'ebé bo'ot ho lalais lihusi tau hamutuk sira nia osan rai iha fundu jeral ida ne'ebé bele uza hosi grupu ne'e ka Membru ida ba investementu ne'ebé produtivu.

- **Menus Nivel abilidade literacy** no numeracy halo difisil ba ema kiak sira mantein sira nia osan ne'ebé rai no jere sira nia osan.

Lihusi rai osan iha grupu, ema kiak sira bele ajuda malu atu aprende abilidade sira ne'e. hanesan grupu ida, sira sei ho fasil simu Treinamentu Jestaun literacy no Jestaun hosi grupu promotor ka treinador sira hosi ONG, no mós aprende hosi Membru sira seluk ne'ebé hatene lee no hakerek ho diak.

- **Vulnerabel liu ba risku** hanesan koileta ne'ebé ladiak, menus aihan, moras, bee sae, no rendimentu menus, nst.

Liuhusi rai osan iha grupu, risku sira ne'e bele fahe entre membru sira. membru individual bele tau laran ba membru seluk hodi hetan ajuda bainhira presija. Rai osan iha grupu bele uza hanesan eskema asuransia hodi ajuda membru sira atu hatan ba situasaun emergensia sira bainhira akontese.

- **Laiha asesu ba fasilidade rai osan, hanesan banku.**

Liuhusi rai osan iha grupu, ema bele kria fatin seguru ida atu rai sira nia osan. Metodu rai osan iha grupu balun la presija rai hela osan iha fatin ida tanba osan ne'ebé rai bele redistribui fali ba membru seluk depois de koleksaun. Grupu ne'e mós bele sosa ka halo box osan ida ne'ebé sei rai hosi membru balun.

- **Valor sosial** ne'ebé nia espetativa ba membru individual sira nia osan ne'ebé sei redistribui deit ba familia laran, no hanoin deit rai sira nia rekursu individualmente konsidera hanesan hahalok egoista ida.

Liuhusi rai osan iha grupu ida, ema kiak sira bele proteje sira nia-an hosi akuzasaun iha hahalok egoista, desde rai osan ne'ebé nain ba ema barak, laos ema ida deit. Ameasa ba ema ida hosi grupu hanesan ameasa ba Membru hotu

## **KAPITULU 2: Atu Komesa**

Bainhira hanoin atu komesa atividade rai osan iha grupu ida, ba dalauluk buka hatene oinsá ema iha suku ne'e maneja sira nia osan no produktu seluk no rekursu sosial. Karik mak ita fasilitador external, ita nia servisu importante ida mak atu komunidadade sira bele simu ita iha sira nia suku.

Ida ne'e bele han tempu naruk, maibé importante tebes ita hetan suporta hosi lider sira iha suku no komunidadade ne'e rasik. Servisu ba hodi hetan sira nia fiar liuhusi koalia ho sira regularmente. Rona no respeito sira. ita bele prepara ita nia-an liuhusi buka hatene informasaun kona-ba suku ne'e hosi edefisiu munisipiu lokal, organizasuan non-governmental (ONG) no lider sira seluk.

### **Ezemplu hosi informasaun ne'ebé presija buka hatene**

- Kondisaun moris hosi grupu socio-ekonomia ne'ebé diferente iha komunidadade – iha ne'ebé banku ne'ebé besik, saida mak metodu rai osan tradisional, bainhira no iha ne'ebé uma kain ida-idak hetan sira nia rendimentu no oinsá sira gasta sira nia osan?
- Komunidadade sira nia presija.
- Maneira oinsá komunidadade sira rezolve sira nia problema.
- Kuadru sosial iha komunidadade – se mak koalia ba se no tanba sa?
- Strutura poder komunidadade nian – se mak lider sira no se mak babain fó opiniaun?
- Organizasaun Informal no formal mane no feto (rua ne'e kahur ka separadu.
- Ligasaun entre komunida no servisu forneseментu no oinsá atu kontrola sira.

*Asegura atu sempre crosscheck informasaun ne'ebé hetan hosi rekursu ne'ebé diferente, to'o ita iha Koñesementu diak ba ita nia informasaun ne'ebé ita hetan.*

## **Informasaun Grupu**

**Identifika ema:** uza ita nia koñesementu hamutuk ho ita nia sujestaun hosi komunidadade sira hodi identifika fetu no mane sira ne'ebé iha presija. Iha komunidadade rural ida, dalabarak, ita sei hasoru kategoria ne'ebé luan ba riku soin: to'os nain boot, ho rai no asesu ba servisu dezentvolvimentu, to'os nain mediu, ho rekursu sufisiente hodi responde ba sira nia nesesariu baziku, no ema kiak, ne'ebé hela iha nivel substansia. Tau iha hanoin katak identifika no ajuda ema kiak hanesan issue sentivu ida. Ema karik la gosta atu identifikadu hanesan ema kiak, hanesan ema riku sira ne'ebé lakohi identifikadu hanesan ema riku tanba tauk sei la inklui iha possibilidade atu hetan assistensia. Ita bele hetan informasaun kona-ba diferensia socio-ekonomia liuhusi entrevista informal ka liuhusi halo kategorizasaun ba rikusoim bainhira nesesariu.

- **Diskuti formasaun grupu:** Identifika membru sira iha suku ne'ebé iha interese ba servisu hamutuk iha grupu ida. Organiza enkontru ida ka liu ho sira hodi diskuti sira nia situasaun no nesesidade finanseiru no esplika saida mak ita bele halo hodi ajuda sira. ideal atu forma grupu ida kompostu hosi ema nain 8 to'o 15, desde, ida ne'e premite ema ida-idak atu halo diskusaun direktamente. Karik mak grupu ida boot liu, forma sub-grupu ho ema sira ne'ebé iha interese hanesan. Enkontru bo'ot dalaruma ladun efetivu, desde opiniaun no interese bele oi-oin ne'ebé dalabarak difikulta hodi hetan ka to'o ba konkordansia ida.
- **Identifika meta Dezentvolvimentu ne'ebé klaru:** Ajuda grupu sira espresa sira nia metas no ekspektativas ho klaru. Dalabarak ema espresa sira nia metas iha termus jerál, hanesan “ atu produs rendimentu ba familia”. Importante tebes atu estabelese metas ne'ebé realistiku ho asaun spesifiku. Husik grupu ne'e espresa sira nia metas no diskuti ho sira mesmo sira nia metas klaru ona ka sedauk. Ezemplu. “ Hau hakarak hadiak hau nia aon sira nia edukasaun” ida ne'e la klaru. “ hau hakarak sosa livru no ropa eskola nian ba hau nia oan sira ba sira nia eskola tinan oin-mai”. Ida ne'e klaru.

## **Xave ba Susesu**

- **Diskuti rai osan:** Diskuti oinsá sira intende atu atinji sira nia metas liuhusi rai osan. Saida mak vantagen no desvantagen hosi rai osan? Ilustra ita nia diskusaun ho istroria real hosi grupu rai osan ne'ebé susesu no faila. Ita iha istoria ne'ebé atu hanesan? Oinsá ema rai osan? Saida mak metodu tradisional

balun rai osan? Saida make ma halo hodi hatan ba situasaun emergensia?  
Diskuti fatores diferente sira hodi fasilita no difikulta rai osan iha comunidade.

### **Fatores sira hodi fasilita no difikulta rai osan**

Susesu hosi grupu ruma hosi atividade rai osan sei depende ba numeru kondisaun ne'ebé sei promove ka des-enkoraja aprosimasaun sira ne'e. Tanba ne'e importante atu hatene saida mak sira no dezeńu atividade rai osan adopta ba ambiente lokál. Assesmentu ho kuidadu ba kondisaun lokál no mós abilidade no rekursu hosi membru grupu ( ne'ebé ezisti ona ka potensial) tenke halo. Fatores balun hosi sira ne'e inklui:

- **Uza osan cash:** osan barak liutan mak sirkula iha comunidade, iha possibilidade rai osan cash sei útil liutan. Mesmo manual ne'e fokus deit ba iha rai osan cash. Rai osan iha maneira sasan (animal, hahan musan, osan mean) bele mós importante. Observasaun barak, Ezemplu, rai osan ho tipu hakiak animal (krau, bibi, bibi malae nst) bele rai ho valor diak desde animal hakiak bele produs tan oan no produitu seluk (naan, kabas, manutolun, nst) ne'ebé aumenta valor no bele troka ba osan khas bainhira presija.

Problema principal liuhusi rai osan iha maneira sasan mak sasan sira ne'e labele lori hanesan cash; sira bele fasil atu hare no difisil atu subar hosi kolega ko relativu sira ne'ebé presija; no sira karik sujeitu ba moras no mós naok. Rai osan tipu ida ne'e presija koñesementu diak hodi tau matan ba animal sira no rai hahan musan sira, nst. Util oinsá rai osan cash iha membru grupu sira?

- **Asesu ba servisu bankaria:** normalmente banku hanesan fatin seguru atu rai osan maibé so iha ida rua deit mak lokaliza iha area rural, no dalabarak banku sira ne'e iha kustu servisu ne'ebé mak karun no iha balun deit mak iha interese atu fornese servisu ba rai osan nain sira ho montante kiik. Ida ne'e halo rai osan iha grupu opsaun diak liu atu rai osan ho seguru.

Bainhira grupu no nia osan fundu aumenta, ita presija atu sosa box osan nian ida ka brankas ida hodi rai osan ho seguru. Naturalmente membru grupu ka individu sei konsidera atu halo ligasaun ho uniaun kreditu ka banku ne'ebé besik.

- **Inflasaun:** Presu aumenta rapidamente redus valor osan ne'ebé ita rai. Iha liafuan seluk, tanba presu kontinua aumenta ita realiza katak ita nia osan ne'ebé



ita rai bele sosa deit sasan uituan. Inflasaun karik sei desenkoraja ema atu rai osan. Karik presu sae, rai osan iha maneira sasan mós mak hanesan opsaun diak.

- **Diferensia sosial no ekonomia:** kolega no viziñu sira, ema ho etniku ne'ebé hanesan, jenéru, tinan, grupu relijioza ka sosial, ka ema sira ho rendimentu no gastus hanesan karik sei inklina liu atu forma grupu rai osan kompara ho sira ne'ebé iha uituan deit. Ida ne'e tanba sira fiar malu ka iha potensial ne'ebé hanesan atu rai osan. Forma grupu rai osan ho ema ne'ebé iha background diferente karik sei difisil los no la enkoraja.
- **Pratika rai osan tradisional no valor sosial:** iha sosiadade balun, faila atu fahe ita nia rekursu ho kolega no familia bele rezulta ema bolu ita egoista ka bele mos buan, no attitude sira ne'e sei des-enkoraja ema atu rai osan. Saida ida mak maneira diferente atu ema rai osan iha suku no dalan ida ne'e mak sira prefere liu no tanba sa? Saida mak valor tradisional asosiadu ho rai osan? Sira enkoraja ka desenkoraja rai osan? Karik ita bele akumula osan no rekursu, ema bele konsidera ita hanesan egoista tanba hetan ona osan hosi ema seluk? Ema bele laran moras? Rai osan iha grupu bele ajuda ema ida hosi akuzasaun sira ka lae? a
- **Jenéru:** iha maioria kultura, bele simu bainhira forma grupu rai osan ida kahur Membru fetu ho mane. Maibé, iha grupu rai osan balun ne'ebé Membru kahur fetu ho mane, mane bele domina liu halo desijaun no pozisaun lideransa, hosik hela Membru fetu sira ho oportunidade uituan atu dezenvolve no hetan abilidade lideransa ka benefisiu hosi rekursu sira ne'e. grupu fetu rai osanbele kria oportunidade lejtimu ba fetu sira atu hasoru no servisu Hamutuk, no hetan abilidade lideransa,. Separa grupu fetu no mane bele pratikal liu bainhira parte rua simu opiniaun ida-idak no atividadesde sira no la haksasuk malu hodi sai konflitu entre parte rua. Sensibiliza Koñesementu kona-ba issue jenéru ho mane sira importante mós atu bele haforsa fetu sira.
- **Oportunidade investementu:** buka fundu hodi komesa negosiu kiik, hodi sosa rai, animal, equipamentu halo to'os, ka simplesmente hodi hatan ba nesesidade familia nian hodi hetan hahan,mak Objetivu importante hosi rai osan ba ema barak. Uza ita nia osan ne'ebé ita rai ba investementu produtivu, ida ne'e kontratiu ho impresta osan hosi ema seluk ida, sei han tempu, maibé ida ne'e maneira seguru ba ema kiak sira atu hadook-an hosi raikuak pobreza nian. Atu susesu, sira nia investementu tenke planea ho diak no bele iha lukru ne'ebé diak.

- **Grupu ne'ebé ezisti ona:** fasil liu atu organiza atividade rai osan iha grupu ho ajuda hosi grupu ne'ebé ezisti ona kompara ho ida ne'ebé foin mak atu hahu. Promove rai osan iha grupu kiik mós fasil liu tanba Membru sira hatene no fiar malu no aprende barak ho lais. Mantein relatoriu ka record keeping mós ladun iha problema iha grupu kiik.
- **Hela besik malu:** ema ne'ebé hela besik malu dalabarak iha problema no nesiedade ne'ebé atu hanesan. Sira mos dalabarak koñese malu diak no ida ne'ebé mak bele fiar no labele fiar. No mós, ema ne'ebé hela besik malusei fasil ba sira atu hasoru malu lor-loron ka regularmente.
- **Edukasaun:** Grupu sira ho rasio literadu/edukasaun aas diak liu funsiona hodi mantein lalaok osan ne'ebé rai, mantein relatoriu enkontu ho diak, nst. mesmo iha metodu rai osan iha grupu balun presija mantein registu uituan deit, grupu ne'e tenke kontinuantemente enkoraja Membru sira atu hadiak sira nia literadu ka abilidade hakerek no lee no abilidade numeradu no sira nia Koñesementu ho ambiente ne'ebé haleu sira.
- **Saude:** Moras, hanesan HIV/AIDS, TBC (Tuberculosis), malaria, no disabilidade redus Kapasidade uma kain sira atu rai osan. Ida ne'e sei afeita ba Kapasidade rai osan iha grupu, bainhira Membru balun labele ona atu kontribui hodi rai osan ka bainhira osan impresta la selu fila. Grupu tenke iha sasukat kuidade hodi salva atividade rai osan hosi Membru hotu liuhusi ajuda Membru sira ne'ebé iha situaun ne'e hodi diak liu maneja sira nia rekursu. Ezemplu, grupu bele komesa ho fundu rai osan ne'ebé sei ajuda finansa ba tratamentu saude ka kustu funeral asociadu ho moras. Sosiadade funeral (grupu rai osan fornese ba servisu funeral ba sira nia Membru) ida ne'e komun ona iha mundo.
- **Institusaun no Politika:** Bainhira grupu rai osan sei opera informalmente no iha skala kiik, sira bele estabelese sira nia lei no Regulamentu rasik. Maibé bainhira atividade rai osan iha grupu ne'e aumenta ka sai boot, grupu ne'e karik hakarak loke konta bankaria no ida ne'e sei presija grupu ne'e atu registu legalmente. Status legal karik sei lori oportunidade barak liutan, maibé ida ne'e mós tenke mai ho lei no Regulamentu, maibé ida ne'e flexibilidade. Buka hatene prosesu ne'ebé involve atu registu, no benefisiu no difikuldade saida hodi liga ba status legal ne'e.

## Xave ba Susesu

Depois saida mak fatores baziku ne'ebé bele kontribui ba susesu hosi rai osan iha grupu? Iha xave elementu ne'ebé grupu tenke iha no sira ne'e inklui:

- **Obrigasaun komum:** similiadade diak liutan entre kada Membru nia interese, metas, backgrounds no rendimentu, sei difisil ba Membru sira atu hetan konflitu no argumentu no sira sei ho lalais atu foti desijaun ne'ebé satisfas Membru maioria nia prekupasaun.
- **Objetivu rai osan ne'ebé klaru:** rai osan tenke mobiliza ba uza produtivu (ida ne'e sei direktamente ka indiretamente hasae rendimentu Membru sira nian no sira nia abilidade atu rai osan). Grupú ne'e bele hili meta komum ida, hanesan rai osan hodi sosa adubu ba Membru hotu, ka kada Membru iha grupu bele hili nia Objetivu rai osan rasik, depende ba sira nia prioridade no Kapasidade.
- **Grupú kiik:** grupu kiik ne'ebé susesu dalabarak iha skala kiik do que boot. Medida media hosi grupu kiik ne'ebé susesu mak entre Membru 8 to'o 15, maibé numeru Membru bele diferente. Iha grupu kiik, sei iha hasoru malu direta bebeik ka barak, sei fasil hari fiar malu entre Membru sira, no halo desijaun no aprende ho maneira kolektivú efisiente liu. Grupú medida kiik mós signifika error/sala kiij no halo grupu sira sai boot tanba sira hetan esperensia barak liutan no bainhira grupu ne'e pronto atu halo nune'e.
- **Disiplina:** rai osan presija disiplina desde ida ne'e signifika rai metin buat ida ba future do que konsume kedan iha presente. Membru grupu hotu tenke iha disiplina no konkorda hodi estabelese Regulamentu komum hodi halo tuir. Karik mak regulmentu ne'e la reinforsa, mak Membru hotu sei sofre. Grupú rezolve problema ida liuhusi presau kolega seluk ka kastigu Membru sira ne'ebé la halo tuir Regulamentu ne'ebé konkorda ona. Ida ne'e sei inklui multa ba pagamentu tarde sira ka la atende enkontru, no bele mós hasai hosi grupu.
- **Spritu Ekipa nian:** dalaruma iha interese komum no iha disiplina deit la suficiente. “ Spritu Ekipa nian” mos presija. Lider grupu ne'ebé diak bele desenvolve spritu grupu ne'e, maibé ida ne'e mós bele reinforsa liuhusi meius seluk. Liuhusi fô naran special ba grupu ne'e ne'ebé Membru hotu bele

identifika. Grupu ne'e bele mós dezenvolve lista simples ida hosi prinsipiu Membru hotu nian importante tebes no merese atu preserva.

- **Fiar:** grupu rai osan laos deit presija Membru hotu atu halo tuir no respeita Regulamentu ne'ebe estabelese maibé sira mos presija fiar malu. Karik mak lae, benefisiu sei lalis lakon. Fiar ne'e hari liuhusi hatudu komitmentu no disiplina. Karik mak Membru ida faila atu halo tuir nia komitmentu, nia tenke hetan kastigu. Regulamentu ne'ebé sei la reinforça dalabarak halo tuir hosi Membru sira.

#### Figura hosi grupu susesu ida

- Membru sira iha ligasaun komum.
- Membru sira iha Objetivu klaru.
- Membru sira konkorda Regulamentu hodi halo tuir.
- Membru sira honestu no servisu makaas hodi atinji objetivu.
- Membru sira halo enkontru regular no partisipa iha diskusaun no halo desijaun.
- Membru sira demonstra lideransa.
- Membru sira mantein registu ne'ebé akurat hosi sira nia atividade no enkontru.

#### Tips ba Fasilitador grupu

Hanesan Fasilitador grupu ida, ita nia servisu mak atu ajuda ema kiak sira mobiliza liutan sira nia rekursu ba uza produtivu liuhusi promove rai osan iha grupu ka ajuda grupu ne'ebé ezisti ona atu estabelese atividade rai osan. Meta ultimadu mak atu ajuda ema ho diak liutan maneja sira nia rekursu rasik hodi hadiak sira nia moris.

Ita nia assistensia ba grupu sei inklui:

- Visita no koalia ba membru individual no ema sira seluk hosi comunidade ne'e;
- Atende enkontru grupu nian;
- Visita grupu bainhira sira halao sira nia atividade;
- Organiza workshop, sesaun Treinamentu no Evaluasaun ba Membru grupu sira;
- Follow-up ba item sira ne'ebé diskuti iha enkontru, workshop, sesaun Treinamentu no Evaluasaun sira.

### **Hints ba Fasilitasaun**

**Enkoraja partisipasaun.** Hasoru malu iha area nakloke/fatin publiku, ne'ebé ema hotu bele observa no halo Komentariu ba iha tabela ka mapa. Husik sirklu ka odomatan nakloke hodi enkoraja partisipasaun.

- **Minimiza ita nia papel.** Permite partisipante sira spasu atu bele lidera iha atividade. Ita tenke tahan-an ba tentasaun hodi muda ba pozisaun ne'ebé aas (hamrik ho partisipante sira, muda iha sirklu laran hodi hetan atensaun ka koalia ho lian boot, nst) bainhira ita redus ita nia dominansia iha grupu laran, partisipante sira bele fasil atu lidera.
- **Mantein uza lingua ne'ebé simples.** Uza termus simples hanesan rai osan, kreditu, asuransia ka fundu emergencia, do que “Servisu finanseiru”. Uza liafuan ne'ebé komunidadade sira uza loro-loron iha sira nia moris.
- **Tau atensaun ba ita nia espresaun oin nian.** oin mamar ne'ebé enkoraja bele sai hanesan asset ida, hanesan mos oin suar bele kria sentimentu ladiak entre partisipante sira.
- **Kuidadu ho ita nia hatais.** Labele uza oklu ka ropa ne'ebé bele halo ema dook hosi ita, konfundi ka intimida ema.
- **Gasta tempu iha suku.** Ida ne'e elimina tiha tarde tanba viagem, maibé mos oportunidade ida atu kria relasaun ho komunidadade no aprende kona-ba fatin ne'e. ida ne'e mós asegura katak ita pronto ba partisipante sira, no laos komunidadade mak pronto ba ita.
- **Observa.** Ita sei ho fasil atu aprende se mak lidera iha grupu ne'e no iha komunidadade. Rona ba reasaun.
- **Sai estudante ida.** Ita iha ne'e atu fó matadalan ba prosesu, maibé ita laos peritus kona-ba situasaun partisipante nian. sira rona no aprende. Husu pergunta ho respeitu no hases-an hosi tensasaun atu obriga ka halo tuir deit ita nia ideas rasik.



## **Aneksu-14: Matadalan Diskusaun kona-ba Uza Rendimentu**

### **Parte 2: Oinsá atu utiliza osan ne'ebé rai iha grupu feto**

Seksaun ida ne'e prinsipalmente esplika osan ne'ebé rai no grupu kreditu feto nian, saida mak sira uza, saida mak vantagen no desvantagen, no oinsá sira halo operasaun ba sira nia atividade.

#### **Rai osan akumulativu no Kreditu iha Grupu Feto**

Iha grupu ida ne'e, kontribusaun kolekta hosi produsaun kripik aifarina ka atividade rendimentu seluk akumula no rai ho assistensia hosi ONG. Ho fundu akumulativu ne'e, grupu ne'e bele halo buat barak. Grupu ne'e bele fó osan impresta ba membru sira ho funan ka sem selu funan. Osan funan ne'ebé hetan hosi fó impresta sai hanesan rendimentu ba sira ne'ebé rai osan, aumenta insentivu ba membru sira atu mantein sira nia atividade rai osan iha grupu. Metodu ida ne'e bele servi rai osan no fó kreditu iha maneira ne'ebé flexibel.

#### **Oinsá servisu asosiasaun akumula rai osan no kreditu bele lao ho diak**

Iha Asosiasaun rai osan no kreditu ne'e, Membru sira kontribui ba persentagem fiksi hosi rendimentu ne'ebé produs ba period tinan ida ka liu tinan ida. Depois de grupu ne'e rai ona osan suficiente, grupu ne'e bele komesa ona fó osan impresta ba Membru sira. osan ne'ebé impresta bele selu fali ho maneira installments, ka selu dala ida ( total osan foti), la ho funan, ka ho kustu funan adisional.

Tau funan ba impresta ne'ebé halo bele hasa'e rendimentu adisional ne'ebé bele uza hodi ajuda konta/simpanan grupu nian aumenta, atu nune'e bele uza hodi kobre kustu balun ne'ebé presija hosi grupu, no/ka selu membru uza osan ne'ebé iha.

Grupu ne'e bele mos desidi atu simu kontribusaun regular ka irregular hosi montante ne'ebé hanesan ka la hanesan ka persentajen hosi rendimentu ne'ebé hetan hosi membru sira, rai fundu ne'e ho grupu, fo impresta osan ne'e ba membru sira laos membru ida deit no tau funan ba impresta ne'ebé halo, ka kombinasan hosi hirak ne'ebé mensiona ona.

Grupu feto sei desidi rasik maneira saida mak asosiasaun rai no kreditu osan ne'e bele servisu hodi satifas nesidade no kapasidade membru sira nian.

### **Osan ne'e sei uza ba saida?**

- Despeja ne'ebé espera (Kazamentu, edukasaun, saude)
- Situaun emergensia (mate, kanek, estargus ahi nian)
- Investementu (sosa krau, komesa negosiu kiik)

### **Benefisiu**

- Osan funan ne'ebé hetan hosi simpanan (osan rai) bele uza hodi hatan ba interese pessoal no/ka grupu.
- Osan bele akumulula to'o montante ne'ebé bo'ot tuir tempu
- Fo opsaun ne'ebé flexible liu hodi rai osan no fó impresta ba membru ida-idak

### **Desadvantagem**

- Presija iha abilidade jestaun no mantein relatorio
- Risku mak osan ne'ebé impresta sei la fo fila hosi ema ne'ebé impresta
- Presija iha fatin ne'ebé seguru hodi rai fundu ne'ebé iha (iha box osan nian ka NGO rai osan ka iha konta bankaria)

### **Etapa**

1. Desidi kona-ba dala hira membru grupu sira hasoru malu (dala ida kada fulan)
2. Percentajen hira mak kada membru bele kontribui hosi sira nia rendimentu? Kada membru sei kontribui montante ne'ebé hanesan ka diferente?
3. Konkorda atu estabelese lei no Regulamentu hodi asegura displina no fiar. Ezemplu, fó multa bainhira la tuir enkontru ka pagamentu ne'ebé tarde hosi osan kontribusaun ka osan impresta, no hasai hosi grupu ba hahalok ladiak ne'ebé grave ona.
4. Desidi kona-ba se mak sei sai lider no to'o bainhira. Lider sira bele kompostu hosi presidente hodi fasilita enkontru, secretaria ida hodi hakerek minutas enkontru, mantein relatorio transaksaun, no tesoreiru ida hodi rai osan. Iha adisaun, auditor konsultivu ida hosi NGO RAEBIA monitor atividade mikro kreditu. Rekomenda tebes atu fahe dever sira ne'e hodi hametin transparansia no evita mal-jestaun ba fundus ne'ebé iha.
5. Buka fatin ida seguru hodi rai osan, Bele uza fatin rai osan seguru NGO RAEBIA nian ka iha fatin seguru ida. Maneira diak ida hodi rai osan mak ba membru grupu ida ne'ebé hetan konfiansa hodi rai box osan ne'ebé iha no



membru ida seluk rai xave. Dalan ida fali mak halo kadiadu rua ba box osan ne'ebé iha no kada xave hosi kaidadu ne'e rai hosi membru ne'ebé diferente. Ida ne'e atu bele proteje kontra tentasaun atu hasai osan hosi membru ida sem konhesementu hosi membru seluk

6. Desidi to'o bainhira grupu ne'e rai osan molok sei komesa atu hasai hodi fo impresta. Nungka atu fo impresta hotu osan ne'ebé rai ba ema ida. Lembra, osan ne'e ema hotu nian iha grupu. Minimiza risku atu lakon osan, no sempre rai osan balun hanesan reserva.
7. Desidi kondisaun ne'ebé membru sira tenki prenxe hodi halo impresta no kriteria hosi pagamentu. Medida impresta tenke limita ba montante osan ne'ebé rai iha konta hosi ema ne'ebé atu impresta. Kada ema ne'ebé impresta osan tenke apresenta membru ida ka rua ne'ebé iha osan iha konta hodi sai sasin ka fiador (co-signer) iha kazu karik ema ne'ebé impresta osan la fó fila. Karik mak osan ne'ebé impresta la selu tuir tempu ne'ebé desidi, tenke iha multa
8. Tutup buku ka Taka konta periodikamente, bele hatete kada tinan. Etapa ida ne'e ajuda asegura transparensia no membru sira nia konfiansa katak sira nia osan maneja ho propriu

### **Regulamentu balun – hodi mantein impresta ne'ebé diak**

**Regulamentu 1: Oferese impresta ne'ebé impresta nain sira bele selu fali** Estabelese kriteria impresta ne'ebé bele liga ho osan ne'ebé impresta. Pagamentu ba osan impresta bele halo uituan-uituan (semanal, kada semana rua, kada fulan) ka bele selu dala ida deit iha fin de periodu hosi impresta. Ezemplu ba atividade musiman, appropriadu liu atu dezeno modelu impresta pagamentu halo bainhira atividade ne'e kompleta (Ezemplu, depois koileta kafe). Maibé, presija kuidadu ho pagamentu ne'ebé halo dala ida deit, partikularmente, karik koileta (ka atividade musiman) faila. Dalan ida atu proteje risku ne'e mak kombina maneira pagamentu uituan-uituan ho maneira pagamentu dala ida deit, liuhusi selu minimu ho maneira pagamentu uituan-uituan, no restu hosi ne'e bele selu bainhira tempu koileta remata.

**Regulamentu 2: Motiva impresta nain sira atu selu osan ne'ebe impresta** Kria insentivus. Grupu tenke iha medida impresta maximum ba impresta ne'ebe halo dala uluk (ita bele koko fo impresta ho montante ne'ebe hanesan ho osan ne'ebé iha konta impresta nain nian), ne'e bele hasae iha tempu impresta tuir mai. Ida ne'e kria insentivus (promesa ba impresta ne'ebé boot liu iha tempu tuir mai) hodi selu osan

ne'ebé impresta. Ita mós bele halo impresta nain fó garantia ba propioado ka sasan ne'ebé iha folin, iha kazu, bainhira osan ne'ebé impresta la selu.

**Regulamentu 3: Tau kustu ba impresta no funan** Estabele rasio funan ne'ebé kobre risku. Fo impresta bele perigoju tebes no bele involve kustu. Dalaruma osan ne'ebé impresta selu tarde ka haluhan atu selu, osan ne'ebé akumula sujeitu ba inflasaun, no jestaun hosi impresta no rai osan bele involve ho kustu administrativu (selu sekretaria no/ka tesoreiru, kustu transaksaun iha banku, kustu transportasaun, nst). Karik mak rasio funan estabelese ho los, ida ne'e bele kobre kustu sira mensiona iha leten no fornese rendimentu adisaun ba konta membru sira nian. Rasio funan sae tuir percentajen hosi impresta tuir periodu tempu (normalmente kada tinan). Buka hatene rasio funan hira mak estabelese ona iha banku komersial ne'ebé besik ka organizasaun seluk ne'ebé fó impresta hodi hetan idea seluk.

Maneira principal tolu ne'ebé bele uza hodi kobre risku sira ne'e:

1. **Tau kustu servisu ba impresta inisiu:** Maneira simples mak tau kustu servisu bainhira osan hasai ba impresta. Kustu ne'e dalaruma percentajen hosi montante impresta inisiu no kolekta kedan bainhira impresta osan.
2. **Estabelese rasio funan ne'ebé fiksi:** Rasio funan estabelese hanesan percentajen hosi montante osan impresta hasai no mantein hanesan hosi loron ne'ebé osan ne'e impresta to'o osan ne'e fó fila. Ida ne'e fasil atu kalkula hanesan funan hosi montante pagamentu no mantein hanesan iha planu pagamentu
3. **Estabele rasio funan ne'ebé menus tuir tempu:** Rasio funan estabelese hanesan percentajen hosi montante impresta bainhira fó osan impresta, maibé rasio funan ne'e menus iha proporsaun ba montante ne'ebé sei selu. Metode ida ne'e uza dalabarak, tanba ida ne'e mos kria insentivus ba impresta nain sira hodi selu fila ho lalais. Maibé, ida ne'e presija skill mantein relatorio ne'ebé avansado.

**Minimiza ita nia risku!**

**Sempre tau iha hanoin katak, osan ne'ebé impresta ne'e nain ba membru hotu!**

Membru sira bele ho livre uza sira nia osan ne'ebé sira rai iha konta tuir sira nia hakarak; iha scenario barak, osan ne'ebé rai uza hodi selu osan escola, sosa adubu, fini, atividades hasa'e vida moris, no hahan. Osan ne'ebé rai iha konta hetan durante tempu diak hosi tinan ida bele ajuda responde ba menus aihan iha tempu difisil, prevene uma

kain ida atu faan ninia propriedade ne'ebé folin boot ka ajuda uma kain ida livre hosi debe.

### Mantein Relatorio/Record

Osan ne'ebé rai iha konta no kreditu “Feto buka moris” presija registo/relata ho kuidado. Ezemplu ida hosi mantein registo ba grupu ida (atu simplisiza, grupu ida ne'e iha membru nain tolu) ne'ebé hasoru malu dala ida kada fulan no kada membru kontribui 10% kada fulan. Grupu ida ne'e iha livro konta ne'ebé indika data enkontru, naran membru (column dahuluk), depositu membru individual ba iha enkontru (column segundu) no kada membro nia total osan iha konta (column datoluk).

*Balansu Inisu* hatudu total osan iha konta grupu nian bainhira komesa enkontru.

*Balansu Final* total osan iha konta grupu nian depois de depositu hotu kolekta ona.

### Ezemplu hosi registo livro konta ba enkontru dalarua

#### DATA: 1 MARSU (Enkontru ba dahuluk)

<b>BALANSU INISIU 0</b>		
<b>Membru</b>	<b>Depositu</b>	<b>Osan ne'ebé membru rai</b>
Riany	\$5	\$5
Maria	\$5	\$5
Nora	\$5	\$5
<b>Total Depositu \$15</b>		<b>\$15</b>
<b>BALANSU FINAL 15</b>		

#### DATA: 1 Abril (Enkontru ba daruak)

<b>BALANSU INISIU 0</b>		
<b>Membru</b>	<b>Depositu</b>	<b>Osan ne'ebé membru rai</b>
Riany	\$5	\$10
Maria	\$5	\$10
Nora	\$5	\$10
<b>Total Depositu 15</b>		<b>30</b>
<b>BALANSU FINAL 30</b>		

Iha Enkontru ba dala sanulu resin rua (12), grupu sira akumulá ona osan \$180. Maria husu ba grupu atu bele impresta montante \$80 hodi komesa negosiu kiik faan ikan, no

nia hetan duni lisensa atu impresta. Maibé, nia tenke nafatin halo dever fó kontribusaun kada fulan no selu fila osan ne'ebé impresta ho funan ne'ebé estabese ona hosi grupu. Tenke iha livro registo ida separa osan ne'ebé impresta. Ezemplu, livro ba osan impresta separa ona ema ida-idak ne'ebé impresta osan, indika katak montante osan ne'ebé impresta no kriteria pagamentu hosi kontratu impresta nian ida no livro registo ne'ebé hakerek tutuir pagamentu fila fali tuir planu pagamentu.

Tuir mai ne'e mak Ezemplu ida hosi kontratu impresta simples ida no planu pagamentu:

### Ezemplu kontratu impresta ida

<b>Grupu:</b>	Feto Buka Moris
<b>Impresta nain:</b>	Maria
<b>Enderese:</b>	Aldeia Rileu
<b>Intensaun hosi impresta:</b>	Fish trading
<b>Data impresta:</b>	10 May, 2015
<b>Montante impresta:</b>	\$60
<b>Rasio funan:</b>	4% per year
<b>Montante funan kada fulan:</b>	\$0.2
<b>Kustu adisional:</b>	None
<b>Periodo impresta:</b>	6 months
<b>Numeru pagamentu:</b>	6
<b>Total funan:</b>	\$1.2
<b>Kustu ba pagamentu tarde:</b>	\$2
<b>Total osan ne'ebé selu fali:</b>	\$61.2
<b>Data pagamentu ikus:</b>	10 November, 2015
<b>Asinatura hosi ema ne'ebé impresta:</b>	<b>Asinatura hosi tesoreriu:</b>
<i>Maria</i>	<i>Nora</i>

### Ezemplu hosi planu pagamentu no halo registo

Data	Pagamentu ba impresta	Kustu funan	Pagamentu ne'ebé halo	Pagamentu sei ne'ebé halo	Kustu ba pagamentu tarde	Montante restu hosi osan ne'ebé impresta
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<b>10 May</b>	Osan hasai ba impresta	-	-						\$61.2
<b>10 June</b>		\$10	\$0.2	\$10.2	\$10.2				\$51.0
<b>10 July</b>		\$10	\$0.2	\$10.2	\$10.2				\$40.8
<b>10 August</b>		\$10	\$0.2	\$10.2	\$10.2				\$30.6
<b>10 August</b>		\$10	\$0.2	\$10.2	\$10.2				\$20.4
<b>10</b>		\$10	\$0.2	\$10.2					
<b>September</b>									
<b>10</b>		\$10	\$0.2	\$10.2					
<b>October</b>									

Iha fin hosi kada Enkontru, grupu tenke sura osan hira mak sira iha/kaer iha liman no osan ne'ebe iha liman tenke apar ho osan ne'e hakerek iha livro. Membru hotu tenke partisipa bainhira sura laos tesoreiru deit, atu nune'e bele asegura transparensia.

$$\text{Balansu inisiu}^1 + \text{balansu depositu}^2 + \text{Osan taman}^3 - \text{Osan sai}^4 = \text{Balansu final}^5$$

<sup>1</sup> Balansu final hosi enkontu iha fulan kotuk

<sup>2</sup> Osan depositu hosi membru sira iha enkontru

<sup>3</sup> Pagamentu ba osan impresta + funan + karik iha, kust pagamentu tarde

<sup>4</sup> Impresta ne'ebé fó sai

<sup>5</sup> Montante osan iha liman iha grupu nia konta

#### Ezemplu hosi osan rai iha konta no registo balansu impresta

	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>
	<b>Marsu</b>	<b>Abril</b>	<b>Marsu</b>	<b>Abril</b>	<b>Mai</b>	<b>Junnu</b>	<b>Jullu</b>	<b>Augustu</b>
<b>Balansu inisiu</b>	0	15	180	150	175.2	200.4	225.6	250.8
<b>Osan depositu (+)</b>	15	15	15	15	15	15	15	15
<b>Osan tama (+)</b>	-	-	-	10.2	10.2	10.2	10.2	10.2
<b>Osan sai/Impresta (-)</b>	-	-	60	-	-	-	-	-
<b>Balansu final</b>	15	60	150	175.2	200.4	225.6	250.8	276

----- Data hirak tuir mai ne'e sei la registu iha enkontru.

#### Xave perguntas

- Osan hira ka percentage hira mak kada membru sei kontribui?

- Dala hira mak membru hira sei hasoru malu?dala ida kada fulan?
- Membru sira sei kontribui montante ne'ebé hanesan ka diferente?
- Saida mak sei akontese ba membru ida karik nia la selu nia kontribusaun?
- Se mak sei rai osan?
- Iha ne'ebé osan ne'e sei rai?
- Bainhira membru ida bele impresta osan?
- Funan hira mak sei selu?

## Aneksu-15: Amostra hosi lei no regulamentu eskema mikro kréditu

### Lei no Regulamentu ba Uza osan ne'ebé rai hanesan Mikro Kreditu hosi Grupu Feto“ **Naran grupu** ” iha suku nia naran .....

#### Regulamentu 1

##### Titlu

Lei no Regulamentu ne'e tenke fahe entre grupu feto “**Naran grupu**” hodi uza sira nia osan ne'ebe sira rai ho proprio.

#### Regulamentu 2

##### Definisaun hosi Termu

Hanesan uza ona iha Lei no Regulamentu, termu hirak tuir mai signifika:

- (a) **Mikro Kreditu** – mikro kreditu ida no program mobilizasaun osan ne'ebé rai ho didiak ba grupu feto hodi hadiak asset baziku uma laran nian no habelar asesu osan ne'ebé grupu rai. Ida ne'e inklui uza alternativu oi-oin hosi Sistema kreditu no programa rai osan inklui extensaun hosi impresta kiik, aranjamentu kustu garantia ba osan ne'ebé impresta, alternativu hodi selu fila fali osan ne'ebé foti, requerementu minimum ba rai osan, no instrumentu kiik ne'ebe dominante.
- (b) Iha etapa inisiu, ONG “**naran ONG**”sei suporta fundu jestaun ba grupu feto“ **naran grupu**” hodi mobiliza osan ne'ebé rai no estabelese kreditu. **Naran ONG** hanesan organizasaun non-lukru ida ne'ebé fokus ba hadia seitor baziku iha sosiadade liuhusi fornese advokasia, treinamentu hosi seitor balun, organiza komunitade, monitoring, peskiza, asesu ba rekursu no atividade sira seluk ne'ebé hanesan.
- (c) Kustu ba impresta sei tuir ba akordo ne'eba razoavel no konsensia hodi tau rasio funan ( **% kada tinan**), kustu ba servisu karik nesesariu, sansaun, discount, no kustu seluk ba insidente ruma ba **Mikro Kreditu** nia atividade hodi fó impresta.
- (d) Impresta nain sira refere ba ema ne'ebé impresta osan ka ema ne'ebé hetan autorizasaun atu impresta hosi grupu feto “**naran grupu**”.
- (e) Assest Monetária ka osan sei refere ba osan ne'ebé hetan hosi atividade hasa'e rendimentu hanesan “**naran atividade grupu**” no **naran atividade grupu**
- (f) **Mikro Kreditu** ka **Mikro Kreditu** – impresta kiik oan ne'ebe fó ba seitor baziku ho baze osan impresta funsiona atu nune'e osan impresta bele fó fali ba membro seluk hosi grupu feto “**naran grupu**” ba sira nia mikroentreprenuar no negosio kiik hodi fasilita sira hasa'e sira nia nivel rendimento no hadia sira nia standard moris.

### Regulamentu 3

#### Kriteria ba Organizaasaun

(a) Strutura Mikro Kreditu “**naran grupu**”

**Mikro Kreditu “Naran grupu”** sei iha komite jestaun ida hodi halo operasaun ba sira nia atividade. Komite jestaun kompostu hosi pelumenus membru nain lima (5) hanesan presidente ida, sekretaria ida, bookkeeper ida, tesoreiru ida no Auditor superviziona.

- i. Funsauun hosi Presidente: Nia sei responsabel ba operasaun Mikro Kreditu inklui anunsiau bainhira enkontru ida atu halao, organiza enkontru, fasilita enkontru no foti desijaun
- ii. Funsauun sekretaria: foti minutas iha enkontru no fornese lista partisipantes
- iii. Funsauun bookeper ka ema ne'e halo registo: fornese registo impresta individual, kalkula funan, monitoring balansu.
- iv. Funsauun Tesoreiru: Rai osan (menus hosi \$100 hosi osan ne'ebé rai) ho seguru, transparansia ba membru ida-idak iha enkontru liuhusi fornese relatoriu no halo los balansu kada fulan.
- v. Funsauun hosi auditor konsultivu (REBIA): Examina Relatorio negosio no finanseiru hosi **Mikro Kreditu “Naran grupu”**, fó hanoin oinsa bele jere osan impresta no rai osan (osan ne'ebe liu husi \$ ) ho seguru.

### Regulamentu 4

#### Kapital

- (a) Mikro Kreditu “**Naran grupu**” tenke iha minimum kapital/osan fini hosi Dollar (\$ ) hetan hosi “**naran atividade**”.
- (b) Kapital (fundu hosi rai osan no kreditu) hosi Mikro Kreditu tenke hasae iha tempo tuir mai bazeia ba lukru hosi kripik aifarina no atividade hasa'e rendimentu seluk hanesan “**naran atividade**” hosi grupu fetu “**Naran grupu**”. Membru grupu ne'e sei desidi montante osan no/ka persentagem hosi lukru hodi aloka kapital ba Mikro Kreditu. (ezemplu. % ba distribusaun (personal saving): % ba expansaun atividade hasa'e rendimentu: % ba osan fini ba **Mikro Kreditu**

### Regulamentu 5

#### Kriteria sai membru

- (a) Membru hotu hosi **Mikro Kreditu “Naran grupu”** tenke membru hosi grupu fetu hosi “**naran grupu**” iha “**naran suku**”.
- (b) Membru sira hosi “**naran atividade**” tenke sai prioridade liu ba membru grupu fetu seluk hosi grupu fetu “**Naran grupu**”. Membru seluk bele involve hanesan membru ida hosi mikro



- kreditu karik sira bele kontribui % hosi sira nia rendimentu hosi atividade hanesan “ **naran atividade**” no bainhora sira nia osan ne'ebé rai (saving) to'o ona \$ .
- (c) Presija co-asinatura (ema ida ne'ebé membru hosi atividade refere)
  - (d) Garantia ba impresta (Ezemplu. Krau, fahi, bibi, no manu)

## Regulamentu 6

### Montante no kustu ba Impresta

- (a) **Mikro Kreditu** sei fó impresta hosi montante...kiik. \$ to'o maximum...\$ ba asuntu ne'ebé razoável no konsidera ho funan ne'ebé ho rasio ( % ba tinan ida) no kustu ba impresta sei tuir ida ne'ebé konkorda hamutuk entre Mikro Kreditu “ **naran grupu**” no ema ne'ebé impresta
- (b) Tuir Lei no Regulamentu hosi **Mikro Kreditu “Naran grupu”** antes Implementasaun transaksaun, **Mikro Kreditu “Naran grupu”** sei husu kada ema ne'ebé impresta osan hodi halo deklarasaun, baze estabesementu, hodi bele aplika, tuir informasaun sira ne'e:
  - i. Montante osan atu Impresta;
  - ii. Rasio funan hosi osan ne'ebé impresta;
  - iii. Kustu servisu, karik iha;
  - iv. Orariu selu fali osan impresta;
  - v. Kustu ba sansaun ruma ba pagamentu ne'ebé tarde;
  - vi. Kustu koleksaun, karik iha;
  - vii. Kustu seluk iha koneksaun ho transaksaun hosi impresta;
  - viii. Deskrisaun hosi prosedur koleksaun no reinforsamentu hosi penhor; no
  - ix. Metode kalkulasaun montante total hosi obrigasaun atu selu karik mak iha sala ruma.
- (c) Karta kontratu tenke asina hosi ema ne'ebé impresta osan, co-signer ba ema ne'ebé impresta osan, presidente mikro kreditu, “ **naran grupu**” no ema seluk hosi komite jestaun mikro kreditu

## Regulamentu 7

### Livro manutensaun hosi Livro konta no registu

- (a) **Mikro Kreditu “Naran grupu”** tenke mantein livro kapital (Livro konta rai osan) no livro registu impresta osan.
- (b) Record keeper tenke mantein livro sira ne'e, livro konta rai osan ba kada membru hosi grupu “**Naran grupu**” baseia ba distribusaun lukru hosi atividades no registo impresta ne'ebé halo.
- (c) Tesoreiru tenke halo relatoriu transaksaun no balansu hosi **Mikro Kreditu** iha kada fulan.
- (d) Auditor Asesoria (naran ONG) tenke monitor uza ho lolos osan **Mikro Kreditu** no rai osan

ho seguru.

(e) Karik iha asidente ruma, presidente tenke halo enkontru internal ida hodi resolve problema.

## **Regulamentu 8**

### **Effetividade hosi Lei no Regulamentu**

Lei no Regulamentu sira ne'e efetivu iha, **loron, fulan, tinan.**

Adopta ona hosi Komite Jestaun iha **loron, fulan, tinan, naran suku, naran postu administrativu, naran Municipiu,** Timor-Leste

Naran Presidente

**Asinatura president nian**

Naran hosi Sekretaria  
Asinatura Sekretaria nian

Naran hosi record keeper  
Asinatura recore keeper nian

Naran hosi Tezoreiru  
Asinatura Tezoreiru

Naran hosi ONG  
naran ONG  
Pozisaun ema ne'ebé responsabel  
Asinatura responsabel nian

**Aneksu-16 Amostra formatu ba kontratu empresta osan nian**

Detailus	
Naran Grupu	Feto Buka Moris
Impresta nain	Maria Soares
Enderesu	Aldeia Rileu
Intensaun impresta	Negosiu ikan maran
Data hasai	10 May, 2015
Montante impresta	\$100
Funan hosi impresta	6% kada tinan
Montante funan kada fulan	\$0.50
Kustu adisional	\$0.75
Periodu impresta	Fulan 12
Numeru pagamentu	12
Total funan	\$6
Kustu ba pagamentu tarde	\$2 kada fulan
Collateral	Fahi ida
Total montante hatama	\$106
Data hatama fali osan	10 May, 2016

Asinatura hosi ema nebe impresta      Asinatura hosi presidente

Asinatura hosi Co-signer                      Asinatura hosi Record keeper ka Tezoreiru