Draft to review

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Agroforestry

The Project on Capacity Development for Sustainable Forest Resource Management in Solomon Islands

Background

The MOFR-JICA Project has supported livelihood improvement activities including agroforestry at two pilot communities namely Falake and Komuniboli to reduce pressure on natural forests and dependency on logging concession. Agroforestry is one of land use systems where trees and crops are planted on the same land management unit. In the context of Solomon Islands, agroforestry can contribute to sustainable forest resource management from two aspects: (i) establishment of plantations that have valuable timber tree species, and (ii) income generation through the sale of agroforestry products. In addition, agroforestry provides an opportunity for women to participate in forest management which is usually recognized as men's work.

Objectives

There are three (3) objectives of agroforestry pilot activities:

1. To equip MOFR officials and community members practical knowledge and skills on agroforestry.
2. To develop capacity of MOFR and communities in planning, managing, and monitoring agroforestry activities.
3. To develop a model of agroforestry, including the process of planning and management, by compiling lessons learned through the pilot activities.

The above objectives are for the project. Apart from them, each pilot community has developed specific objectives of implementation of agroforestry for them.

Implementation Plan

Below shows contents and the process of developing the *Implementation Plan* for Agroforestry

Vision and Objectives	•Objectives of AF
Site selection	•Identify and measure the plot
Plot Design	•Select trees, plants/crops and design the layout
Work plan	•Break down activities •Annual and long-term schedule
Inputs	•Necessary materials & workload
Management structure	•Members & roles
Management mechanism	•Management rules •Benefit sharing
Monitoring & Evaluation (M&E)	•M&E structure •Methods & schedule/frequency

Project support

Main support activities conducted by the project are as follows:

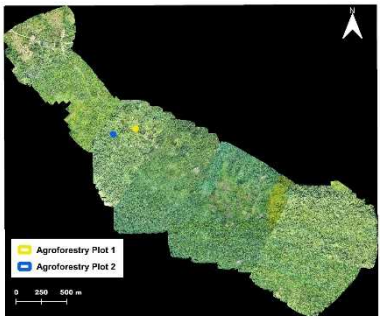
I. Facilitate discussion among community members in planning and managing agroforestry activities
II. Provide technical training including pest control, pruning and grafting, and record keeping training
III. Monitor the conditions of the agroforestry plots and progress of the activities by the communities

Planning

Site selection (location and boundary)

The location of agroforestry training plots were identified from the future land use map. Then, each plot was demarcated and measured on the ground by using GPS. Drone images were also taken to support monitoring land use change and reporting.

Falake



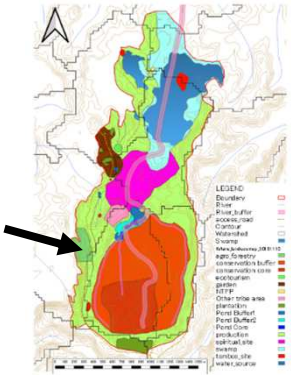
The selected sites for plot 1 and plot 2

Plot 1

Plot 2

Komuniboli

Agroforestry training plot



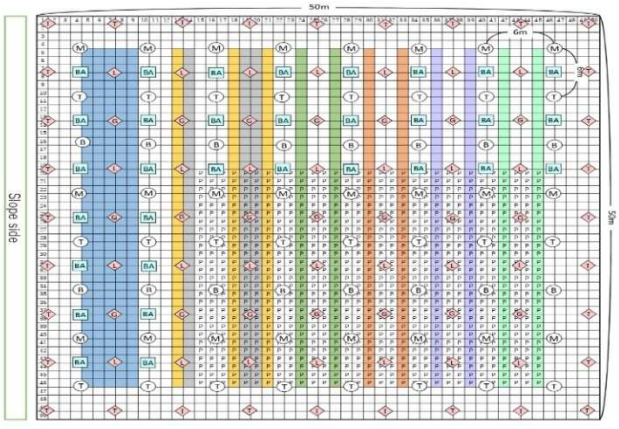
The selected site for agroforestry

Total area for agroforestry

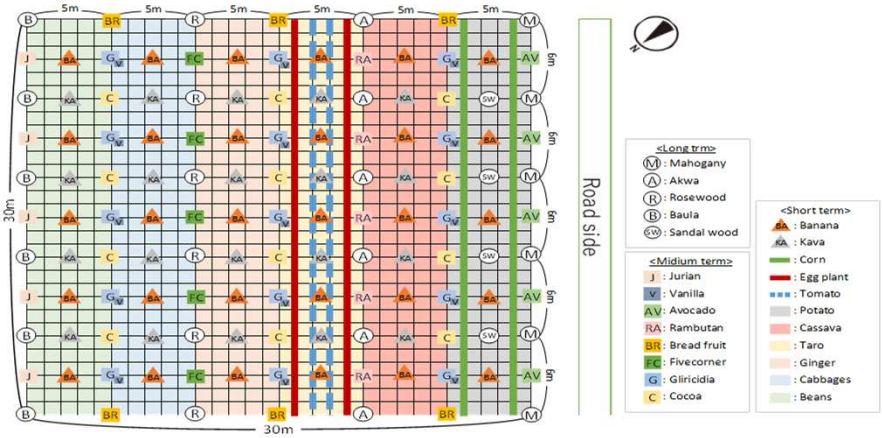
Agroforestry training plot 1

Plot design

Agroforestry plot designs have been developed by the communities taking into consideration the following points: combination of long, medium, and short-term benefits, availability of seeds/seedlings, improvement of soil conditions, compatibility of trees and crops, availability of markets of the trees/crops, ground conditions and so on. For long-term benefit, timber tree species, such as teak, mahogany, pencil cedar, akwa (*Pometia pinnata*), rosewood and baula (*Callophylum* spp.), have been planted. For medium-term benefit, fruit trees and horticultural crops including guava, kava, tangerine, durian, avocado, breadfruit, five corner, cocoa, rambutan, and vanilla, have been planted. For short-term benefit, root crops and vegetables including taro, peanut, eggplant, corn, tomato, sweet potato (kumara), cassava, ginger, slippery cabbage, bean, and pineapple, were planted. Designs of the plot 1 in Falake and Komuniboli are shown below.



Plot design of training plot 1 in Komuniboli



Plot design of training plot 1 in Falake

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Filed activities

The community members have conducted field activities according to the Implementation Plan, including site preparation, planting and tending trees and crops, and harvesting and selling the products. They have also dealt with challenges, such as attack of Giant African Snail, trespassing on the plots, and hampering stones in the plots. Project staff has assisted the communities in identifying such challenges and issues and finding countermeasures against them.

Site preparation

Removing weed in and around plot

Clear water logged area

Prepare rows to plant peanut

Planting and tending

Add nutrients to kava

Covering guava fruit to avoid fruit fly

Mahogany tree grows well

Pruning a teak tree

Tree branches removed to allow sunlight

Dealing with challenges

Taro with pest is uprooted and burnt

Fencing the agroforestry plot

Collecting and burning GA snail

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Harvesting and selling

Pana is harvested and cleaned

Banana is sold in heaps of 4-5 fruits

Bean is weight and sales record

Pana is weighed for sales record

Community do their own recording

Technical Training

Upon a genuine request, the project has provided technical training, including pest control training and pruning training, to the pilot communities to handle challenges and to maximize yield of all plants, root crops and vegetables. The trainings were conducted in collaboration with Ministry of Agriculture and Livestock. A pruning and grafting training was conducted at Komuniboli in order to maximize the yield of guava fruits. The training also looked into soil management & degradation, ways to retain soil nutrition, and common pests and diseases affecting fruits and the preventive measures.

Pruning and grafting training at Komuniboli

Trainer shows how to pruning

A participant practices guava pruning

Covering guava fruit to avoid fruit fly

Trainer demonstrates grafting techniques

A female participant practices grafting on cocoa

A male participant practices grafting on cocoa

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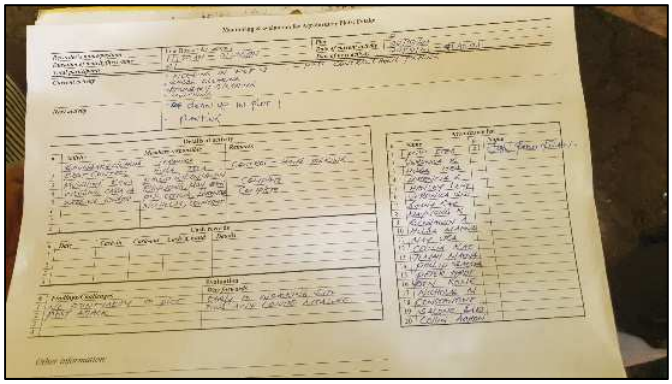
Monitoring

Information gathering and data collection

The purpose of monitoring is to make sure that the activities are carried out well according to the Implementation Plan and revise the plan upon necessity. Project staff makes alternating visits to both pilot communities to help them monitor the conditions of trees and crops in the plots and progress of the activities. The project has also provided instructions to the communities to keep records of activities and sales of agroforestry products for the monitoring purpose. The information and data collected through these activities are compiled and analysed for further improvement of the activities.

A project staff addresses participants



A daily activity record sheet

Falake chairman leads discussion

Drone survey activities

Drone images of the mapped out agroforestry areas were taken for progress monitoring and reporting. Right images are taken before the activities and left images are taken after activities. Below are before-and-after images for the training plot 1 in both Komuniboli and Falake. After drone shooting at agroforestry areas, ortho images with high resolution (around 5 cm) were generated for use on GIS application. On GIS, it becomes easier to measure the area or length of interested areas. And before-and-after image provides an aerial view of the progressive development of agroforestry activities..

Agroforestry Training Plot 1 in Komuniboli

Agroforestry Training Plot 1 in Falake

Summary

The pilot communities have being learned a new way of land use practice through the activities on the agroforestry training plots as described above. They have not only acquired technical knowledge and skills on agroforestry, but also developed their capacity for management of the agroforestry activities with active participation of women.
The communities have begun to expand agroforestry practices further. In Falake, an interested member has ventured into making his own agroforestry plots individually. In Komuniboli, the community has started to establish the second agroforestry training plot adjacent to the first plot.