

## COURSE REPORT

# NTFPS FROM NIPA AND MANGROVE SPECIES & HYDROPONICS AS ALTERNATIVE LIVELIHOODS

July 27–29, 2021

Anggana, East Kalimantan, Indonesia

A field course organized by:

Environmental Leadership & Training Initiative (ELTI)

Tropenbos Indonesia Program (TBI)

Ministry of Agriculture

Government of Kutai Kartanegara

Blue Forest Foundation (BFF)

Pertamina Hulu Mahakam (PHM)



Extracting the fruit from the nipa palm

**Background:** Processing non-timber forest products (NTFPs) from mangrove species as an alternative livelihood can support sustainable mangrove forest management. Nipa (*Nypa fruticans*), a palm found in mangrove areas, and mangrove trees are already used by local community members for a variety of benefits. A number of additional food products can also be developed from the fruits of those species.

ELTI is an initiative of: **Yale SCHOOL OF THE ENVIRONMENT**



Mr. Sulton Afifudin of ELTI welcoming participants during the course opening

To reduce ecological damage to mangrove forests by forest dependent community members, non-productive marginal land can also be used for hydroponic agriculture. Hydroponic agriculture allows food production in areas where the soils are too marginal for conventional agriculture, thus increasing domestic food security and/or the availability of commodities that can be sold in the local market. This training aims to increase the capacity of the local community in Tani Baru village in the Anggana Sub-District of East Kalimantan to develop these alternative livelihood opportunities.

#### **Course Objectives:**

- Introduce mangrove forests, the ecosystems services they provide, and drivers of mangrove deforestation and forest degradation
- Teach participants how to make marketable food products from the fruit of nipa and mangrove species
- Provide hands-on experience establishing a hydroponic system for growing agricultural crops in areas with marginal soils

#### **Course Format:**

This field course was implemented over three days and was facilitated by Mr. Sulton Afifudin (ELTI). In addition to in-person lectures and demonstrations, participants were also provided with a guidebook outlining the techniques covered in the course. The course venue was well-ventilated and government safety protocols were followed to avoid the spread of Covid-19.





Participants preparing the *Sonneratia alba* fruit



Participants processing *Sonneratia alba* fruit to make syrup



Participant putting labels on *Sonneratia alba* syrup

## Program

### Day 1

The training started with an opening ceremony with introductory remarks by Mr. Muhammad Ilyas (Village Head of Tani Baru Village), Mr. Galih Pujo Satrio (PHM), Mr. Sulton Afifudin, and Mr. Andi Darmawansyah Ridwan (BFF). In the first session, Mr. Ridwan provided an introductory presentation on mangrove forests, threats to mangrove ecosystems in Indonesia, and the potential for alternative livelihoods from mangroves. In a hands-on demonstration, Mr. Ridwan then led the participants through the steps needed to make syrup from the fruit of *Sonneratia alba*, a common mangrove species. In the second session, Mr. Suhadi Sapto Yuwono (Ministry of Agriculture) provided an introduction to hydroponic production techniques, hydroponic equipment installation, as well as harvest and post-harvest techniques.

### Day 2

Following a review of the previous day's activities, Mr. Ridwan led participants through the step-by-step process to make candy from the fruit of the nipa palm (*Nypa fruticans*). Mr. Yuwono then instructed the participants on how to make the nutrient solution needed to grow plants in a hydroponic system. Participants also learned how to measure the pH of the solution using a pH meter and how to measure the nutrient concentration in the solution using a TDS meter. Participants were then guided in preparing the materials they would need for initiating a hydroponic system including seeds, rockwool as a substrate for the plants, and a container for germinating the seeds.

### Day 3

Following another review of the previous day's activities, Mr. Yuwono, led the group through





Preparing the hydroponic system



Participants learning about the nutrient needs of plants



Participants putting seeds in planting material to germinate



Participants and organizers in front of hydroponics equipment

another hands-on exercise, wherein they transferred seedlings to the hydroponic installation. The participants learned how to care for the plants until they were ready to harvest. The course ended with a post-test course evaluation and a closing ceremony that was presided over by the Mr. Iyas.

### Course Participants:

The course was attended by 11 participants, all of whom are members of a women farmers' group (Kelompok Wanita Tani) from Tani Baru Village.

### Follow-up:

The course organizers created a WhatsApp group as a forum for continuing the conversation between participants and resource people. The village government of Tani Baru has also committed to provide continued support to the group.

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