

COURSE REPORT

Ecological Mangrove Rehabilitation Training

Marisa, Gorontalo, Indonesia
February 17-20, 2015

Partners:

Environmental Leadership & Training Initiative (ELTI)
Yayasan Hutan Biru—Blue Forest (YHB)
Yayasan Insan Cita (YIC)



Background: Indonesia originally had about 3.2 million hectares of mangrove forests or about 21% of the world's total. Recent data, however, indicates that Indonesian mangroves have decreased in extent by 1.1 million hectares over the last 20 years, primarily as a result of conversion to shrimp and fish ponds. This has resulted in a serious decline in the environmental services provided by the mangroves, including acting as a nursery for fisheries, protecting the coastline from tsunamis and erosion, reducing siltation of neighboring marine ecosystems, and supplying a variety of timber and non-timber forest products for local communities.

ELTI is an initiative of:

Yale SCHOOL OF FORESTRY &
ENVIRONMENTAL STUDIES

In collaboration with:

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Because of this loss, the rehabilitation of mangroves has become an increasingly important component of coastal management. Mangrove rehabilitation efforts that have been attempted by government and non-governmental organizations throughout Indonesia, however, have typically achieved negligible results. These failed projects have resulted from a general lack of understanding about the ecological, hydrological and disturbance factors that influence mangrove growth and survival. Specifically, this is typically seen in the planting of *Rhizophora* in mud flats, seagrass beds, and other areas below mean sea level, where mangroves are not naturally found. Failure to rehabilitate former mangrove areas results from an unwillingness or inability to tackle difficult land tenure issues with the owners of abandoned shrimp and fish ponds.

This training focused on providing the technical and social knowledge and skills needed to conduct successful mangrove rehabilitation in Pohuwato District, Gorontalo, on the island of Sulawesi. Gorontalo was specifically targeted for this training because the total area of mangroves has declined from 13,242 hectares in 1998 to only 7,769.64 hectares in 2011, including several thousand hectares in Tanjung Panjang Nature Reserve, which might serve as the target of a large-scale mangrove rehabilitation effort in the future. This training is a follow-up to a training conducted by YHB and ELTI in South Sulawesi in August 2014, which was attended by several participants from Pohuwato as a way to introduce them to Ecological Mangrove Rehabilitation (EMR). This training was also being carried out to provide support for two separate, ongoing mangrove rehabilitation projects in the District.

Objectives:

- To provide participants with a solid understanding of the principles of mangrove rehabilitation;
- For participants to recognize the factors which have led to past failure in mangrove rehabilitation efforts using Pohuwato as a case study;
- To introduce planning steps of EMR in terms of surveying ecological, hydrological and disturbance factors; and
- To introduce the management steps needed for the implementation steps of EMR.





Training Outline

Day 1: The training started with opening remarks from Mr. Ansar Akuba (YIC and Regional Peoples Representative Council) and Dr. David Neidel (ELTI). Mr. Jhoni Nento, the Regional Secretary of the Pohuwato District, then gave a short presentation about the city of Marisa's development plans, which include the rehabilitation of a 25-hectare mangrove forest owned by the city. The city forest, which remains largely devoid of mangrove trees despite three separate attempts at conducting plantings, served as the site of the field-based portion of the training. Following an introduction to the course by Mr. Rio Ahmad (YHB), Mr. Yusran Nurdin Massa (YHB) gave an overview of mangroves, outlining their biogeographical distribution, the physiological needs of mangrove trees, mangrove zonation and common forms of degradation. An important message from the presentation was that if there are mangroves near to the rehabilitation site and the propagules do not begin to grow naturally in that area, then the area is unsuitable for mangroves. Mr. Rahman Dako (JASPEDA & Mangroves for the Future-MFF) then gave a presentation and led a discussion about the history of mangrove loss in the district and the socio-political drivers of mangrove deforestation. The participants then watched a short film by Al Jazeera about successful mangrove rehabilitation efforts in Tanakeke in South Sulawesi and Tiwoho in North Sulawesi.

Day 2: The second day started with a short review of the previous day, followed by a presentation and discussion of the principles and six steps of EMR by Mr. Yusran. EMR, which was first developed by Mr. Robin Lewis, Jr. in the United States, focuses on first establishing a good understanding of the autecology of mangrove species, the hydrology of mangrove area and the disturbance factors that block natural succession, followed by choosing a site for rehabilitation, developing a plan and finally monitoring the outcome. Mr. Yusran then showed participants the changes in the city forest and surrounding area over time with the use Google Earth images, while Mr. Rahman put these changes in the context of changing land classification—including the removal of the area from the Panua Nature Reserve and reclassification of the land as being open for development. Participants were then divided into two groups with one group exploring the ecological changes that had occurred in the city forest area, focusing particularly on the changes in hydrology that led to the forest area remaining permanently submerged, thus killing off the trees. The second group discussed the social, economic and policy aspects of



the site, including the existence of community members who have claimed part of the land since as early as 2003. The participants then played the “drawing a bicycle” game to underline the importance of cooperation in planning a rehabilitation effort. Mr. Rio then closed the day’s training by introducing participants to the tide schedule and giving instructions regarding the field data collecting exercise for the following day.

Day 3: After a brief orientation, the participants were divided into two groups: one to conduct a transect through the middle of the rehabilitation site and the second to sketch the overall site in terms of major hydrological features and the distribution of mangrove species. This exercise, along with input from the participants during the previous day’s discussion, revealed that drainage to the site had been intentionally blocked in the past. It is suspected that this blockage was conducted intentionally by local community members who were interested in turning the area into shrimp or fishponds, because using extended submersion is a common strategy to kill off tree cover. As a result, the area has essentially been turned into a very shallow lake where mangroves can no longer grow. During the course of the exercise, one group also visited a recent planting site—which had been conducted by one of the participant’s NGOs and which he now recognizes will likely prove a complete failure—and one of the water channels connecting the area to the ocean, which had been completely blocked. After returning to the training centers, the two groups graphically depicted their findings before presenting to the group.

Day 4: The day started with some additional discussions about the state of the rehabilitation site. Participants were then divided into two groups to map out their visions for the future of the city forest and possible solutions to the hydrological and socio-political problems affecting the site. They also created a timeline for taking concrete steps towards bringing their plans to fruition, which were presented and discussed to the entire group. Ms. Pangestuti Astri (ELTI) then provided a presentation on the ELTI Leadership Program as a resource the participants could possibly tap into when moving forward with their plans. The training ended with evaluations and closing remarks by Dr. Neidel and Mr. Ansar Akuba.



Participants: Participants consisted of 24 representatives from the community of Bulili and Polopo, local environmental NGOs and relevant government agencies in Pohuwato.

Follow-up: Training participants made tentative plans to jointly sign a document calling for a technically and socially appropriate plan to rehabilitate the city mangroves forest, which they intended to submit to the District Head. The District Government has already shown a high level of interest in rehabilitating the city forest and a significant amount of funds have already been allocated for mangrove rehabilitation, but the participants want to make sure that the District moves away from conventional rehabilitation based on planting to a strategy that focuses first on restoring the hydrology of the area. Meanwhile, participants from the village of Bulili are moving forward with a rehabilitation project that has been funded through MFF. YIC, YHB and ELTI will assist with and monitor the mangrove rehabilitation plans as they progress, as well as continue to explore options for rehabilitating Tanjung Panjang.

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