

Summary for Overseas Travel WENDI 2018-2019

Name	Annisa Satwika Lestari
School	Graduate School of Global Environmental Studies
Grade	D2
Supervisor's name	Shinya Funakawa
Travel period	17 February – 21 March 2019
UN agencies / International organization visited	Center for International Forestry Research (CIFOR), Bogor and PT Perkebunan Nusantara VIII, Garut, Indonesia
Theme of overseas travel	University – Industry Collaboration Project on Aboveground Biomass and Carbon Stock Estimation in Mira-Mare Rubber Plantation

Outline of the activities (4 pages including photos, figures, etc.)

My activity during this travel is a university-industry collaboration project which also included a one-day visit to the Center for International Forestry Research (CIFOR). The activity was done from 17 February to 21 March 2019. For this university-industry collaboration project, the Laboratory of Terrestrial Ecosystem Management of Kyoto University acted as university counterpart and PT Perkebunan Nusantara VIII acted as industry counterpart.

Tree measurement and ground vegetation sampling were done for aboveground biomass and carbon stock estimation purposes. The site was located within Mira-Mare Rubber Plantation under the management of PT Perkebunan Nusantara VIII. The samples obtained from the vegetation sampling were brought to the Laboratory of Terrestrial Ecosystem Management at Kyoto University, Japan for physical and chemical analysis. Later on, the result of the analysis will be used for the management reporting of PT Perkebunan Nusantara VIII and my current PhD research.

In this project, tree-above ground data was obtained using forest inventory method, while the ground vegetation data was estimated through quadrat sampling. The rubber stand data was obtained from PT Perkebunan Nusantara VIII who manages the rubber plantation. For the biomass and carbon stock estimation, each component was converted to carbon stock using available modelling and conversion equation from available literature.

The forest inventory for tree component (rubber) was conducted by establishing 500 m²-sized (20 m x 25 m) sampling plots proportional to the area of each planting age. In the sampling, plot all the trees were measured for diameter at breast height (dbh) at 1.20 m and 3 trees were measured for heights. Later on, those data will be converted to aboveground biomass and carbon stock using the available model from Sone et al, 2014.



Figure1. Vegetation sampling (left) and species labelling (right)

The aboveground biomass data was obtained using quadrat sampling inside the forest inventory sampling plot. The ground biomass sample was collected from 1m x 1m quadrat and weight. Then, the sample was cut and mixed. 10% was taken to be dried and measured for dry matter and carbon content laboratory. In the end, the estimation of total carbon sequestration of aboveground biomass in rubber plantation can be obtained by combining all the biomass and carbon stock estimation data.

During the project, I had to manage the schedule and also the measurement. I was assisted by the plantation manager, local villager, and research assistants for site selection, measurement and sampling collection. I also got the chance to meet many people. Because the plantation area is in the border with Leuweung Sancang natural reserve, I also have the chance to meet and have a short discussion with people from the natural reserve including bachelor students from Institut Pertanian Bogor (IPB) who were conducting research on wildlife activities in the natural reserve.



Figure 2. Visiting the natural reserve and trying to measure an old dipterocarp tree as a comparison to the rubber plantation



Figure 3. Meeting with the Management Head of Leuweung Sancang Natural Research (left) and students from Institut Pertanian Bogor (right)

During the travel, I also visited CIFOR (Center for International Forestry Research) in Bogor, Indonesia to discuss the possibility for me to do an internship or international collaboration project with CIFOR and Wageningen University & Research (WUR). There, I was welcomed by Dr Amy Duchelle a Senior Scientist in the Climate Change, Energy & Low Carbon Development Team at the Center for International Forestry Research (CIFOR) in Indonesia. She briefed me about the projects that I can possibly join for my internship. One of the projects is about analyzing the effectiveness, efficiency, equity, and co-benefits of subnational REDD+ initiatives through the Global Comparative Study on REDD+. Through this meeting and discussion, I was also able to greet the people in her department and also know more about the office and working situation.



Figure 4. The front appearance of the main building of CIFOR headquarters in Bogor

This activity has allowed me to train my leadership and management skill. I learned how to manage a project in a term of human resource, human relation and also procurement. I also got the chance to meet many new people and broaden my network which will further help me to be a global leader.

Additional documentation:



Figure 5. A group photo with the management employee of Mira-Mare Rubber Plantation



Figure 6. Two people who helped and assisted me in field measurement in front of an old endemic dipterocarp tree