

Expanding options for smallholder tree production in North Lampung Trip report August 27-30, 1998

James Roshetko¹, Pratiknyo Purnomo Sidhi¹ & Arif Rokhman Latif²
1. ICRAF-S.E.Asia, Bogor, 2. BMSF Project, Brawijaya University, Malang

Background

In North Lampung Province most forests have been converted to agriculture land-uses, including sugar-cane production. The forests that remain in the area are highly degraded. Because of this wide scale deforestation, and lack of timber, many smallholder farmers in North Lampung are interested in timber farming. The general objective of smallholder plantations is the production of timber and other tree products for home use and to meet market-demands. Without help from outside agencies some farmers in Lampung have begun to establish small-scale plantations. However, timber farming is a new activity. To date most efforts have focused on *Paraseriathes falcata*. Many of these plantations have not been successful. ICRAF would like to help expand species options and plantation management techniques available to farmers in Lampung. As a first steps towards is goal, ICRAF would like to establish some smallholder plantations which include species other than *Paraseriathes*.

Objectives

The objectives of the field trip were:

1. Visit private and government nurseries in the area to determine what species are currently available.
2. Meet with and identify smallholder farmers interested in collaborating with ICRAF to establish demonstration plantations and identify the species in which the farmers are interested.
3. Determine a shortlist of timber species that can be included in demonstration plantations this year.
4. Determine what support activities are required to establish the demonstration plantations and estimate a budget.

Nurseries in the Area

We visited five nurseries between Lampung Bandara and North Lampung; a private fruit tree nursery, a governmental fruit tree nursery, a private timber tree nursery, a government timber tree nursery and a private rubber tree nursery. We tried to visit an oil palm nursery but the staff was in the field. Information gathered from the visits is summarized below.

Private fruit tree nursery (Pedagang Bibit Hortikultura). Located in Metro, this nursery distributes stock to Jambi, Bengkulu, Padang, other parts of Sumatra and West Java. The facilities are well run and the stock on-hand appeared to be of high quality. Standard price is Rp 2500/seedling. Contact information and species available are :

Edy Sumarno
Pedagang Bibit Hortikultura
Jl Pertanian No. 389
Desu Badransari Tulusrejo
Kec Pekalongan Metro
Phone 0725 -46559

Botanical name	Common name	Status
<i>Gnetum gnemon</i>	Melinjo	Currently available
<i>Citrus aurantifolia</i>	Jeruk	Currently available
<i>Mangifera indica</i>	Mangga	Currently available
<i>Arenga pinnata</i>	Kolangkaling	Currently available
<i>Garcinia mangostana</i>	Manggis	Currently available
<i>Lansium domesticum</i>	Duku	Available by December
<i>Averrhoa bilimbi</i>	Belimbing	Available by December
<i>Parkia speciosa</i>	Petai	Available by December
<i>Durio zibethinus</i>	Durian	Available by December

Government fruit tree nursery (BBI Hortikultura Dataran Rendah). Also located in Metro (near the private nursery) this nursery and orchard is located on 64 hectares. It is very well run and appears to be very productive. The kepala (Suparman) has about 40 awards, both old and new, in his office. He came across as a working boss. He was in the field when we arrived and come to meet us in slightly soiled pants. He was very informative and helpful. The facility produces and sells a lot of stock and is a profitable enterprise. They recommend intercropping during establishment. Contact information and species /varieties available are:

Suparman
 BBI Hortikultura Dataran Rendah
 Jl. Pertanian Badransari
 Pekalongan Lampung Tengah
 Metro 34191

Botanical name	Common name	Comment & varieties
<i>Manilkara kauki</i>	Sawo	Popular with farmers
<i>Citrus aurant(h)ium</i>	Jeruk	Popular with farmers – production in 8 years Var.: siam, kecang, singkarat, falensia, batu 55, manis puntan
<i>Mangifera indica</i>	Mango	Good for drought
<i>Nephelium lappaceum</i>	Rambutan	Popular with farmers Var: lebuk bulus, kering manis, simcan, gula batu
<i>Durio zibethinus</i>	Durian	Popular with farmers Var.: sitokong, dtong, gajan, kajang, petruk, tabu, emas
<i>Garcinia mangostana</i>	Manggis	
<i>Averrhoa bilimbi</i>	Belimbing	
<i>Persea americana</i>	Alpokot	
<i>Spondias spp</i>	Kedondong	
<i>Artocarpus integer</i>	Cempedak	
<i>Syzygium aceum</i>	Jambu air	
<i>Annona muricata</i>	Sirsak	Var.: ratu
<i>Artocarpus communis</i> Syn <i>A. altilis</i>	Sukun	

Private timber tree nursery. There were 4-5 private timber tree nurseries near where we stopped. A review of their signboards indicated they carried mainly the same stock. We visited one that was large, neat and operated by a former employee

of the Forestry Department. He said that they get all their seed from the Forestry Department and so do most of the other private nurseries in the area. According to him stock between the private nurseries does not vary much. According to the nursery signboards, and proprietor we met, the most popular species are sengon, jati, and mahoni. Most species cost Rp 250-350/seedling. Species in stock include:

Botanical name	Common name	Comment
<i>Tectona grandis</i>	Jati	Stumps (50-80 cm) cost Rp 100 1 bag of seeds costs Rp 20,000 will produce 2000-3000 trees
<i>Paraserianthes falcataria</i>	Sengon putih	Rp 14,000 / kg seed
<i>Peltophorum pterocarpum</i> Syn. <i>P. inerme</i>	Sengon merah	Rp 20,000 / kg seed will produce 5000 trees
<i>Durio zibethinus</i>	Durian	
<i>Swietenia mahagoni</i>	Mahoni	Rp 40,000 / kg seed will produce 600 trees
<i>Hevea brasiliensis</i>	Rubber	
<i>Parkia speciosa</i>	Petai	

Rubber tree nursery. Pak Tony Hutoro is an ex-petroleum engineer who got sick of moving around the world so he moved back home to Indonesia. He is now a rubber farmer with a 5 hectare plantation and a commercial nursery. He sells high quality clones for between Rp 2500-1100. Those in stock include PB260 and other high quality Malaysian clones (Rp 2500/seedling) and BPM, GT1 and PR. Tony says rubber wood is selling for Rp 100,000 / cubic meter. He is not sure what stumpage or cut price farmers are getting.

Government timber tree nursery (PT Inhutani V Unit Lampung). This was the most stimulating visit of the trip. These people can grow trees. The Forest Industry Company of the Forest Department is charged with growing timber trees and reforesting industrial forestland. They focus on a number of species (listed below) for timber, pulp and MDF (medium density fiber) board production. Mostly they work on government land (a 600 hectare parcel near their office), they also have some social forestry activities. Their standard spacing recommendation is 2x4 meters, but maybe 3x4 meters for longer rotation species. They recommend intercropping to increase land productivity, decrease weed competition and increase tree growth rates. Cassava is the normal intercrop during establishment (there is a tapioca factory in the vicinity). Once the canopy closes, understory and shade tolerant crops are recommended: coffee, pepper, ginger, etc. In their social forestry program (conducted on smallholder lands) they recommend farmers plant 100 MPTS trees per hectare. MPTS are defined as non-timber species, particularly those that produce edible products. Popular MPTS include durian, nangka, kemiri (*Aleurites moluccana*), sukun, mangga, petai, jengkol and rubber.

The staff and administrator were very happy to talk with us and show us their activities. They are cautiously willing to collaborate with ICRAF and local farmers by providing seedlings for the demonstration plantations. Pratik assured them that we are willing to pay the cost of the seedlings. We estimated we would require 1000 seedlings of 5-6 species (considering 5 farmers each with 1 hectare of tree farm). In response they said that the following species would be available: jati (local), pulai, sangkai, mahoni, and sengon. They ask that we provide a letter of intent and proposal for collaboration stating the level of contribution requested. The letter and proposal

should be submitted officially to their office. Once an agreement is confirmed we will bring the collaborating farmers to the Inhutani for a field visit. Contact information and species being used are:

PT Inhutani V Unit Lampung
Femy Hermawan, Administrator
Herman Arif Jauhari, R & D Officer

Botanical name	Common name	Comment
<i>Peronama canescens</i>	Sungkai	
<i>Alstonia</i> spp.	Pulai	
<i>Shorea</i> sp.	Unknown	
<i>Acacia mangium</i>	Mangium	
<i>Paraserianthes falcataria</i>	Sengon putih	
<i>Gmelina arborea</i>	Bulangan	
<i>Swietenia mahagoni</i>	Mahoni	
<i>Tectona grandis</i>	Jati	Recommended spacing 2x4 m Var.: local and Thailand 20-40 year rotation
<i>Toona sinensis</i>	Kayu bawang	
<i>Maesopsis eminii</i>	Kayu afrika	

Farmer Collaborators

We visited the villages of Karang Sakti and Tegal Mukti to gauge farmers' interest in establishing demonstration timber plantations. Because it was market day we were only able to meet with the Kepala Desa from each village (Pak Hariono of Karang Sakti and Pak Darno of Tegal Mukti) and one other farmer (Pak Kasiyo of Karang Sakti). All three confirmed that there is a lot of interest in tree farming, particularly for timber and fruit. The remnant secondary forests in the area are heavily degraded and almost void of accessible timber trees. The most common trees in these forests are – mainly sprouts, saplings and small trees- are *Peltophorum dasyrachis*, *Schima wallichii*, and *Dillenia* spp. To meet their own needs farmers must grow their own timber. Local sales of timber would be a secondary objective. Fruit production would be for both home-consumption and market sales.

Pak Hariono mentioned that his brother has a small nursery of pulai seedling, which he raises for his own use. We visited the nursery. There were about 50 seedlings in bags and another 50 smaller seedlings in germination trays. The seed was collected from 6 trees in his front yard, which were originally transplanted from wildlings collected beneath local trees that were remnants of the original forest. Pak Hariono's brother is the only village resident known to be producing seedlings of indigenous species.

It was agreed that in each village 4 farmers would be identified to collaborate on the demonstration timber plantations. If possible farms selected for the trials will be split between lower wet sites and upland exposed sites. Each farm will be approximately one-quarter hectare. Five species will be established in blocks of 25 trees at spacing of 2x4 meters. Each species block will require 200 square meters. A replication of five specie blocks, 1000 square meters. Each farm will contain 2 replications of five species blocks. Farmers will intercrop with a single crop of their choice, probably cassava. Demonstration plantations will be established according to the rains, most likely in December-January. A meeting with farmer participants and visit to the Inhutani facility will occur in October-November.

The species to be used have been tentatively identified as sengon, jati, mahoni, pulai, and sungkai. This list includes the most common smallholder timber tree in the area, two popular exotic timbers, and two popular indigenous timbers. Farmers are interested in these species, with the exception of sengon, which is already common and not performing well in some places. Other indigenous timber species of interest to farmers include puspa (*Schima wallichii*), muntru, laku and sempu (*Dillenia* spp.). The kepala and farmer in Karang Sakti indicated the following timber rotations:

Botanical name	Common name	Rotation
<i>Tectona grandis</i>	Jati	+ 20 years
<i>Peronama canescens</i>	Sungkai	20 years
<i>Alstonia</i> spp.	Pulai	15 years
<i>Paraserianthes falcataria</i>	Sengon putih	7-8 years
<i>Swietenia mahagoni</i>	Mahoni	No experience yet

ICRAF will provide some fruit trees to farmers and seek to assist farmers with the following costs related to demonstration plantation establishment: land preparation, planting, fertilizer and herbicide. Costs related to this support are estimated below.

Support	Details	Costs
Land preparation – plowing	Rp 25,000/day (0.25 ha)	Rp 25,000
Land preparation – labor	Rp 6000/man x 2 man (0.25 ha)	Rp 12,000
Tree planting	Rp 6000/man x 4 man x 2 days	Rp 48,000
Hc	4 liter/0.25 ha – 2 applications	Price fluctuating
		Price fluctuating

Landscape positions

In the trials we should aim for a stratification by landscape position, distinguishing valleys, midslopes and upper crests, as they clearly differ in drought risk as well as soil fertility. A simple but valuable target could be to get a clear understanding for each of these strata which types of trees that are currently available from nurseries in the area can successfully be grown under farmers' management conditions with limited technical advice from outside.

Follow-Up Actions Required

1. Write letter to Inhuman outlining the project and collaboration we are requesting
2. Write letter to BBI-Hortikultura outlining the project and collaboration we are requesting.
3. Schedule meeting with farmer collaborators and visit to Inhutani.
4. Design demonstration plantations with farmers
5. Further develop partnership with Brawijaya in the BMSF project on this activity