

SEEING IT FIRSTHAND

A field guide to Planting Empowerment's
operations for investors and visitors



June 2013

www.PlantingEmpowerment.com



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A three year old teak tree demonstrating excellent growth

Welcome

Dear Friends,

What we do at Planting Empowerment is difficult to describe with words and pictures; you can't really understand the business until you see it firsthand. So, we're happy that you've decided to spend some time with us in the "field" learning about our work.

You'll sweat, hike, take pictures, ask questions and possibly swing a machete. We think that you'll enjoy hiking the plantations, mingling in the villages, learning about the different trees and meeting Liriano our Indigenous forester.

For those of you who are investors, you'll meet the direct beneficiaries of your investment. They might talk to you about the improvement they're making to their homes or the bills they've been able to pay off thanks to your investment. And of course, you will get to see your trees growing healthy and tall.

Most importantly, we want our visitors to take home a vision of a more sustainable way of living for rainforest-dependent peoples - one that recognizes the link between economic well-being and environmental accountability.

Our itinerary is loose, and we will make small adjustments along the way depending upon your interests and questions. Instead of considering this packet as a chronological representation of the trip, think of it as a reference to help explain what you'll see.

As Planting Empowerment moves into its 7th year of operation, the challenge for us is to sustainably scale the business beyond pilot projects. This will require a sustained commitment from us, and also our investors. We encourage you to think about how your continued investment contributes to a more sustainable reality for our partners and the surrounding rainforest.

Sincerely,

Chris, Damion, Andrew P., and Andrew W.

This guide provides an overview of what you'll see, where we will stop, the people and communities we work with, the various types of trees planted, and answers to frequently asked questions.



An investor stands with a young mahogany tree during our first investor trip in 2008

“Coming along for the ride as an investor has been a rare opportunity.”

— Anish

Panama and the Darien

Investment climate

Over the past five years, Panama has demonstrated [some of the strongest growth in Latin America](#). The International Monetary Fund forecasts growth of 7.4% for 2011, one of the highest in Latin America. As a hub for international trade, Panama derives roughly two thirds of its GDP from the services sector, including commerce, banking and tourism.

Rich biodiversity

Panama is one of the most biodiverse areas on earth. The isthmus rose from the sea over three million years ago and became a biological bridge, allowing plant and animal species to migrate between North and South America. The Darien is recognized as a particular hotspot for biodiversity, but is [threatened by deforestation](#) and development.

Inequality

While Panama's economy as a whole is booming, poverty is still a persistent problem in the *campo*, or countryside. Rural subsistence farmers and indigenous peoples living on a few dollars a day often resort to clearing rainforest to plant subsistence crops and breed cattle. Access to middle-high school education is limited and costly for most rural families, and many communities lack basic services such as electricity and running water.

History of Darien

Facing population pressure in the interior provinces, the Panamanian government opened up the Darien province for settlement around 30 years ago. This led to a rush on land and resources that has resulted in the deforestation of some of the world's most biodiverse rainforest. Indigenous communities like [Arimae](#) now have seen their traditional land holdings dwindle dramatically as migrant farmers eat away at the remaining accessible forests.



The Panama City skyline has grown over the past five years, thanks to a strong investment climate



Virgin jungle like this in Arimae's reservation is increasingly under threat from illegal logging



Slash and burn deforestation being practiced in Arimae's reservation



Planting Empowerment employee Liriano Opuwa tends a young cocobolo tree

From the city to the *campo* - what you'll see on the trip



We operate in the Darien province, the last great frontier in Panama. Though occupied by indigenous peoples for ages, it has been settled by *campesinos* over the past 30 years. We work with both *campesinos* and Indigenous Peoples.



1. Deforestation

Depending on the "season", you might see the slash and burn deforestation practiced by farmers in the region. Population pressure makes this unsustainable and requires other income generating opportunities for local farmers.



2. Teak plantations

While better than cattle pasture, Teak plantations aren't sustainable. Would you consider this reforestation? What are the social impacts caused by the structuring of these plantations?



3. Sawmills and logging trucks

In Panama the majority of the [tropical woods](#) are milled before being exported. Many small saw mills are located on the way in and out of the Darien. How will they ensure a sustainable supply of logs?



4. Nuevo Paraiso

Migrant subsistence farmers founded [Nuevo Paraiso](#) about 30 years ago. These settlers were enticed by the promise of land titles through the clearing of land. We have leased land from two Nuevo Paraiso landowners to plant ten hectares of trees.



5. Arimae

[Arimae](#) is a mix of Embera and Wounan indigenous peoples. Organized under a collective land structure, land use decisions are taken by the whole community. Planting Empowerment has ten hectares of trees planted on community land.

Arimae

History

Before the extension of the Pan-American Highway, when the Darien was mostly jungle populated by forest dependent indigenous groups, the inhabitants of Arimae lived spread out over a large area. Communication between individuals was difficult and sporadic, so several families decided to establish a communal site where everyone could interact.

One of the family patriarchs was tasked with finding a suitable location, and after reviewing a number of potential sites he decided on the community's current location for a number of reasons including its proximity to the river. When the families asked for the location of the site they were told Arimae (loosely translated as "over there" in Emberá) by the river. The description was used so often that it became the community's name.

Dramatic loss of land

When the community was founded their holdings totaled over 72,000 hectares of virgin forest. From 1969-1981 Arimae [lost over 64,000 hectares of land](#) to illegal logging, migrant farmers, and the extension of the Inter American Highway. The community of Embera Puru was established as an outlier to monitor and protect the reserve's borders from further invasion. Today the two communities manage approximately 8,000 hectares of land shared between their residents.

Leasing overview

Planting Empowerment maintains 25 year lease contracts with the Agroforestry Association for Integral Community Development (ASOADICO), the joint community organization responsible for managing the reserve of Arimae and Embera Puru. The organization uses the lease payments to fund community projects and legal services to protect its reserve from illegal loggers and land invaders.

"We'd never done a project of this magnitude before; it's a commitment that can have a great impact in our community."

Agroforestry Association for Integral Community Development
Arimae

Liriano with his daughter Lisneika Opua



Elivardo Membache, Head of the Organization of Collective Indigenous Reservations in Panama, shows visitors where *colono* squatters are deforesting Arimae's rainforest reserve

Nuevo Paraiso

History

[Nuevo Paraiso](#) is located in the Rio Congo region, a large valley split by the Congo River. The village was founded about 30 years ago by migrant farmers from Panama's interior provinces.

In the early days there was no road from the Pan-American highway, so the trip often took days and was punctuated with knee deep mud and impassable rivers. The people of Nuevo Paraiso are mostly subsistence farmers and cattle ranchers who depend on the exploitation of natural resources for their livelihoods.

Pioneering spirit of the frontier

Meaning "New Paradise", the community embodies the ideals of a frontier community - optimism, chutzpah, and an enterprising approach to work. But because of unsustainable management practices, farmers erode the value of their chief asset and source of income, and often migrate to new tracts of old growth forest to continue the cycle of slash-and-burn agriculture.

As rainforest resources dwindle and farmers begin to recognize the need for better management techniques, we are working with farmers in Nuevo Paraiso to reorient their ideals towards a more sustainable kind of development - one that produces both economic and environmental benefits.

Leasing overview

We lease land from two subsistence farmers in Nuevo Paraiso - Juan Cruz and Francisco "Chico" Cruz. With each we have signed 25 year agreements to carry our reforestation and harvesting on a small plot of their land. Juan and Chico receive monthly lease payments to their savings accounts, and will receive profit sharing when the stands begin to produce timber.



Damian and Flaudia of Nuevo Paraiso with their son Ivan

"As I get older I'm not able to work. Partnering with Planting Empowerment has helped me out a lot."

Juan Cruz
Partner
Nuevo Paraiso



A group of Nuevo Paraiso workers take a break from planting trees during the 2008 Adelante project planting

Management Approach

Native Species Model

Planting Empowerment is helping to sustainably meet the [growing demand for tropical woods](#). Planting several varieties of trees protects investors from market overexposure to a single species and reduces our need to use chemical controls against pests and disease. Planting several species strengthens the overall genetic diversity of the stands and encourages the regrowth of native flora and fauna.

Agroforestry

Recently we began [intercropping plantains](#) between the rows of trees. These crops are generating revenue in the short term while our trees develop. This system also produces cost efficiencies from cleaning both the crops and trees at the same time.

Low impact

Planting Empowerment aspires to more environmentally friendly and cost-effective management by limiting the amount of chemicals we use.

While this does mean that some trees succumb to disease and pests, we believe that this approach will enable more consistent long term results by protecting the health of the soil.

Recently [we began producing biochar](#), a form of charcoal that can increase the effectiveness of fertilizer. It's also a great way to use the fallen trees and branches that are normally a nuisance.



A worker plants a spiny cedar tree during the 2007 Friends and Family project



Gumer finishes up some fencing work in the Nuevo Paraiso Adelante plantation



Yellow-wood saplings in trays await planting during the 2007 Friends and Family project

We strive for a smarter kind of forest cultivation - one that delivers exceptional growth while promoting community participation and reducing our need for chemical controls.

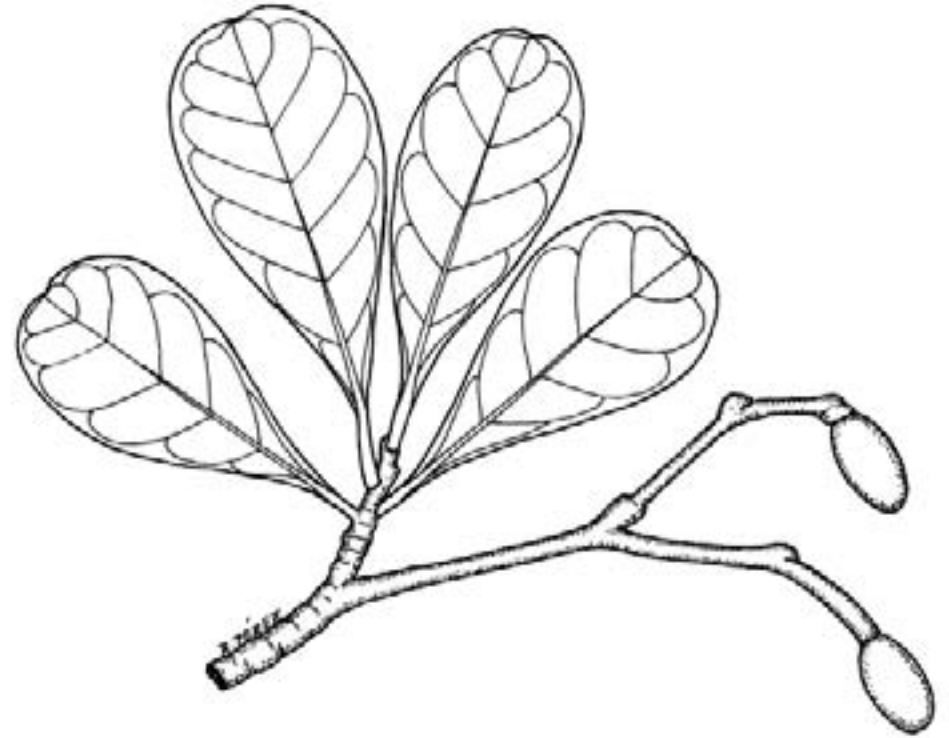
Tree Species



Almendro (Tonka bean)

Dipteryx oleifera

A tall forest tree with an immense, straight trunk with rounded buttresses. The bark is yellow colored and densely granular. Leaves are compound, usually with 11-13 leaflets that alternate with one another. The wood is extremely hard, and used in flooring, railroad ties, boat keels, and bridges.

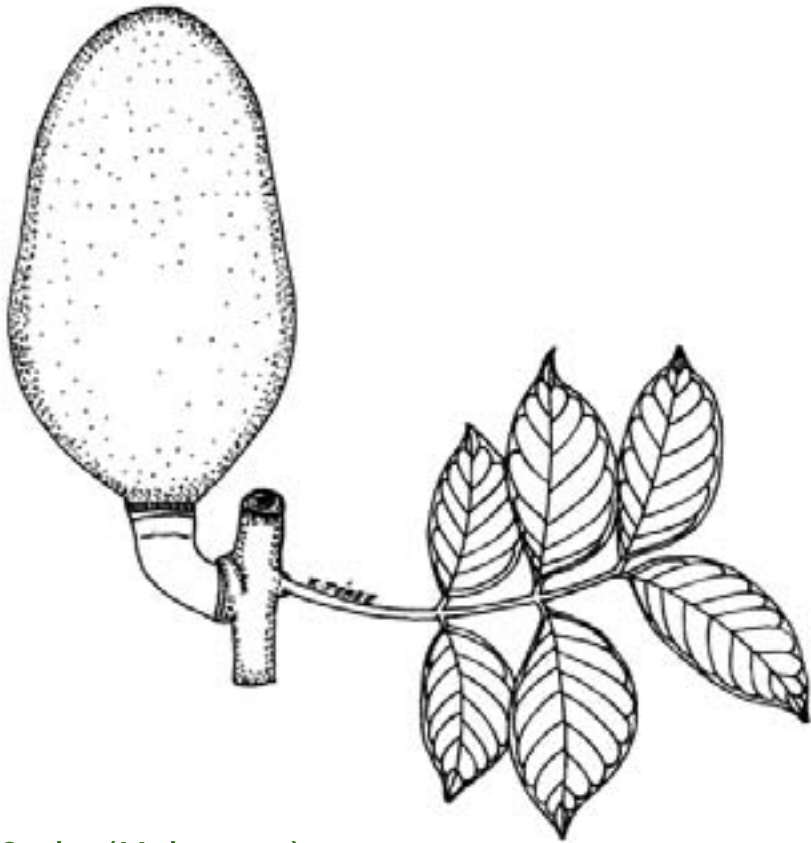


Amarillo (Yellow-wood)

Terminalia amazonia

Between 20-40m tall. Trunk is gray or chestnut color, sometimes with vertical fissures. The wood is used for carpentry, woodworking, furniture construction, tool handles, bridges, and flooring.

Tree Species



Caoba (Mahogany)

Swietenia macrophylla

Mahogany is one of the world's premiere furniture hardwoods. Old growth trees can reach 40m in height and 1.5m in diameter. Its crown is rounded with extending branches. The wood is of excellent quality and used in fine furniture construction, woodworking, instruments, and architectural carpentry. The tree does not fare well in single species plantations, due to attack by the shoot-borer (*Hypsipyla grandella*), which leaves the tree forked. Extensive pruning of young trees and planting in low concentrations are necessary.



Cedro Amargo (Spanish Cedar)

Cedrela odorata

A tall canopy tree, with a straight, cylindrical trunk; large trees have plant buttresses at the base. The bark is light brown or gray. The wood makes beautiful furniture, and is naturally termite and rot resistant. The wood is usually considered next in value in the new world after its relative, the mahogany.



Cedro Espino (Spiny Cedar)

Pachira quinata

A tall tree with a large trunk and fairly large buttresses. Small and mid-sized individuals have sharp spines, slightly curved at the tip; in large trees, spines can be sparse, but there are usually at least some present. The wood has excellent working properties, and is used in the construction of fine furniture, doors and architectural woodworking. The flowers are steeped in hot water to create a tea that eases cough. Spiny cedar grows very well in plantation.



Cocobolo (Rosewood)

Dalbergia retusa

A medium-sized tree with a straight trunk that is usually cylindrical trunk but somewhat rather irregular, and which frequently branches near the base. The bark has clear vertical fissures. The wood is hard, heavy, and lustrous in color. The indigenous Embera and Wounaan peoples are famous for their fine carvings of native animals. The wood is fine with a reddish brown color, and is naturally oily. Because the tree does not have a straight trunk, cocobolo is used mostly for smaller items like furniture, jewelry boxes, artisanry, and tools. The cocobolo's roots fix nitrogen, which improves soil quality.

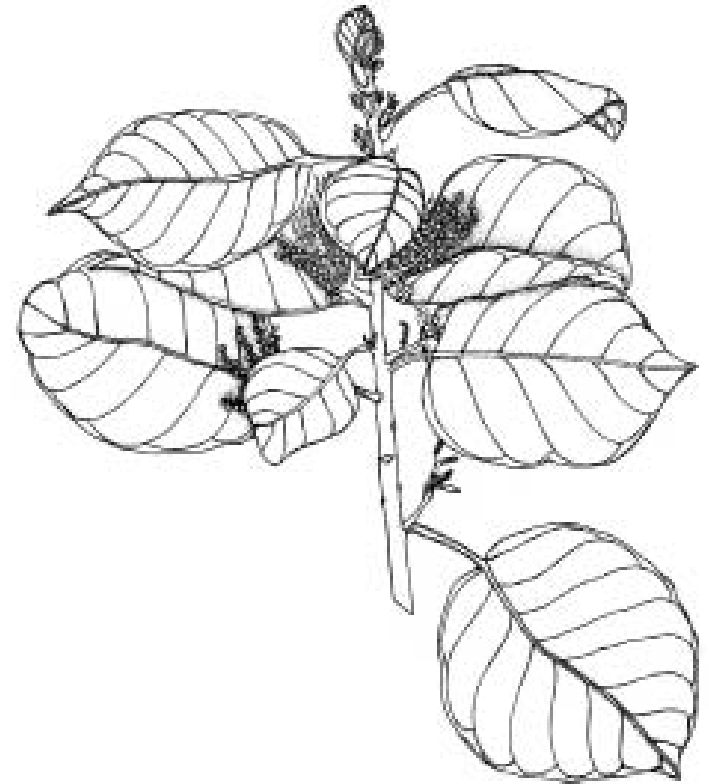
Tree Species



Teca (Teak)

Tectona grandis

Teak is alien to the new world, but has performed very well as a plantation species since its introduction some 100 years ago. Its high quality and rot resistant wood, and consistent demand make it one of the most valuable timber species in the world. The wood is commonly used for furniture, decking and boats. Teak can grow very tall with a straight trunk. Leaves are very large and broad, opposite. Teak are completely deciduous, losing all their leaves for much of the dry season. As a pioneer species, teak prefer open areas with plenty of sun, and require careful cleaning their first few years.

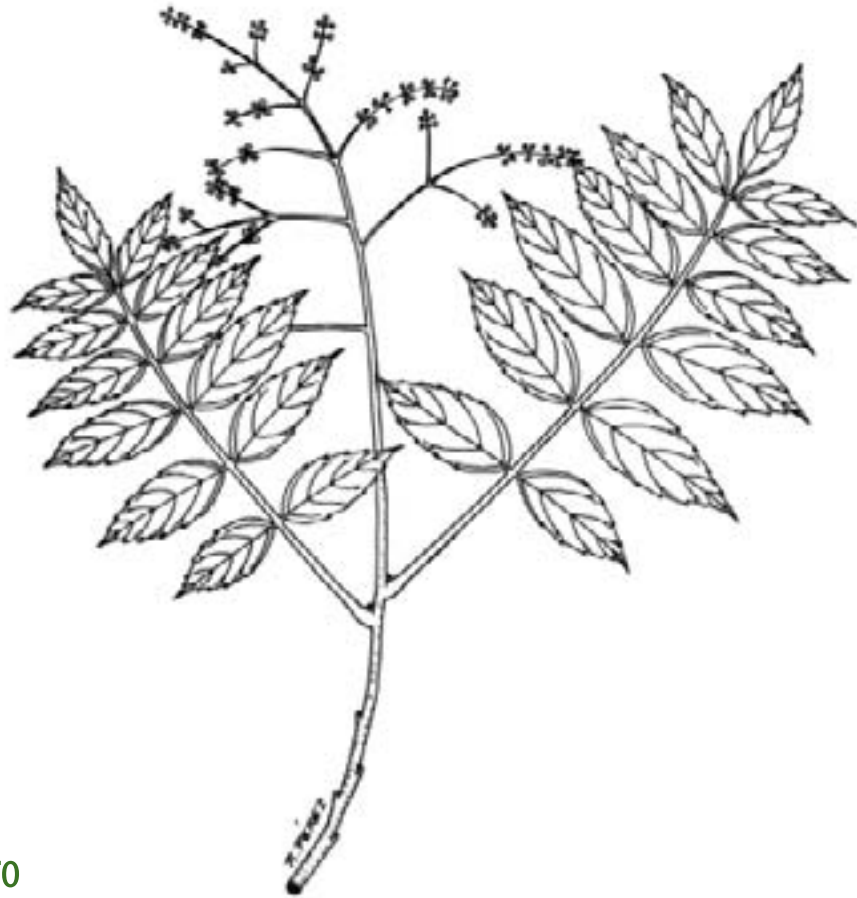


Zapatero

Hieronyma alchorneoides

A tall tree with a straight, cylindrical trunk, light yellowish in color. Zapatero wood is heavy and used in many types of construction, bridges, posts, and railroad ties. Oils from the seeds are used medicinally as well as an anti-helminthic.

Tree Species



Zorro

Astronium graveolens

A tall canopy tree with a straight cylindrical [sic] trunk that is only slightly swollen at the base. The bark is dark gray, but peels off in pieces revealing large, light-colored circles of inner bark. The wood is extremely high quality and widely used for tools, furniture, and carpentry.

What social and environmental benefits do the forestry plots produce?

Most forestry businesses in Latin America buy up large tracts of land to establish monoculture tree plantations. This practice displaces local inhabitants, usually pushing them further into the rainforest to begin homesteading a new plot of land. It also divorces them from future returns from the timber plantations. Planting Empowerment practices a different model. We don't buy land, but instead lease undervalued parcels of privately owned land. Our lease payments provide much-needed income to poor landowners, and encourages them to stay connected to their land. Additionally, we share a significant portion of our profits from the timber produced with them, providing an additional incentive to become better stewards of their natural resources. Without our local partners, we would not be in business.



A visitor stands next to a giant quipo tree during a hike through Arima's reservation

Planting Empowerment seeks to improve the economic opportunities of its local partners through the land lease model. But we also strive to involve local Panamanians in all aspects of the business, with the goal of working them into managerial roles as their skills develop. To this end, we financed a baseline study of the communities in which our plantations are located. Future studies will help determine the business's economic and social impact on these communities.

Environmentally, we distinguish ourselves from other forestry businesses by planting 70% native tree species. These are trees that locals are familiar with, and that require fewer chemical inputs to achieve strong growth. Native species naturally attract more flora and fauna to the area, and one can easily see nature's

diversity when passing through the plantations. We also allow the understory (natural vegetation) to flourish among the trees. This prevents harmful insects and blight from spreading easily by providing a natural barrier between rows of trees.

If the trees die, what happens?

Planting Empowerment Investors do not own individual trees, but rather a pro rata share of a larger forested tract. This spreads the risk across a larger pool of trees. During the first three years of a tree's life, they are most susceptible to premature mortality. Special care is taken to ensure that they establish a sound root system and straight growth. Should a higher than usual die off occur in the first three years, Planting Empowerment replants the lost trees. After that, the smaller and less commercially promising trees are periodically culled (thinned). Like most legitimate forestry businesses, we assume that less than half the trees we plant initially will be harvested commercially. Planting Empowerment maintains at least 5% of its total area under cultivation as an insurance pool, should anything happen to contributors' trees.



A young mahogany tree grows skyward

Are you bringing back the rainforest?

30 years ago, the Darien province was mostly old-growth rainforest. When the area was opened for homesteading, this complex ecosystem, which had been developing for thousands of years, was drastically altered. Deforestation, agriculture, and cattle ranching have caused irreparable damage to the Darien. Even the secondary forests that are starting to grow will not match the biological richness of the rainforest that once thrived. Planting Empowerment is not in the

FAQs

reforestation business. The trees that we plant will be harvested over their 25 year growth cycle. We believe that our forestry projects do benefit the environment in a number of ways, however. Most of our tree species are indigenous to the area, and help to replenish soil fertility, prevent erosion, and regenerate habitat for local flora and fauna. During their lifetime, each hectare (2.5 acres) of trees sequesters approximately 150 tons of carbon! Our business model was designed to slow deforestation by decreasing our partners' economic dependence on it. For this reason we lease land instead of buy it, involve our partners in all aspects of the operations, and share our profits with them.

Why don't you buy the land where the trees are planted?

We believe that buying land outright from poor Panamanians perpetuates the cycle of slash-and-burn development. When a farmer is displaced with a lump sum of cash, there is a strong temptation to reinvest that money into homesteading another parcel of old growth rainforest. Our model strives to keep locals on their land, and connected to the future income stream of our timber plantations on their land. Before entering into partnerships with locals, we analyze their opportunity cost of cultivating subsistence crops or breeding cattle, then pay a small premium above this. In this way, our partners benefit more by staying on their land versus cultivating old-growth rainforest.



Jose "Ino" stands next to a three year old Teak tree in the Adelante plantation in Nuevo Paraiso

Do you lease all the land of your partners?

No. We only lease parcels of their land that are already deforested and currently offer them little economic benefit. These lands were previously worked for growing crops or breeding cattle. Our goal is not to make our partners completely dependent upon our lease payments, but to demonstrate a more sustainable way to profit from their natural resources. By only leasing a small part of their property, our business provides a way for them to compare the benefits of their traditional income-producing activities with a new model. After living and working in Panama as Peace Corps volunteers, we came to understand founders are aware that new ideas must be established first at the grassroots level. We believe that as our partners see the continuing economic benefit of our partnerships, they will embrace more sustainable livelihoods.

How secure are the lease contracts with your local partners?

When a local partner enters into a leasing contract with Planting Empowerment, he signs a legally binding agreement. This grants PE exclusive land-use rights to the parcel for 25 years. This document is inscribed into the public registry. The contract:

- Lays out the lease payments to be made to the partner of the 25 year period
- Guarantees PE the first right of refusal should the partner decide to sell his property
- Restricts PE to carrying out only forestry projects on the land
- Prevents local partners from felling new forests to lease more land to PE