



# Forest Values

## Innovative partnerships for forest restoration

Biscuits made from the Maya Nut, topped with chocolate from the mountain range that provides the largest habitat for the quetzal? Using sustainable value chains to create alternate sources of income and protect forests in the long-term - this is the way that was chosen by the project “Forest Values”. The products are already there so the focus must be on improving the value chains as well as finding a working sales concept. Just recently, a pioneering German chocolatier used raw ingredients from the project to produce satisfying, high quality chocolate. Additionally, several hundreds of hectares were reforested and enriched with native timber species. The first couple of steps have been taken.

### Second newsletter – October 2017

“Even my neighbours told me my cacao was great when they last visited.” And “Strong aroma of red berries (ripe cherries and blackberries). Topped off with a note of whipped cream and spices.” – Two quotes that describe the same thing: the cacao from the Forest Value project areas in Guatemala. The first one is by Don Sergio Coy, a man who always wanted to work with cacao and now cultivates different cacao species on his 3,000 square meters of land, using agroforestry systems. When the predecessor of Forest Values gave him the chance to live his dream, he seized the opportunity, which will go on to benefit his children, since these cultivation methods are efficient and sustainable in the long-term.

The second quote, which could be by a wine sommelier, comes in fact from Georg Bernardini, an expert on the subject of fine cacao and exquisite chocolates. He is the author of two books “Chocolate – the Reference Standard” and “The Chocolate Tester”, and was the first to create chocolate using cacao from the project.

And he gave it his seal of approval! Having tasted more than 6,000 different kinds of chocolate from all around the world he can now add Forest Value – chocolate to his list.

Naturally, “Forest Values” is not only limited to the cultivation, processing and marketing of cacao but also focuses on diversity – this starts with the cultivation. Besides agroforestry systems cultivating additional fruit and timber trees, the cultivation and harvesting of the Maya Nut (Ramón) and honey have been added as part of the project. As with cacao production, things have changed in the ways these two raw materials are grown: and the project is already working with 693 families from over 30 communities. Consequently, up to 8,451 kg of honey a year are produced in the Forest Values project communities and only this July, the first batch of Ramón was harvested, amounting to 227 kg. Equally important is the focus on reforesting local areas using native tree species. In order to keep on closing the gaps in the years to come and create new agroforestry systems, several tree nurseries have been established. As these are partially run by families, qualified staff provided appropriate training for the local people.

However, value chains are not just about cultivation and processing, the marketing aspect is equally important and the first contacts have been established, which can be expanded on in the future.



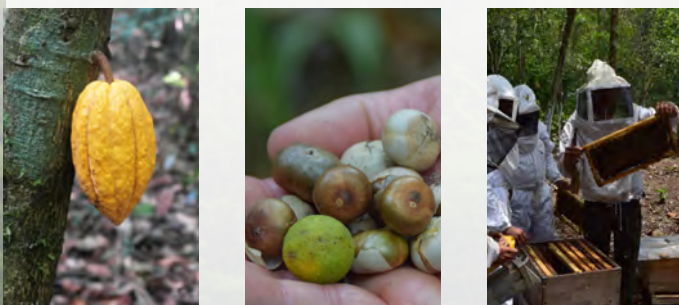
# 3 protected areas – 3 products for conserving the forest



All three project regions are protected areas of high biodiversity: the national park Sierra del Lacandón, Sierra de las Minas biosphere reserve and the wildlife protection area Bocas del Polochic.

OroVerde and its partners are active in three different project areas that could not be more different from one another and yet supplement each other nicely.

## National park Sierra del Lacandón



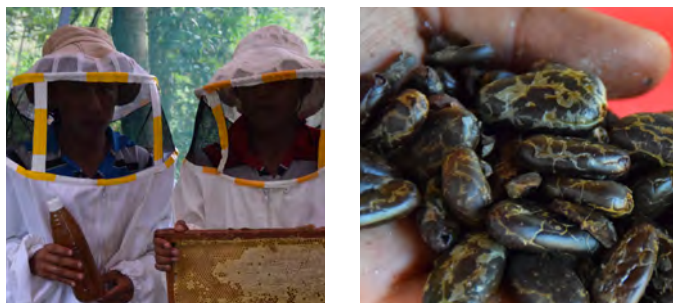
Cacao, Ramón and honey - all three of these are products from the national park Sierra del Lacandón.

This national park in the northern region of Guatemala was first established in 1990 and is part of the UNESCO Maya Biosphere Reserve. It consists of low and highland rainforests, wetlands and grasslands. The tropical rainforests of the core zone, for example, are the habitat for the ever shrinking jaguar population. Over ten communities are within the borders of the park, and were already established there before the area was put under protection.

Forest Values is working in cooperation with the locals in order to offer alternatives and opportunities to the people and ensure the protection of the forest.

The production of cacao in the agroforestry systems of the families is still in its infancy: the trees are young and do not yield large amounts of fruit yet. Honey production on the other hand is well established in Sierra del Lacandón; the beekeepers are well known and appreciated by everyone. The third product from the park is a local speciality: the Maya Nut (known as Ramón) is rich in protein and gluten free. The ground nut can be used in a wide range of products such as cakes, biscuits, bread or drinks. As Ramón trees only grow in the tropical lowland rainforest, the seeds for the project have to be gathered there. Two cooperatives (mostly women) collect the seeds and sell them for extra income.

## Sierra de las Minas Biosphere Reserve

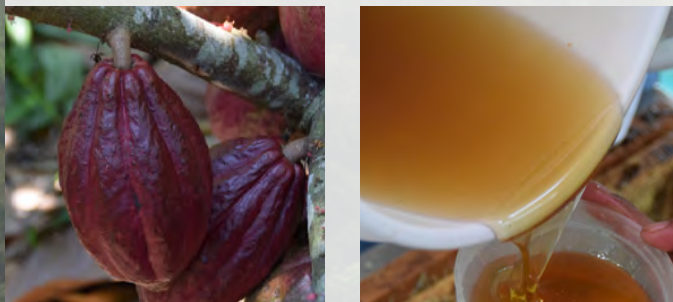


In the Sierras de las Minas biosphere reserve families make a living from growing cacao and beekeeping.

In eastern Guatemala lies the Sierra de las Minas mountain range, where biodiverse cloud forests grow at heights of up to 3010 m. In addition to providing the habitat for over 885 bird, reptile, amphibious and mammal species, the mountains also are the largest habitat worldwide for the rare resplendent quetzal, the national bird of Guatemala. On top of that, more than 60 rivers originate here securing the water supply to the region.

At least 200 communities are based here and the ones participating in the Forest Values project cultivate cacao in a number of agroforestry systems. The cacao production in these mountains is so advanced that the quality of the fruit is recognized by German experts. Aside from growing cacao, they produce honey, whereby up to 11 kg can be gained from one hive.

## Wildlife protection area Bocas del Polochic



In the region of Bocas del Polochic, people support themselves by growing cacao and keeping bees in agroforestry systems.

The river Polochic is the lifeline of the Bocas de Polochic wetlands, which starts at the foot of the Sierra de las Minas range and merge into Lake Izabal. Amongst others the rare manatees can be found here. Due to the international importance as a waterfowl habitat, the region was internationally recognized as a UNESCO RAMSAR wetland site. In this region too, local people grow cacao and produce honey.

# From Maya Nut to reforestation – projects are showing success

One of the first activities at this location was for qualified staff to inform the local farmers about the transition from conventional farming to ecological, diverse use of the areas, which leads to positive effects such as higher yields from the harvest or lowered susceptibility to pests and disease. Furthermore, sustainable use does not exhaust the soil as is the case with monocultures. The farmers can grow different crops on their lands to cover their own needs and sell products for profit, without having to venture any deeper into the forest.

693 families from more than 30 communities are involved in this stage of the project and support the activities by producing honey, gathering Ramón and expanding and improving the agroforestry systems.



An agroforestry system after 5 years: several varieties of cacao growing beneath larger shade trees.

The most important achievements to date:

## Beekeeping

- Training workshops for community members have been successfully conducted – enabling the people to produce honey on their own.
- A total of 314 people are involved.
- All three regions combined have a total output of 8,451 kg honey a year.

## Maya Nut

- Thirty-six families in two cooperatives are taking part.
- A first harvest in July yielded 227.5 kg Ramón.

## Forest restoration

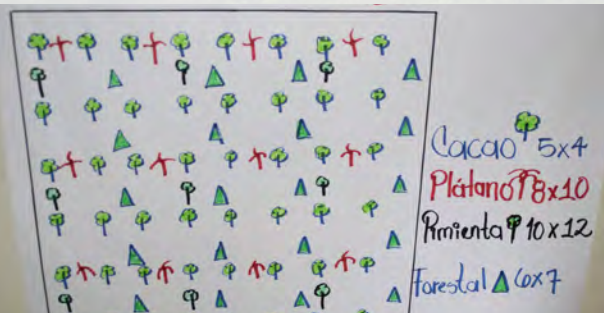
To date, 287 ha of degraded forest and secondary vegetation in the national park of Sierra del Lacandón have been rehabilitated with native tree species, such as Mahogany, Santa Maria and Zapote. These species not only significantly contribute to the forest structure but also function as an important timber resource for future sustainable use. To guarantee this, the farmers are actively

involved in maintaining these trees, especially during the drought season when forest fires become more frequent. In the wildlife protection area of Bocas del Polochic, native species such as Mahogany and Spanish cedar were planted to re-establish riparian forests. About 1400 trees were planted and have shown promising growth.

In several communities, tree nurseries have been founded to provide saplings of native trees, which can be utilised to build up further biodiverse agroforestry systems in the area.

## Biodiverse agroforestry systems

As they provide additional products and therefore more income, agroforestry systems are becoming an increasingly interesting alternative to be used aside the forests. The project promotes biodiverse agroforestry systems that mimic the species-rich layered system of the forest. This means they can fulfil important functions in the ecological system. The specifics of the individual agroforestry systems come down to factors such as soil properties, slope inclination, as well as the overall layout of the area and the personal interests of the farmers. On average 450-600 cacao saplings are planted per ha, contrary to the 1,200 plants per ha, which is the common amount for conventional monoculture plantations. Thanks to close cooperation with the local people, this has resulted in apparent changes in cultivation techniques in the project regions.



An example of the planting design for an agroforestry system: cacao, bananas, allspice and native timber species.

In total, 42 ha of cacao agroforestry systems have been established in Sierra de las Minas; in Bocas del Polochic, it is 10 ha for now, with another 40 ha scheduled this year. The tree nurseries in Sierra del Lacandón produced more than 78,000 cacao saplings, which will be used to create another 140 ha of agroforestry systems in the following months. Besides establishing new areas, the project also involved taking care of older systems already in existence by removing overgrowth and replanting where necessary.

# Mastering the challenges of growing cacao

Growing cacao in biodiverse agroforestry systems is one of the key activities of the Forest Values project. The efficient technical support provided by the project is used to evolve production techniques, with increasing emphasis on marketing strategies for the cacao. First, this required a thorough analysis of the cacao market. Several studies were conducted to investigate the value chains. Based on the results, business plans were developed, containing predictions regarding production and market development on a national and international basis.

Additionally, the local project team designed activities to provide technical support for adequate farming in the agroforestry systems of Sierra de las Minas and Bocas del Polochic. Amongst these are the reactivation and improved management of the existing agroforestry systems by appropriate shade management and cutting the trees into shape. It had already been previously shown that by correctly pruning the cacao trees, production can be increased significantly. The farmers are often hesitant about cutting the trees, as they fear they will lose parts of their harvest.



On the cacao trees in agroforestry systems one finds not only cacao fruits, but often different animal species. Right: The flowers of the cacao-tree grow directly on the trunk.

In fact, the opposite is true, as demonstrated by farmer Macario Chub Xuc from Sierra de las Minas. There qualified staff were able to provide evidence of an increase in yields, after the trees in the area had been managed accordingly.

In 2017, more than 6,135 kg of fresh cacao beans originating from Sierra de las Minas have been sold so far. They fetched a price of €0.79 € per kilogram. A small percentile was also sold in the form of dried cocoa beans, at around €1.78 per kilogram.

As a comparison: the current price for cacao on the world market is about €1.63/kg.

The farmers from Bocas del Polochic were able to sell most of their cacao, about 4,545 kg in its natural form, at a price of €37.38 (325 GTQ) per forty-five kilograms.

## From harvesting to raw cacao

The process between harvesting and the raw cacao, which can be sold and processed is a long one. Right after harvesting the beans, they have to be fermented inside a fermentation box, where the beans undergo several biochemical reactions, resulting in bacteria and yeast breaking down the pulp of the fruit. During this time, the beans have to be turned over and ventilated regularly. The next step is to dry them which can take up to three weeks.

Once humidity percentage is at only 6% of the beans, they can be stored and called raw cacao.

The communities in question do not yet have the necessary infrastructure to allow for any further value creation from the product on site.



Freshly opened cacao fruit. Right: The cocoa beans are still surrounded by white fruit pulp.

## Promoting the potential

Right now the sale of cacao from the communities is almost entirely in its natural form, as the only things to consider are harvesting on time and the market availability. This way they get their pay instantaneously by selling to an intermediary. The downside is that they could get a much higher price for the product, if they were to process the cacao themselves. The challenge is the availability of working capital. This serves the purpose of being able to pay the farmers when they sell their cacao without it being marketed. In order to achieve better conditions for the small-scale farmers on a permanent basis, it is not only necessary to create the infrastructure, it is equally important to provide capital for purposes such as direct payment of the farmers at the time of their harvest.

As part of the project, two fermenting and drying facilities are currently being built, from which the local team expects a resulting value increase for the product. Because of their strategic location and their production potential, the people in charge picked one community in Sierra de las Minas and one in Bocas del Polochic as construction locations for these facilities. The surrounding communities will benefit from these measures as well, since all producers will have access to the facilities.



This is how it all starts: Cacao saplings in a tree nursery (El Estor, Bocas del Polochic).

# First contact with cacao marketing

The families participating in the Forest Values project in Sierra de las Minas and Bocas del Polochic, mainly make a living by selling corn, beans, coffee, cardamom and, to a small extent, cacao. This does not generate enough income to cover their basic needs throughout a year, so many take out a loan from banks and corporations if possible. Others have to sell their crops in advance at lower prices to cover their expenses in low-income months.

## Financing needed for the cacao sector:

- Working capital for local committees, to buy the harvest from the producers or pay them when delivering to the fermenting and drying facilities.
- Financial support for local committees, to construct and maintain tree nurseries for cacao saplings that can be sold to interested farmers, with the goal of founding new agroforestry systems.



Drying facilities such as this f.e. are needed for further value creation from the product on site.

## Establishing connections with important players in the cacao industry

In Bocas del Polochic, the local partners, Defensores de la Naturaleza and Heifer International Guatemala, conducted talks with three renowned organisations that specialize in selling cacao and other local products like honey and coffee. Each of these has a different focus and different business approaches, meaning that the options for cooperating have to be checked individually for each of the organisations. This is the only way of achieving successful community development.

We have been cooperating with FEDECOVERA (who specialize in processing and marketing agricultural goods) in the areas of training and advice from qualified staff, for some time. In addition, experiences are shared. They themselves are interested in purchasing the cacao, but some details with regard to marketing still have to be worked out.

The local organisation APODIP focusses on building up infrastructure but does not have any working capital of its own. The goal is to adjust to the needs of the local population as fast as possible and locally improve the value of the products to increase their overall worth on the national and international market by providing suitable organisational structures.

The company Cacao Verpaz has a strong foothold in the cacao market and readily available capital. Communication has just begun, however, they voiced their interest in purchasing this and future harvests from both Sierra de las Minas and Bocas del Polochic.



Large scale fermenting (left) and drying

## Confirmed quality

OroVerde is networking with organisations and people in the cacao market. On the one hand, we hope to find investors who will buy the cacao from Guatemala and, on the other hand, we want to promote the idea behind the product; ecological cacao farming as a way to protect the rainforest in the long term and establish biodiverse agroforestry systems instead of monocultures!

Currently, OroVerde is working with the chocolatier Georg Bernardini from Bonn, who used the cacao from Sierra de las Minas to produce chocolate samples, "I like it," he said. The aroma is well developed. I would describe it as having the aroma of red berries (ripe cherries and blackberries). Topped off with a note of whipped cream and spices."

The cacao has passed its first test! The next step is to ensure the same quality for the rest of the regions and communities. Not only the proper cultivation is crucial for achieving this goal, but more importantly, the post-harvest treatment of the beans, which means they have to be processed as soon as possible once harvested.

# Voices on cacao from Guatemala

## An interview with Don Sergio Coy (from the “Rancho Grande” community, Bocas del Polochic)



Local farmer Don Sergio Coy is proud of his agroforestry farming and happy that he can work with cacao.

“I’ve owned this plot with cacao for about three years. It has 3,500 square meters. I used to only grow fruits and vegetables like bananas, mangos, avocados and such but since the project started, I have been specialising in cacao. I’ve always wanted to grow cacao, so the project was a great opportunity. We harvest from November until April/May. It’s really tasty and we use it for our own cooking as well: for example, we like eating rice pudding with cacao. Even my neighbours told me my cacao was great when they last visited. Working with cacao has made me very happy and I gladly accept any help offered by the project and its partners. We can say for certain that the really important accomplishments of our work will take some time to show. We might not even be there to see them but our children will be!”

## Interview with Luis Barrientos (works for Defensores de la Naturaleza):

“Cacao is especially well suited for agroforestry systems because it’s a plant that will grow until it’s a small tree of maybe ten meters height but it still needs bigger trees for shade. Guatemala is a country with lots of forested areas, so it’s a perfect match that is why we urge farmers to grow cacao instead of corn.

The families used to cultivate corn and beans on these plots but eventually the soils degraded and became unferile. Utilising agroforestry systems, they want to regenerate the fertility. Cacao is only the beginning really: obviously there is much more fruit and timber to be grown. Depending on the climate and the elevation of the respective communities, harvest here (Bocas del Polochic) starts in October/November. However, the peak season for harvesting is in March/April.

There are mostly younger trees in this area, which is why the time for harvest is a bit short. With older, more productive trees the season for harvesting goes on a bit longer.



Luis Barrientos from Defensores de la Naturaleza explains how an agroforestry system with cacao works.

Once the harvest is over, the next thing to work on is pushing productivity for the next season by doing maintenance work for the individual trees. Cutting back branches and similar jobs to ensure better results for the next season.”

## Community recipes with cacao

### “Cacao garapinado” (cacao glacé)

#### Ingredients:

450 g roasted cacao-beans

Half a cup of water

Cinnamon

2 cups of sugar

#### Preparation:

Put all of the above ingredients into a pot and heat until caramelized.

Spread onto a board or plate and let it cool.



“Cacao garapinado” is one of the recipes used in the communities.

# Forest Values experts: 3 days, 35 participants

In early May, the first official meeting of the Forest Values team took place in Guatemala; thirty-five people, three days, three organisations and two countries. The first workshop turned out to be a great success. Not just because everybody found out which person was behind each e-mail address, but because a lot of exchange was possible between the different people involved, especially those from the three project regions.

## Assessing the status quo and making plans

A novelty in this workshop: the teams from the different regions (Guatemala and Germany) presented their work by covering the walls of the conference room with graphs, data and numbers instead of using power-point presentations. To start things off, every project region made an individual presentation on the status quo of their value chains, decorating the room with detailed maps and factsheets. This allowed everybody to get a good idea of how things are.

## Identifying the key contacts

This part of the workshop focused on finding the key links within one's own value chain. Which contacts are already established? Who could make for a good cooperative and who qualifies as an irreplaceable expert for different topics? These and some other questions were spot on for the participants. Where do we need to catch up with contacts in order to maintain them and in what situations can we get help from our partners in other regions? The team from Bocas del Polochic thought of twenty people to talk to about cacao. Staff members of Defensores de la Naturaleza and Heifer international Guatemala are already in contact with some of them.



Contacts to several representatives is established.

## Value chains – improving the working capital

The community San Isidro desperately needs another drying facility to cope with its cacao load. In Sierra de las Minas, the organisational structure needs to be improved and it may be possible to set up a carpenter's workshop in every region. These could cover production of the beehives for local needs – as is already the practice in Sierra del

Lacandón. Those are the specific needs and structures that need to be clarified and set up.

The discussion went as far as speculating about producing overalls for the beekeepers. The workshop tried to identify potential for investment, in order to clearly see if there were any gaps. The Forest Values project is not just about value chains, the primary aim is to create sources of income for the local communities, as a basis for forest preservation. The vital point of this whole project is that the structures developed during the project will continue to exist when the project ends; they need to have a long life span, which requires careful planning and innovative ideas. During the workshop the necessity for financing became obvious. Whether it is a drying facility or a fermentation plant for a community, the need for financing and action is already apparent.

The OroVerde-team from Germany addressed possible investors when presenting the results of the Forest Values conference in November 2016. They talked about their first contact with representatives from sectors like banking or public administration. Stakeholders in Germany seem interested in the project and the goal of mobilising the private sector for investments.



The first meeting of the entire Forest Values team really pushed cooperation and the exchange of knowledge



## Capturing the unique moments

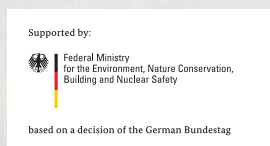
A “film crew” from all the partners involved travelled to the project regions during May. Taking photos and filming everything, including the production of honey, a boat trip through the wetlands of Bocas del Polochic and a hike in a mountain forest “hunting” for the quetzal: the cameras were locked and loaded the whole time!



The outcome consisted of over 2,500 photos and movies. Apart from the fascinating landscapes, the team wanted to document the different value chains of honey, Ramón and cacao. Therefore, the subjects to film were as diverse as the ecological systems. Everything was captured by the cameras ranging from a cacao cooking demonstration to the honey harvest in the mountainous regions, and the great view over the core zone of Sierra de las Minas. There, the team was especially lucky and spotted a quetzal, the Guatemalan national bird. At the end, one insight remained: taking a good photo is not as easy as it seems, it takes a lot of patience and effort. The results we got were definitely worth it though!

## Project financing

This project is part of the International Climate Initiative (IKI). The German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) supports this initiative based on a decision of the German Bundestag.



**Further information about the project:**  
[www.ooverde.de/restoration](http://www.ooverde.de/restoration)

## Contact

### In Guatemala:

#### Defensores de la Naturaleza (FDN)

4a. Avenida 23-01 Zona 14  
Guatemala-City, Guatemala

**Rudy Virgilio Bautista Miranda**  
ForestValues Project Coordinator

E-Mail: [rbautista@defensores.org.gt](mailto:rbautista@defensores.org.gt)



#### Heifer International Guatemala

4 Ave. A 13-73 Colonia Lomas de  
Pamplona zona 13,  
Guatemala-City, Guatemala

**Larry Paul**  
National Project Coordinator

E-Mail: [larry.paul@heifer.org](mailto:larry.paul@heifer.org)



### In Germany:

#### OroVerde -Tropical Forest Foundation

Burbacher Str. 81  
53129 Bonn, Germany  
Tel. + 49 (0)228 - 24 290 0  
Fax + 49 (0)228 - 24 290 55

**Dr. Elke Mannigel**  
International Project Coordination

Tel. + 49 (0)228 - 24 290 12  
E-Mail: [emannigel@ooverde.de](mailto:emannigel@ooverde.de)

