



ForestValues

Innovative partnerships for forest restoration

The ForestValues project has already achieved a great deal since it started three years ago. In 2018, 437 hectares of forest were regenerated. The value chains: cocoa, honey and Maya nut are continually being developed as options for sustainable and alternative land use. In addition, the organisational structures of small farmers are constantly being strengthened. Progress made on the ForestValues project is already been presented at an international level: at the Global Landscape Forum in Bonn. It was also present at the Climate Conference in Katowice.

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Making a long-term impact

Don Juan knows that if the next cocoa harvest doesn't turn out as well as this one, he'll need reserves to fall back on. He has also learned that cooperating with other farmers is equally as important as exchanging information with them. The only way to build up reserves is to be jointly organised. How can the foundation for a sustainable, economic approach be laid among small farmers who mainly live on subsistence farming? As small entrepreneurs, not only do they need good organisational structures, but within their organisations, they also have to manage their working capital themselves over the long-term, create reserves for new investments, spare parts or "bad times", and assert themselves on the market.

Achieving more together

Even though each individual farmer is first of all concerned with selling his product at a local level, promoting commercialization on national level is equally important. In addition to providing the small farmers, the already established local

committees and umbrella organisations with technical know-how, they are encouraged to look beyond their own immediate horizons. This is exactly where the ForestValues project currently stands. Four value chains have been established and, in addition to making processes more efficient, the main focus is on continually improving further processing and, in particular, ensuring that products are marketed in the medium to long-term. Although initial steps have been taken, the main priority is to strengthen and stabilise the organisational structures until the small farmers are able to implement the new skills themselves. Another extremely important aspect for farmers is to learn how intact eco-systems, diversification of their cultivation systems and sustainable sources of income are connected and how to write their own success stories using this model!



Left: Getting well organized for the harvest is important
Right: Small farmers delivering and weighing their cocoa



Protected areas – diversity with high benefits



Each of the three protected areas has its own characteristics: the Sierra del Lacandón National Park, the Sierra de las Minas Biosphere Reserve and the Bocas del Polochic Wildlife Refuge.

The three areas of the ForestValues project in Guatemala are unique, with each of them having widely differing forms of flora and fauna.

Maya country



Left: The ramón tree can grow up to 30 m

Right: The scarlet macaw – a symbol of Sierra del Lacandón



The Sierra del Lacandón National Park on the border to Mexico is characterised by its limestone soil and abundant biodiversity. It is home to the scarlet macaw, as well as to jaguars, tapirs and many others. Its lowland rainforest has many ramón trees (their fruit is known as the Maya nut). The ancient Mayans benefited from this tree species as do the communities participating in the project today. Some of project participants are involved in processing ramón seeds (Maya nuts), which are rich in nutrients, while others are also involved in beekeeping.

Biodiversity versus ‘green desert’



An abundance of biodiversity can be discovered around Lake Izabal – up to where the monoculture of the oil palm plantation begins



Several small communities are situated on the banks of Lake Izabal, some of which are difficult to reach. A large

area, covering approximately 8,600 hectares, of oil palm monoculture on the edge of its shores is one of the biggest challenges in this area. Yet, right next to it, the exact opposite can be found. Abundant biodiversity – everywhere you look, whether on and in the water, or in the adjacent forests: an unparalleled diversity of species. The same applies to the landscape where the two extremes could not be more diverse: biodiversity on the small ForestValues project farmers’ land opposed to a ‘green desert’ in the rows of the oil palm monoculture.

Quetzals and sustainable cocoa farming



Quetzals are not the only inhabitants of the Sierra de las Minas mountain range, small farmers are also growing cocoa in the buffer zone.

The core zone of the protected area in the Sierra de las Minas is exactly what many people imagine when they think of a rainforest: giant trees covered in mist and densely overgrown with epiphytes, ferns in every imaginable form. This area is one of the last places to serve as a refuge for the quetzal, the national bird of Guatemala. Indigenous communities cooperating on the project reside in the buffer zone around the strictly protected core zone of the conservation area. Many of the small farmers and their families involved in the project are particularly interested in growing cocoa and beekeeping as alternative sources of income. They benefit from the fact that the mountain cloud forest is the source of many streams and rivers.

In the light of current events:

This year, an unusually large number of forest fires have been reported in Guatemala, including fires in protected areas of the project. The fires were caused by people, for example to open up new arable land, and were additionally intensified by this year’s extremely dry season. This illustrates the importance of creating sustainable and alternative sources of income to avoid slash and burn methods that are harmful to the environment and instead promote income from forest-based, value chains. The ForestValues project, therefore, offers innovative models for more sustainable land use. At the same time, the ForestValues project provides support through its partner organisation Defensores de la Naturaleza, to the state conservation agency (Consejo Nacional de Áreas Protegidas, CONAP), in sighting forest fires, reporting them to official bodies, and containing them.



Cocoa farming in biodiverse agroforestry systems

Just under a year ago, 6,000 euros of donations made to OroVerde were used as a basis to set up an independent, revolving fund for small farmers' organisations in the ForestValues project to bridge the time between harvesting, processing and selling the cocoa beans. The cocoa harvest 2018/2019 finished in June 2019 and the last cocoa beans of the season were transported from the fermentation boxes to the drying plant.

The result: With advance financing for the harvest, a total of 17,550 kg fresh cocoa beans from 379 small farmers from 14 communities in the Sierra de las Minas and Bocas del Polochic project areas were bought and processed into 5,890 kg fermented and dried raw cocoa beans. Almost the entire production has already been sold to various buyers in Guatemala at good prices. Since the interim income from the sales has been reinvested in purchasing more freshly harvested cocoa beans, the 6,000 euros from the revolving fund has made a total of around 14,000 euros of direct crop income possible for cocoa farmers! In addition, wage payments for processing the cocoa has provided extra income in local communities. A resounding success for the ForestValues project.



Cocoa sales were a success for the small farmers. The buyer was extremely satisfied with the quality of the cocoa.

This was the first time ever that the small farmers in the project region have jointly processed and marketed their cocoa harvest from biodiverse agroforestry systems. All those involved learned a lot in the process and are highly motivated about preparing for the next cocoa harvest. Joint processing has resulted in the small farmers having a high-quality product (fine cocoa beans), whose quality has convinced even the most demanding cocoa and chocolate experts, such as Georg Bernardini. Other renowned manufacturers of high-quality chocolate are also excited about the "jungle - cocoa" (quote Georg Bernardini) and have already expressed an interest in purchasing it. The team is currently looking for further opportunities to top up the revolving fund. Unfortunately, there is not sufficient capital to completely buy up and process the increasing quantities from the harvest of all cocoa farms on the project. In future,

the aim is for the fund to also be available for investing in the other value chains of the project. The cocoa from the ForestValues project has already been classified as "fine cocoa" by various experts, which highlights its quality. The production of this cocoa was initiated from two different perspectives:

- a) Reactivating already existing agroforestry systems and
- b) Setting up new, biodiverse agroforestry system with the help of the project.

Reactivating productive agroforestry systems

The team identified the already established agroforestry systems in place before the ForestValues project, which had a low production rate due to incorrect management or neglect. As a starting point, the team used cocoa farming areas, which had been created 20-30 years ago in communities of Sierra de las Minas and near El Estor at Lake Izabal. Once the team had introduced better care and management in the agroforestry systems, production increased by 500% compared to earlier years. Native timber species, for example, were introduced which increased diversity on the areas and also provided a higher economic and ecological value. This resulted in various forms of production and sales within the communities' activities:

1. Small farmers' sales of fresh cocoa

Harvest period	Cocoa (kg)	Sales (USD)
2017 - 2018	5,792.27 kg	\$5,031,25
2018 -2019	17,337.72 kg	\$15,056,45

*The harvest period lasts from October to March

*The sales figures represent the net income directly received by the producers.

2. First harvest to be processed

The first time the harvest was jointly processed, 5.8 tons of fermented and dried cocoa were produced from around 17,337.72 kg of fresh cocoa beans. The cocoa farmers earned around EUR 17,172.76 Euros (USD 19,047.17) from the sales.

Sustainable forest management and Maya nuts (ramón)

Sustainable forest management within the ForestValues project also includes the use of non-timber products. This is currently being used in the La Lucha and Unión Maya Itzá cooperatives, which are both situated in the Sierra del Lacandón National Park, to develop the Maya nut (ramón) value chain. The Maya nut is a product that has been used since the time of the Mayas in the Maya biosphere reserve. In recent years, its popularity has grown and it is being increasingly marketed. Yet, despite this fact, the process of collecting and marketing the Maya nuts in the cooperatives within the Sierra del Lacandón National Park is still in the initial stages. This is associated with the lack of infrastructure required for the production of ready-for-sale Maya nuts. At present, it is families based in rural communities getting organized to benefit from Maya nuts within the biosphere reserve's zone of use. They demonstrate how using and marketing these ramón seeds provide an opportunity for their own, sustainable activity and, in particular, for a part of the population that previously had no access to the use of natural resources.



Maya nuts are gathered by hand in the periods from April to June and from September to November.

The process of this value chain begins as soon as the gatherers and producers (more than 100 families are currently benefiting from this activity) start collecting fresh seeds that have fallen from the ramón trees in the forest. After that, the seeds are sorted and washed in order to transport them. In some cases, the harvest is transported to another stakeholder who takes care of the drying, roasting and grinding processes. The result is two different types of flour depending on the degree of roasting. One type of flour is used for the processing of food and the other as a kind of "grain coffee". Cakes, tarts, traditional tortillas, biscuits and other sweet products can be produced from the first type and sold pre-packed to retailers on the national market. The products and other processed products from Maya nuts are mainly consumed at a local level. However, demand has increased on the international market due to the trend among consumers who increasingly prefer to buy 100% natural products. This is one of the important criteria of the value chain for Maya nuts and is in line with market trends.

The particular properties of the Maya nut provide nutritional benefits to the population with a high malnutrition rate: as a food, Maya nuts are gluten-free and 100% ecological since they come from natural forests in Northern Guatemala.

This activity has little impact on the natural environment and is relatively easy to carry out, as the nuts are collected from fallen seeds in the forest without damaging the trees in any way. Collecting the seeds is particularly attractive



Collecting is only the first step: processing the Maya nuts is important for food production

for women from all age groups and also for young men. Knowing the necessity of investing in developing this value chain, consulting and investment measures were carried out as part of the project. This was done to obtain the required licence and environmental tools from CONAP and the Ministry for the Environment and Natural Resources (MARN) in order to legally collect seeds on an overall area of 765 hectares of natural forest. In addition, investments were made in the infrastructure to build a seed collection centre and containers to wash the seeds (investments of around EUR 9,400 for each cooperative in 2018).



A large selection of products are available from Maya nuts (ramón) – ranging from biscuits to drinks

However, investments still need to be made in roasting and grinding equipment to obtain flour, in bakery equipment to produce bread and biscuits, and in building special facilities to process food which are currently not yet available. There remains much to do, but the first phase led to positive results for the harvest in 2018. The cooperatives earned EUR 1,839.06 from the sale of 3,088.63 kg.



The success story of honey

Beekeeping workshops are offered by the ForestValues project to promote apiculture and provide skills locally to the communities in setting up and caring for beehives. In the meantime, the honey is known as “rainforest honey” and its harvest has developed into the main product of the beekeepers of the ForestValues project. The increase in the beekeepers’ income and the consumption of honey in the families’ diet are among the most important success factors that have been achieved in the course of the project’s progress. Around 336 families, with an estimated 2,340 beehives, are currently benefiting from this production process. Particularly interesting is that some families, which are involved in beekeeping, are also working with biodiverse agroforestry systems. The project focuses on promoting and organising local, municipal and community-based sales strategies for wholesalers (in some cases) or for retailers with the help of honey, which the beekeepers bottle in line with good manufacturing practice, food safety and hygiene regulations.

Harvest and sales figures for honey at the end of 2018:

Harvest period	Product (Kg)	Sales (USD)
2018	19,257.2 kg	\$54,976.71

Beekeeping as a livelihood

Initially, Doña Albina was slightly sceptical about beekeeping and was afraid of being stung by the bees. However, that quickly subsided and she is now a successful



Doña Albina is one of the beekeepers benefiting from the ForestValues project.

beekeeper. She started with just two beehives, which has since developed into a total of thirty-four. In addition to honey, she has already sold offspring from her bee colonies, which buyers can then use to start their own beekeeping. She also supports the ForestValues team by answering any important questions related to beekeeping and the correct care of bee colonies, for example, on how to prevent the outbreak of diseases.

Doña Albina has long since internalised the business attitude. She is already calculating her own working capital

to buy new bottles or replace broken wooden crates. It is going so well that she sometimes even needs help in taking care of her bee colonies. And this success story is certainly not the only one among the beekeepers in the Bocas del Polochic region on the banks of Lake Izabal.

One brick for a bottle of honey

Abelino is a young man who is just 28 years old but he is already actively involved. Beekeeping, as a long-term source of alternative income, is already a fixed part of his everyday life. He also started out with two beehives and now has already more than forty. On his own initiative, he and his brother ensured that the bees would always have enough food. They set up an agroforestry system near to the bee colonies with many different trees and shrubs that make particularly good nutrition for the bees.

That is precisely the idea behind the ForestValues project and the team hopes that it will also catch on among other small farmers.

Another beekeeper, for example, has too discovered the value of the wooded area next to his beehives and is keen to hold on to this area, so his bees will always have enough to feed on. The example of Abelino also clearly illustrates the positive impact beekeeping can have on the living conditions of beekeepers. All you need to do is take a look at his house: “each brick is one bottle of honey that’s been sold,” says Abelino proudly.



Beekeeping changed Abelino’s life: selling honey helped him to build a new home.

The ForestValues team is certain that, with the help of other activities of the project, the progress being made in developing organisational structures as well as the improvements in selling honey, there will be many more success stories in the future!

Setting up new biodiverse agroforestry systems:

Biodiverse agroforestry systems are an activity to regenerate forests, which was introduced in the form of alternative cultivation methods for cocoa, allspice and achiote cultures, since these cultures can be harvested in the medium term: harvesting achiote can be expected from the second year, while yields from allspice and cocoa can be obtained from the third to fifth year. Estimates from samples and first productions from biodiverse agroforestry systems are available for 2020 and 2021: a stable harvest is expected from 2022. A total of 450 families are participating in this activity, covering a total area of approximately 550 hectares.



Families in the communities participating in the project already have plenty of experience in planting new trees.

Similarly, other cultures such as bananas, yucca, Malanga, pineapples, pigeon peas, etc. have also been introduced to improve the families' diet, generate economic income from selling surpluses, and diversify the agriculture. The ForestValues project not only contributes to landscape restoration, it also ensures sustainability from an economic point of view as follows: 1) Improved food and nutritional security with different products for short term production; 2) Economic income enabling other goods to be bought; 3) Long-term profitability, generating products for the families.



Biodiverse agroforestry systems provide habitats for many different animals.

Organisational development

Currently, there are 450 families involved in activities related to biodiverse agroforestry systems. The organisation of local producers in committees enables prices and solid business to be achieved. At the same time, a joint organisation of committees was founded to increase the value of the pro-

duct (in this case cocoa). As a result, the team carried out various activities with the families associated with harvesting, fermenting, drying, storage and selling the product, which brought the local economy several advantages in relation to jobs and economic income.

The advantages of biodiversity conservation

The significance of conserving biological diversity, reducing and adapting to the impacts of climate change while actively restoring ecosystems in the ForestValues project are measures that are achieved simultaneously – either in a natural way or with the help of human activities to restore the provision of original ecosystem services. Passive restoration and beekeeping activities described above enable the ForestValues project to provide ecological benefits and promote forest conservation in the core zones of the three protected areas. Active regeneration occurs by setting up biodiverse agroforestry systems and reforestation. These parallel measures contribute to mitigating the impacts of climate change by binding greenhouse gases and adapting the population to diversified and less sensitive cultures. At the same time, the project's introduction of beekeeping ensures higher protection against both fire and further destruction in the so-called "Guamiles" (secondary forests or areas that bordering onto biologically diverse agroforestry systems).



Advantages of biodiverse agroforestry system: diversification in both diet and land in the communities.

Areas with beehives, that generate additional income for the owners, are protected and can regenerate without any human interference. In addition, ForestValues cooperates on joint and individual reforestation projects within the communities using native timber species that have a high economic and ecological value and make an important contribution to biological diversity.



Criteria for cooperating with the private sector.

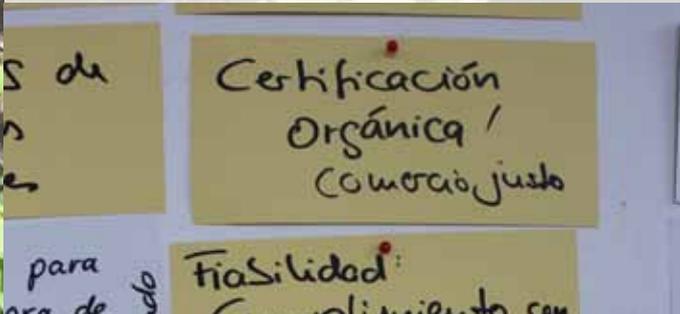
The aim of the ForestValues project is to develop business models for cooperating with the private sector that can be used for the socially compatible restoration of natural forests. The business models are based on local value chains with cocoa, honey and Maya nuts. In order to be successful in the long-term when cooperating in such trade partnerships or making investments, it is necessary for both parties to meet a large number of requirements and criteria.



A range of criteria was discussed at the ForestValues workshop with the entire project team.

The most important factors for trade partners, such as buyers and processors of raw cocoa, are initially the quality and costs of the product as well as the reliability of local trade partner cooperation. Private investors such as impact investment funds, on the other hand, focus on risk minimisation and profit opportunities. They therefore expect corresponding security from borrowers and investable business models with proven track records.

The most important factor for the stakeholders on the ForestValues project, is the specific contribution that product systems make to conserving and regenerating forests in as natural a form as possible, as well as their impact on biodiversity, conservation and climate mitigation, and fair payment for small farmers.



Organic certification is a recurring issue when discussing the criteria for cooperating with the private sector

Important is, that small farmers do not bear the risk involved in such cooperation (such as crop failures or market

price fluctuations), but that attention is paid to the fair distribution of risk.

The level of investment also plays a decisive role, particularly in the case of structures for small farmers where a great deal can be achieved with a low amount of funds. On the other hand, investments through loans with larger sums of money (€500,000) cannot be handled through smallholder structures. Ideally, the companies should think holistically and sustainably and assume responsibility themselves, for example, in jointly developing and implementing business models or for certification (organic, Fairtrade), and provide funds to finance harvests in advance.

Having set up both value chains and small farmer organisations, the ForestValues project is now focusing on cooperating with potential trade partners and investors from the private sector. The ForestValues team has devised a set of general criteria based on its own practical experience for cooperating with the private sector. These criteria have already been discussed with various local and international stakeholders and subsequently published in a criteria catalogue.



Participants closely examined the possible criteria at a workshop in Germany



It is now time to act

A presentation of the ForestValues project was made to a high-level panel at the global landscape forum.

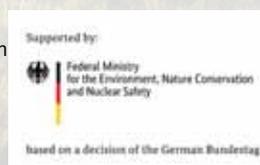


The ForestValues team, consisting of the three project partners, presented the progress in forest conservation and regeneration at the global landscape forum in Bonn.

In 2018, thousands of participants came together for the Global Landscape Forum in Bonn to drive forward the international goals of forest and landscape restoration. The global forum focused on the relevance of work in an integrated landscape and on incorporating the areas of farming and forestry for sustainable development. Jochen Flasbarth, State Secretary of BMU (Federal Ministry for Environment, Nature Conservation and Nuclear Safety), outlined the urgency of sustainable use as well as global aims on climate change and biodiversity. A large audience was informed about the most important elements of landscape restoration within the ForestValues project, including issues of biological diversity and the role that local communities. The GLF came to a positive conclusion: the changes that need to be realised are already known and the time has now come to implement them. Heifer International Guatemala together with OroVerde and Defensores de la Naturaleza presented the progress as part of a high-level forum with the World Bank and the Food and Agricultural Organization of the United Nations (FAO).

Project financing

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



Further information about the project:
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