

Case study

Peru

Protected area management and sustainable land use in the Amazon region

The aim of the project is to protect 570,000 hectares of rainforest in the Madre de Dios region and to restore 1,250 hectares of degraded agricultural land with the help of cocoa cultivation in agroforestry systems. The sale of CO₂ certificates and raw cocoa is intended to generate a financial return.

Initial situation and landscape

The project focuses on two protected areas: the Tambopata and Bahuaja-Sonene in the southwest of the Madre de Dios region in Peru. They cover a total area of around 570,000 hectares of tropical rainforests, riverine landscapes and wet savannahs in one of the world's most biodiverse regions.

The two protected areas are threatened by illegal logging, poaching and uncontrolled tourism. In addition, illegal gold diggers are entering the protected areas along the rivers in search of gold, causing major damage to the fragile ecosystem. Outside the protected areas and in the surrounding buffer zone, logging and the conversion of rainforests into agricultural land lead to the increasing destruction of forests and soil degradation.

Despite the international importance of the two protected areas, the available financial resources are not sufficient to effectively protect them from illegal interference and to make tourism environmentally compatible. There is also a lack of initiatives and capital to introduce sustainable agricultural and forestry land use concepts in the buffer zone of the protected areas.

The economic centre and capital of the region is nearby Puerto Maldonado with around 50,000 inhabitants, who live mainly from agriculture, forestry and tourism. The population in the buffer zone, between the only main road to Pu-

erto Maldonado and the core zone of the protected areas, is made up of indigenous communities and farmers. A total of around 8,000 inhabitants (1,600 families) live there in 30 communities.

Overview

Country: Peru

Implementing partner: Asociación para la Investigación y el Desarrollo integral (AIDER)

Target group: 500 smallholder families in the buffer zone of the Tambopata National Reserve

Partner institution: The National Service of Natural Protected Areas (SERNANP)

Duration: 2014 - 2020

Funding sources: *Althelia Ecosphere*: EUR 5.6 million loan from the *Althelia Climate Fund*. Investors: various public and private institutional investors with an interest in sustainable investments and climate protection, such as the *European Investment Bank (EIB)*, *Credit Suisse* and *AXA Investment Managers*.

Main stakeholders and their challenges in the landscape

The project aims, on the one hand, to improve the protection of the core zone of the two protected areas. On the other hand, it aims to promote sustainable land use through cocoa cultivation in agroforestry systems in the buffer zone to allow degraded areas to become usable again and improve the income situation of the farmers.

AIDER, a Peruvian non-profit organization that has been committed to nature conservation and sustainable development at community level in Peru for over 30 years, is responsible for project implementation. Since 2008, *AIDER* has been active in the Madre de Dios region. On behalf of *The National Service of Natural Protected Areas (SERNANP)*, *AIDER* is responsible for certain administrative and management tasks of the **Tambopata Nature Reserve and the Bahuaja-Sonene National Park**. *AIDER*'s tasks include observation of the protected area, implementation of a biological monitoring programme and coordination of scientific research. For many years, *AIDER* has also been working closely with indigenous communities and farmers in the buffer zone of the two protected areas to ensure sustainable development without further destruction of natural resources.

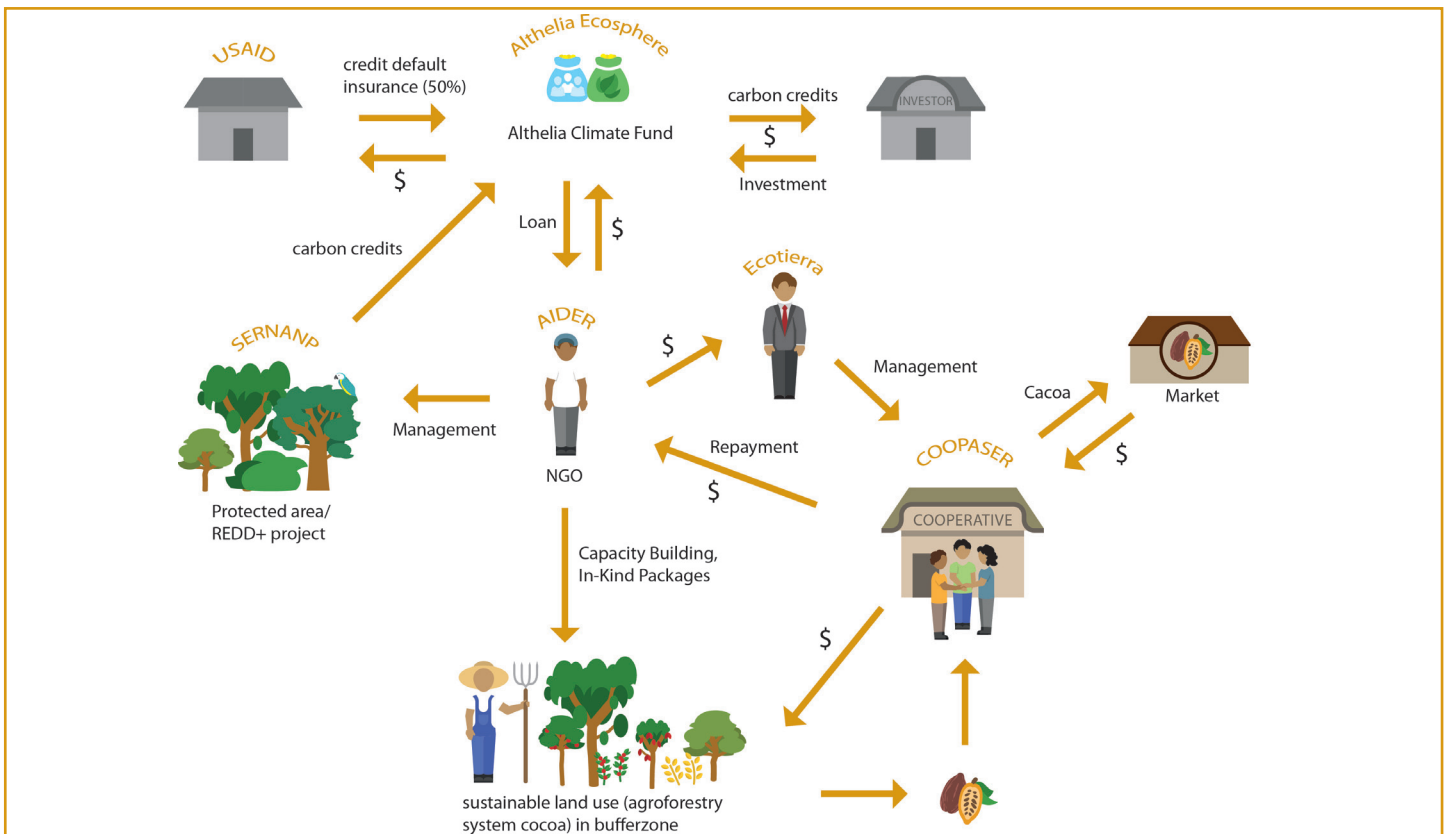
A result of the contract with *SERNANP* was also the **REDD+ project „Reduction of deforestation and degradation in the Tambopata National Reserve and Bahuaja-Sonene National Park within the area of Madre de Dios region, Peru“** to

reduce CO₂ emissions by avoiding deforestation in the protected areas. The sale of these emission reduction certificates should make a substantial contribution to financing of protected area management by *AIDER*. However, due to the difficult market environment for CO₂ certificates, these expectations were not initially fulfilled. As part of this project, they now serve as collateral for a loan from the *Althelia Climate Fund*, which is managed by *Althelia Ecosphere*. The borrower is the project implementing partner *AIDER*, which is using the loan to finance protected area management tasks and to restore a total of 1,250 hectares of former pastures and degraded agricultural land in the buffer zone with cocoa cultivation in agroforestry systems. The loan will also be used to invest in the development of the local value chain, with the appropriate infrastructure for processing the cocoa beans for export, and in the organisational development of the smallholder farmers' cooperative *COOPASER (Cooperativa Agraria de Servicios Múltiples Tambopata Candamo)*. *AIDER* is supported by the consulting firm *ECOTIERRA*.

ECOTIERRA, headquartered in Canada, is a project developer active in Peru, Colombia and other countries for agricultural and forestry projects with an ecological and socio-economic focus. In addition to setting up smallholder farmers' cooperatives, *ECOTIERRA* will ensure the high quality of raw cocoa and support marketing via *COOPASER* on local and international markets.

Althelia Ecosphere was established in 2011 and is an environmental asset manager based in London. *Althelia* invests in climate-friendly land use projects worldwide through a closed-end fund, the *Althelia Climate Fund*. The fund runs






Figure 1: Key stakeholder of this study.



until 2021 and invests primarily in the form of impact-oriented debt instruments targeting concrete results, such as CO₂ emission reductions.

Forest Landscape Restoration

So far there is no generally accepted definition for Forest Landscape Restoration, although there are various global initiatives, such as the Bonn Challenge, which aims to restore 150 million hectares of degraded land by 2020. In our work, however, the following characteristics of FLR projects have proven to be relevant:

-  Contribution to the conservation and regeneration of natural ecosystems.
-  Restoration of ecological, social and economic functions for humans and nature.
-  Stakeholder involvement, participatory planning and decision-making processes.
-  Adaptation of measures to the local context.
-  Focus on a whole landscape with different forms of land use.

Implementation and measures on landscape level

Ensuring the management of protected areas

The loan from Althelia will enable AIDER to finance its tasks in the field of protected area management, such as the payment of wages, equipment and devices for park rangers as well as the construction, equipment and maintenance of control posts and staff for biological monitoring. The functioning management of the protected area is in turn a prerequisite for reducing illegal deforestation by loggers and gold diggers in the area and for the REDD+ project to continue generating emission reduction certificates.

Cocoa cultivation in agroforestry systems

AIDER cooperates with interested smallholders in the buffer zone of the protected areas and tries to convince them to grow cocoa in agroforestry systems on part of their own agricultural land. The smallholder farmers' plots have an average size of around 30 hectares and are typically used as pastures for livestock and for the cultivation of maize, beans and bananas. For cocoa cultivation, degraded areas are selected

that were previously cultivated as pastures or papaya plantations. Each farmer participating in the project commits to establish at least 3 hectares of agroforestry systems and to preserve the remaining forest on his land. The forest areas and sustainably used agroforestry systems serve as habitats and bio-corridors for animals and plants and provide an effective buffer for the adjacent protected areas.

AIDER supports the farmers with the necessary planting material and equipment, financed by the loan from Althelia. The total in-kind package including technical advice has a value of around USD 1,500 per hectare, half of which (USD 750 per hectare) is granted in the form of a loan to the farmers and then repaid from the sale of the cocoa. In addition, AIDER provides expert advice on the planning, construction, maintenance and management of the agroforestry systems.

Following completion of the first phase of the project (2014 - 2018), the goal of establishing 1,250 hectares of agroforestry systems with cocoa was achieved. To date, 342 smallholder families have been involved (as of April 2019). In the second phase (2019 - 2023), the area is to be expanded to 4,000 hectares and at least 500 farmers with additional funds.

Processing and marketing of cocoa by the smallholder cooperative

All farmers in the project are or will become voting members of the specially founded cooperative COOPASER. The cooperative's task is to organise the joint processing and



Cocoa is grown here in agroforestry systems on degraded soils of a former papaya plantation.



Cocoa cultivation in agroforestry systems under shade trees.

marketing of cocoa on the national and international market. As these competences are not yet available on site, the cooperative is supported in the first project phase by two qualified and experienced employees of ECOTIERRA. Negotiations with potential buyers in Europe and Peru are already at an advanced stage.

The project also included the construction of a processing plant for the fermentation and drying of cocoa. In addition, the Ministry of Environment in Peru (MINAM) has provided the cooperative with USD 60,000 for its own cocoa quality control laboratory.

These measures contribute to ensuring the consistently high quality of the raw cocoa and to sustainably improving the income situation of the smallholder families through long-term supply relationships and good prices.

Challenges and solutions for Forest Landscape Restoration (FLR) Projects

On a landscape level

Investment projects in the field of conventional agriculture and forestry often work for purely economic reasons with alien species and/or genetically modified species (e.g. palm

oil, teak, eucalyptus) in large-scale monoculture plantations. These plantations hardly offer any habitats for native animal and plant species and only a few jobs for the local population. This project, on the contrary, encompasses a tree species spectrum of more than ten different **quality timbers adapted to the site** with different rotation times (8-25 years), **which occur naturally in the area**. In this way, structurally rich agricultural and forestry areas are created, which protect the soil and at the same time create valuable habitats and biological corridors. In addition, farmers are better prepared for risks such as pests, climate change and price fluctuations by diversifying agricultural uses and products. Such projects will also preserve the typical smallholder agriculture in the region.

Another key challenge for forest and landscape restoration projects cooperating with the private sector is the lack of necessary structures and capacities at the local level. Investors often avoid the effort and risk of establishing these structures together with local partners. With **AIDER**, the project has **an experienced local project implementer** at its disposal that has built up a relationship of trust with the target groups over many years. Much importance is also attached to the development of the COOPASER **smallholder cooperative**. All farmers are involved in decision-making processes and benefit from the economic success of the cooperative. In addition, there are further **education and training programmes to systematically strengthen the capacities of the members**.

A monitoring system should be anchored in every forest restoration project. This is the only way to demonstrate in-



General Assembly with newly elected Executive Board of the COOPASER Cooperative.

tended positive effects, e.g. CO₂ reduction, conservation of biodiversity, increasing crop yields and income for small farmers, and to identify undesired developments at an early stage in order to counteract them. Frequently, however, the financial resources for the establishment and implementation of functioning monitoring system are lacking or were not considered at all during project planning. In this project, a monitoring is carried out at different levels. For **project monitoring**, AIDER works with its own database (MINKA), which was developed and made available by ECOTIERRA. This database centrally monitors and controls the entire harvest, further processing and marketing with the corresponding quantities and payment flows for each individual member of the cooperative. **Biological monitoring** refers almost exclusively to the core zone of the two protected areas. The targeted collection of data on the occurrence and density of the eight key species (macaw large/small, tapir, jaguar, giant otter, spider monkey, white-bearded peccary, collar peccary) is carried out by trained staff.



Banana plants are also used to provide shade for the cocoa trees during the first year.

The consistent use of indigenous tree species in combination with cocoa, naturally occurring in the project area, as a source of income for the farmers and AIDERs' expertise in nature conservation, leads to the presumption of high **ecological sustainability of the measures**. Socio-economic sustainability is strongly dependent on the further development of the cooperative. So far it is not foreseeable whether and when it will be able to operate profitably and without further external support. This is largely dependent on the quality of cocoa and the development of the cocoa market. The same applies



New processing plant for fermentation, drying and storage of cocoa.

to the market for emission reduction rights. Since international emissions trading has been suffering for years from an oversupply of CO₂ certificates, the prices for the certificates have so far lagged far behind expectations. Due to a lack of income from the sale of CO₂ certificates, the expenses for biological monitoring had to be reduced temporarily. However, Althelia expects that the sale of CO₂ certificates will improve after a group of international companies, in collaboration with Althelia, has committed to offsetting all their emissions through carbon offset projects such as this REDD+ project (as of March 2019).

On an international level

Private sector financing is one of the key challenges for implementing measures to restore forest landscapes. This project was able to attract private investors through an **innovative financing model** with risk management. Financing is made possible by a loan of EUR 5.6 million from the Althelia Climate Fund to AIDER. The interest rate of 6.5 % p.a. is well below the market interest rate of up to 18 % at local banks. In addition, AIDER has a three-year grace period in respect of capital and interest payments in order to give them more flexibility for implementing the measures.



Squirrel monkeys (*Saimiri spec.*) is only one of many monkey species living in the two protected areas.

The investment is divided into two components:

1. EUR 3.6 million for cocoa cultivation in agroforestry systems (1,250 hectares by 2018) with establishment of the cooperative until independence, the necessary infrastructure and working capital. The expansion to 4,000 hectares is planned with additional capital for the second project phase (2019 - 2023).
2. EUR 2.0 million to finance management of the protected area for the REDD+ climate protection project with a total area of around 570,000 hectares.

The repayment of the loan plus interest (6.5 % p.a.) is made from the sale of REDD+ emission reduction certificates and as well as from the sale of raw cocoa (certified organic and Fairtrade) via the COOPASER cooperative. Around 5 % is deducted from the revenue from the sale of raw cocoa for each smallholder in order to successively repay the loan of USD 750 (50 % of the value of the in kind package provided). In the case of expected crop yields (for cocoa from the fifth year onwards), repayment can take place within 7-10 years.

Althelia will participate in the sales of the COOPASER cooperative until the capital plus interest has been fully repaid. In addition, 1.5 % of the cooperative's profits are to be permanently transferred to AIDER as a contribution managing the protected areas.

As security for the loan, Althelia receives the rights to the REDD+ CO₂ certificates (around 2.4 million CO₂ certificates)

from AIDER. In the event that the Althelia Climate Fund should generate losses, 50 % of the investors' capital is also covered by USAID's credit default insurance. AIDER secures its investments in the development of agroforestry systems by requiring the smallholder farmers involved to sign a promissory note for 50 % of the equivalent value of the in-kind package. This corresponds to a value of around 2.7 monthly wages (calculated on the basis of the minimum wage set by the Peruvian government in 2018) per hectare or eight months' wages for the required minimum cultivation area of 3 hectares. In addition, the smallholder farmers are committed restoring at their own expense, newly established agroforestry systems on their land that have been destroyed, for example, by forest fires.

Transferability of this financing model is always conceivable for a combination of a REDD+ project and a FLR measure. The concept is, therefore, particularly suitable for protected areas and their buffer zones. Since cocoa cultivation is only possible under certain climatic conditions, other combinations of agroforestry systems such as coffee or silvopastorile systems can be applied in other climate zones.



Blue-headed parrots (*Pionus menstruus*) in the world famous parrot salt licks in the project area.

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