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Case #15

Scolel'te: Marketing carbon to support smallholder-based agroforestry and reforestation in Chiapas, México

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Producers in a reforestation plot in Tronconada, Salto de Agua, Chiapas.
Photo credit: Cooperativa AMBIO

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In brief

Overview

In 1997, *Scolel'te* became the first voluntary carbon offset program in the world. The program is based on a participatory method that identifies opportunities for rural development and forest management that benefit smallholders and indigenous communities. *Scolel'te* engages individual farmers and communities in 24 municipalities in Chiapas and Oaxaca, Mexico to implement agroforestry, reforestation and forest protection on their land holdings. Participants develop a Plan Vivo by mapping existing land uses and planned interventions, scheduling work, and estimating costs. A locally based NGO, Cooperativa AMBIO, operates the program, provides technical support, sells carbon certificates, and distributes payments for environmental services to participants. *Scolel'te* has supported the conservation and management of over 9,668 ha of forests through the participation of more than 1,439 households and 17 community groups in 111 rural and indigenous communities. Payments for environmental services benefitted 3,334 families, while their managed lands captured over half a million tons of carbon dioxide.

Exemplary practices

Potential participants are screened to ensure they have sufficient land or other resources to support livelihood activities. Producers sign an agreement to carry out the sale of carbon credits. Responsibilities and commitments are assumed by producer groups, but Cooperativa AMBIO assumes this responsibility if producers leave the program. Technicians are recruited from interested communities and trained to work within those communities, enhancing trust and local knowledge. On-farm interventions reinforce cultural and indigenous values and planted native species are selected by farmers. Practices developed by *Scolel'te* have matured into a well-structured system for carbon market transactions, which is now being applied successfully across many countries using the Plan Vivo Standard.

Key lessons learned

- *Significant carbon sequestration benefits can be integrated into regional production systems, along with socio-economic, cultural, and environmental benefits.*
- *Reforestation approaches are more likely to be adopted by farmers if they respond to expressed needs of local people, reduce risks, alleviate constraints, and increase production.*
- *Participants become motivated to participate after seeing results in neighboring farms.*
- *Diversifying productive practices builds capacity for natural resource management, while fostering flexibility and inclusivity for participants.*
- *An effective and adaptive local organization is key to the success of community-based carbon credit programs.*

Restoration narrative

Visit restor.eco

Scolel'te: Marketing carbon to support smallholder-based agroforestry and reforestation in Chiapas, México

Visit and learn more about the project's ecological analytics here:

Scolel' te and Cooperativa AMBIO

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Geography and ecological setting

Since 1997, the *Scolel'te* Program has been strengthening capacities of rural communities and smallholders in the states of Chiapas and Oaxaca in Southern Mexico to engage in reforestation, agroforestry, and sustainable land-use practices within community forest areas and smallholder farms. The name *Scolel'te* means "the tree that grows" in the Southern Mexican indigenous language Tzeltal. The program includes a total of 111 communities (Figure 1) in 24 municipalities, mostly located in six regions of Chiapas, which we focus on here (Figure 1). Some communities registered in the program lie within the buffer zones of eight federal protected areas, such as Montes Azules, Naha-Metzabok, La Sepultura, La Frailescana, El Ocote, Sumidero Canyon National Park and El Triunfo (Figure 1).

The State of Chiapas extends over 7.5 million ha (28,297 square miles) and, in 2020, had a population of 5,543,828, a 15.6% increase since 2010. In 2020, Indigenous groups composed 25% of the population (INEGI, 2022) and 28% of the population was in extreme poverty (DataMEXICO, 2022). Chiapas ranges in altitude from sea level to about 3,000 masl.

A wide range of vegetation types follow this elevational gradient, from lowland tropical forest in the east, montane pine-oak forest in the central highlands and cloud forests in the west. Since pre-Columbian times, the landscape of Chiapas has been influenced by the milpa shifting cultivation system practiced by Mayans, which generated a mosaic of secondary forest, permanent pastures, agricultural fields and fallows (González-Espinosa et al., 1995). Traditional land use systems have shifted to more permanent agriculture and extensive cattle and sheep ranching (de Jong et al., 2010).

The *Scolel'te* program covers numerous ecological and cultural regions including Tojolobal and Tzotzil communities in the highland and Tzeltal and Lacandon communities in the lowland regions (Figure 1; Muir, 2011). Overall, about 60% of the participants belong to an indigenous ethnic group (Cooperativa AMBIO, 2019). The first *Scolel'te* sites were located in Los Altos in the Central Highlands of Chiapas (1500–2900 masl) in areas with pine forest, pine-oak forest and oak forest (de Jong et al., 2000; Breedlove, 1981; González-Espinosa et al., 1995). The Highlands are one of the most densely populated areas of Mexico, and are habited by Tzotzil, Tojolabal, and Tzeltal Maya indigenous groups.

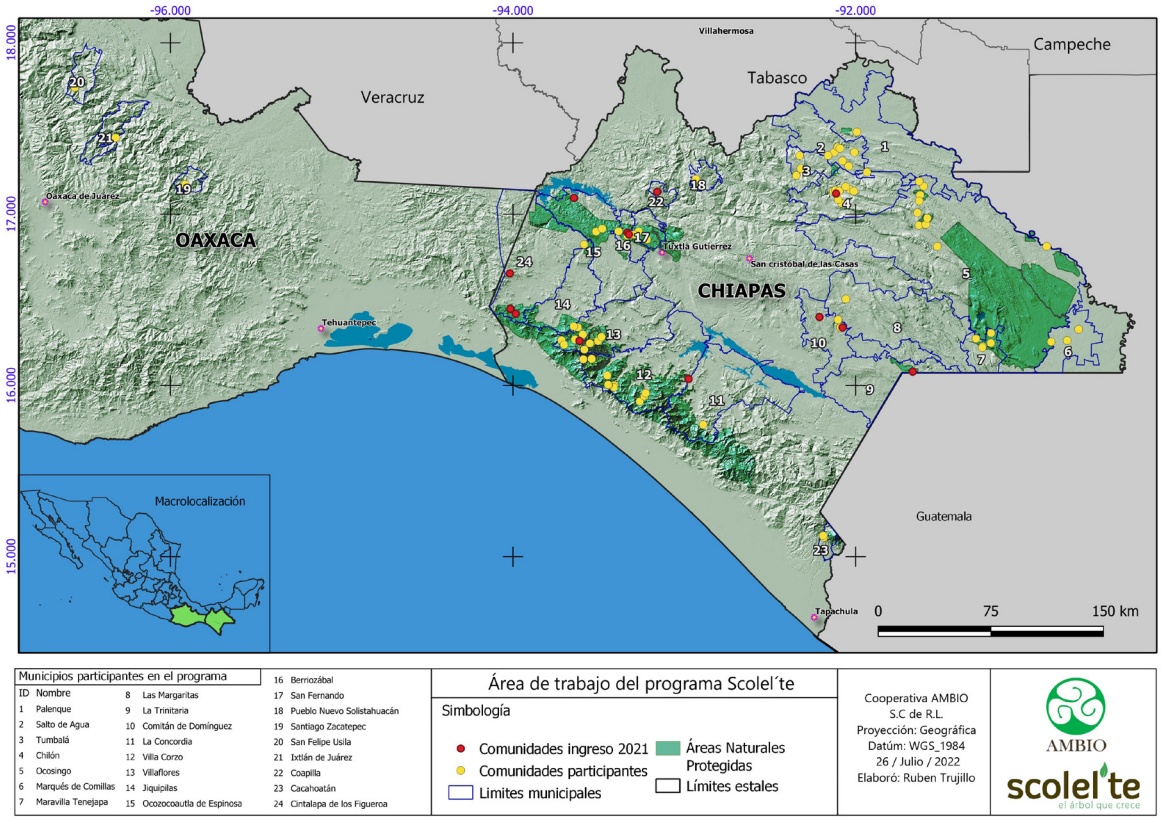

Figure 1. Scolel'te project areas in 2021 (yellow and red dots). Protected areas are shown in green. Source: Cooperativa AMBIO

When *Scolel'te* was initiated, about 80% of the territory was under a communal form of land tenure known as the ejido (de Jong et al., 2000). An ejido is composed of several families that hold agricultural land in private usufruct, whereas forestland, pastures and barren areas are generally kept and managed as common resources (de Jong et al., 2000; Osborne, 2011).

During its early years, *Scolel'te* worked with three communities in the neighboring state of Oaxaca, and early expansions to the program were restricted to the state of Chiapas (Cooperativa AMBIO, 2019). Since 2000, *Scolel'te* has expanded into regions of tropical lowland rainforest (Selva Lacandona) in eastern Chiapas and the Sierra Madre mountains in the west (Figure 1).

Deforestation history

In Chiapas, deforestation processes affected highland, cloud and tropical forests, which have been converted to agriculture, pastures and secondary vegetation. Forest conversion has been driven by governmental incentives for agricultural development, population growth, shifts from subsistence to commercial production systems, infrastructure development, and insecure land and tree tenure systems (De Jong and Montoya-Gómez, 1994).

From 1975–1991 the area of oak and evergreen cloud forests decreased by 50%, and both pine–oak and pine forests decreased by 51%.

During the same period, degraded and fragmented forests increased by 113,178 ha, cultivated lands grew by 10,381 ha, and pastures increased by 7,082 ha (de Jong et al., 1999). In the highlands of Chiapas, deforestation rates in closed forests increased from 3.2% (1974–1984) to 3.6% (1984–1990) (Ochoa-Gaona and González-Espinosa, 1998). The lowland Selva Lacandona, located in the southern region of the country next to Guatemala, has been severely deforested during the last 40 years. The rainforest area of Marques de Comillas lost 81,080 ha of tropical forests between 1986 and 2005, representing 48% of the original forest cover (Castillo-Santiago, 2009). Within Chiapas, 56% of the tropical moist forest and 31% of the temperate forests were converted to pastures and agricultural fields between 2001 and 2018 (SNMF, 2022).

The turning point

The coupling of these land-use changes with agrarian reforms toward neoliberal policies in Mexico significantly impacted smallholder farmers and indigenous communities. During the late 1980s and early 1990s, the Mexican federal government enacted a number of agricultural and land reforms, which included implementation of the Agrarian Law in 1992 and the North Atlantic Free Trade Agreement in 1994 (Osborne, 2011). These policies halted agricultural price supports and subsidies, reducing market prices for corn, coffee, and other commodities that played a critical role in smallholder livelihoods. In response, new coffee cooperatives arose and peasant organizations reorganized themselves to support diversification of small farms, provide technical support, coordinate collective marketing, and facilitate credit (Osborne, 2011). In Chiapas, the Union de Crédito Pajal Ya Kac' Tic (Pajal) coffee cooperative was formed in 1982 to offer credit, marketing, and technical support to coffee producers (Benjamin, 1996).

Meanwhile, forestry initiatives turned to preventing destruction of natural forests by restricting exploitation or planting trees to ameliorate environmental degradation (de Jong et al., 1995).

In 1997, the Forest Law was passed, banning all commercial timber harvesting without approval by the State and requiring a series of lengthy and costly processes (Hendrickson and Corbera, 2015).

Many smallholders and ejidos were feeling squeezed from all sides (Osborne, 2011). During the 1990s growing concerns globally and within Mexico focused on the contribution of deforestation and increasing greenhouse gas emissions on global warming and climate change. In Chiapas, 57% of the carbon emissions come from land use change due to deforestation and forest degradation for agriculture purposes (Secretaría de Medio Ambiente e Historia Natural, 2011). The 1997 Kyoto Protocol proposed clean development mechanisms (CDMs) for businesses in developed countries to invest in activities to reduce carbon emissions through land-use in developing countries and to store additional carbon using agroforestry and forestry interventions (Nelson and de Jong, 2003).

In 1994, members of Pajal, a local coffee producers association, agreed to work with Mexican and British researchers to conduct a feasibility study for a carbon payment project based on agroforestry and forestry systems managed by smallholders and communities (Nelson and de Jong, 2003; Osborne and Shapiro, 2018).

Figure 2. Reforestation activities in ejido Juan Sabines, Villa Corzo, Chiapas. Photo credit: Cooperativa AMBIO

The project was jointly funded by the UK's Department for International Development Forestry Research Program and Mexico's National Ecology Institute. Chiapas was selected for the study because of existing links between researchers and farmers' organizations and researchers and the availability of data on carbon storage within several key vegetation types (Tipper, 2002). The objective was to develop a model for carbon sequestration that will be economically viable and could be technically transplanted in similar regions of Mexico and Latin America with a focus on smallholder producers.

This new model emphasized how to engage smallholder farms and community-held lands (*ejidos*) in reducing deforestation and increasing tree cover while securing both land tenure and income generated from sustainable land use. Attention to the needs of rural communities and indigenous groups changed their perceived role from being agents of deforestation to becoming agents of reforestation and land restoration through community development and engagement in agroforestry, forest management, and forest conservation (Nelson and de Jong, 2003). When the feasibility study concluded and the first sale of carbon credits to the International Automobile Federation was executed in 1997, Pajal members created *Scolel'te*, the world's first voluntary carbon offset project.

Actors and arrangements

In 1997, no one knew how to design a carbon offset program, but a collaborative team got to work. During the first 10 years, the *Scolel'te* project operated through a collaboration between four main actors: (1) A social and technical team from Cooperativa AMBIO, a non-governmental, non-profit organization in Mexico; (2) the Edinburgh Centre for Carbon Management (ECCM), a private company in the UK; (3) researchers at El Colegio de la Frontera Sur in Chiapas, an academic institution; and (4) social organizations, communities, and producers in Chiapas and Oaxaca. The Bioclimatic Trust Fund was established in 1997. Its main representatives were the producers who participated in the program and the technicians (Table 1). Since 2002, the Bioclimatic Trust Fund has been managed by Cooperativa AMBIO (Ruiz-de-Oña-Plaza et al., 2011; Figure 3), which assumed responsibility for administration of *Scolel'te* with the support of a Technical Committee. *Scolel'te* no longer needed external economic support for its development and became self-sustainable in 2002 with the support of Cooperativa Ambio (Table 1).

Cooperativa AMBIO, founded in 1998, has always served as the project coordinator. Cooperativa AMBIO supports marginalized communities in the south of Mexico in climate change mitigation and adaptation activities. They work with communities to design and implement interventions that ensure the long-term viability of their crops, the health of their soil, water and the long-term management of other natural resources. Cooperativa AMBIO incentivizes sustainable land-use practices via the *Scolel'te* program, but also supports other activities within Chiapas. At the outset of the *Scolel'te* program, Cooperativa AMBIO began operations in Chilón in the Northern Jungle of Chiapas, as well as in the Border Zone in Marqués de Comillas (Figure 1; Cooperativa AMBIO, 2022).

Through gradual capacity development, in 2019 Cooperativa AMBIO took on responsibility for all sales of carbon certificates and for compliance with all commitments derived from sales (Elsa Esquivel, 2022. personal communication; Figure 3). Carbon sales are now fully negotiated by Cooperativa AMBIO, and the main role of the Plan Vivo Foundation is to verify and support *Scolel'te*'s operations under the Plan Vivo Standard (now in its fifth version), guaranteeing compliance by the program. Through the Plan Vivo System, the carbon capture activities implemented by the participants are registered, monitored, evaluated and reported, to guarantee that the work is carried out under transparent and verifiable mechanisms. Changes made since the program was founded have been instituted for the purpose of strengthening actions and impacts on the communities, increasing the effort, training, and commitment of Cooperativa AMBIO.

The Plan Vivo System was developed and tested in the *Scolel'te* project in Chiapas, Mexico by University of Edinburgh, El Colegio de la Frontera Sur, Cooperativa AMBIO and other local partners.
As stated by Elsa Esquivel, of Cooperativa AMBIO, "*Scolel'te* gave rise to the Plan Vivo Standard." Key features of Plan Vivo projects are described in Appendix 1.

Year	Event
1994	Feasibility study in Highlands of Chiapas; development of the Plan Vivo System
1997	Creation of *Scolel'te* project; first carbon credits sold through the Voluntary Carbon Market
1998	Creation of Cooperativa AMBIO
1997	Establishment of Fondo Bioclimatico
2002	*Scolel'te* project becomes financially self-sufficient; diversification of clients in the Voluntary Carbon Market; third party verification under Clean Development Mechanism guidelines; strengthening of field activities
2004	First official version of Plan Vivo Standard
2007	*Scolel'te* expands into different regions in Chiapas and Oaxaca
2009	Formation of Plan Vivo Foundation
2013	Alliances with national and international researchers; strengthening of carbon sales strategy; increase in national and international implementation partnerships
2019	New third-party verification; Cooperativa AMBIO takes responsibility for sales of carbon certificates
2022	Fifth official version of Plan Vivo Standard

Table 1. Key events of the Scolel'te program timeline. Source: Cooperativa AMBIO, 2019

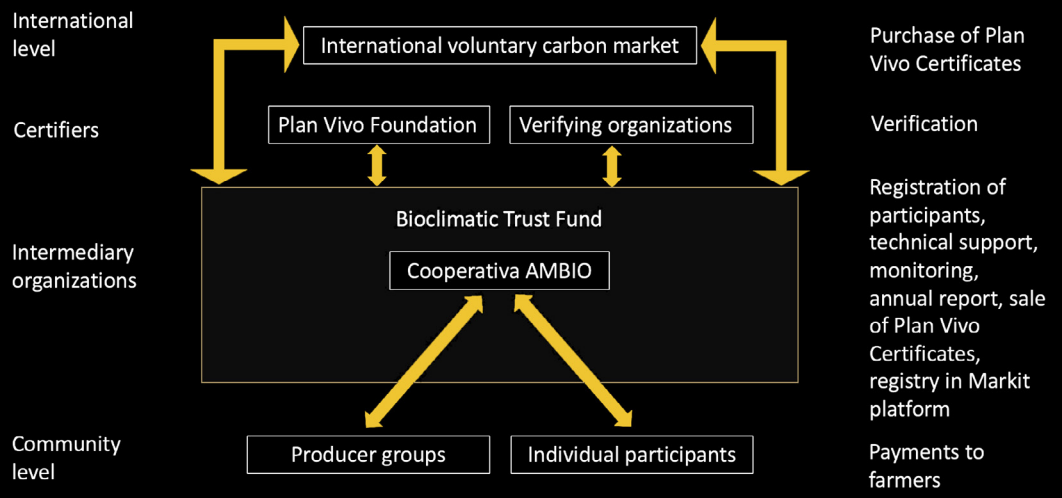

Figure 3. Organizational structure of Scolel'te in 2019. Based on: Cooperativa AMBIO, 2019 and Osborne and Shapiro, 2018

Implementation

The initial feasibility study (de Jong et al., 1995) determined that five farm forestry systems were technically, socially, and economically viable, including live fences, coffee with shade trees, strip plantations in abandoned pasture, enrichment of fallows, and taungya (intercropping with native trees). Several types of agroforestry and forest management systems were implemented on farms, according to climate zones and other considerations (Table 2). The most commonly planted tree species in the program are cedro/cedar (Cedrela odorata), caoba/mahogany (Swietenia macrophylla), maculis/pink poui (Tabebuia rosea), guachipilin (Diphysa robinioides), barí/guanadi (Calophyllum brasiliense), Pinus sp, Cupressus sp., Pochota/Ceiba (Ceiba pentandra), Arborea cojoba, guayacán/primavera (Tabebuia donell smithii), Pouteria sapota, and Mexicanum blepharidium. All are native species with cultural and economic significance (Cooperativa AMBIO, 2020b).

Four principles were identified during the feasibility study that informed the Scolel'te project design and became the foundational planning system of the first four years of its operation: 1) transparency of roles, rights, and responsibilities of carbon producers and buyers; 2) simple, standardized procedures for planning, registering, implementing, and monitoring carbon storage activities; 3) flexibility in different types of agroforestry and

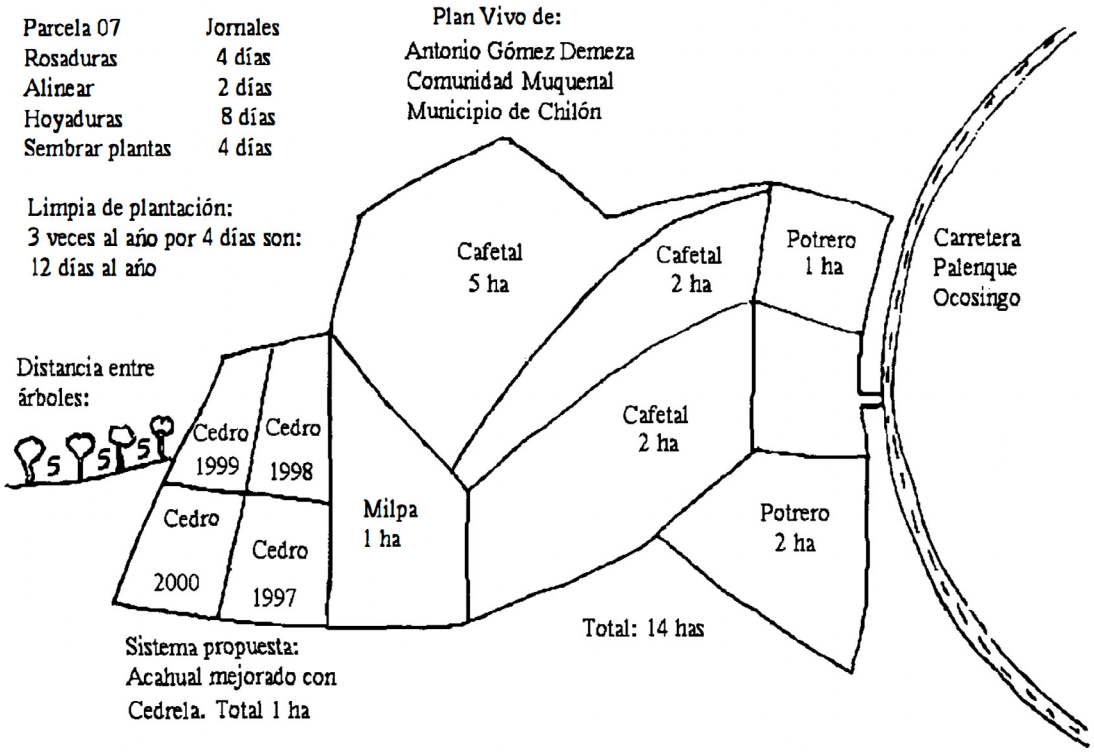

Figure 4. Example of a Plan Vivo including pastures with living fences, shade-coffee plantations, milpa for crops, and plantings of Cedro (Cedrela odorata) in enriched fallows. Source: de Jong et al., 1997b

forest management systems; and 4) quality and credibility of the system should be based on verifiable, documented evidence in the form of field data, accounting records, published literature, and official statistics (Tipper, 2002).

The project design prioritized the needs and interests of farmers and communities, while using carbon benefits to provide some income to farmers to finance implementation (Tipper, 2002). Smallholder producers together with project scientists designed the most viable options for each site and prepared a site map that included the agroforestry or forest management prototype, and the tree species to be planted. The plan included an estimate of the costs of labor and materials needed and a calendar of operations (de Jong et al., 1997b).

The most important part of this planning, however, is the environmental, social and productive evaluation of the participants, which ensures that the establishment of an agroforestry system does not threaten their basic crops or productive systems. Without this compatibility, participation would not be viable for producers. This methodology was called a Plan Vivo or “living plan” in Spanish (Figure 4).

The selection of interventions adopted was based on multiple considerations including: reduction of competition for different types of land use, species diversity, use of native species with rapid growth rates, capture of significant quantities of carbon above- and

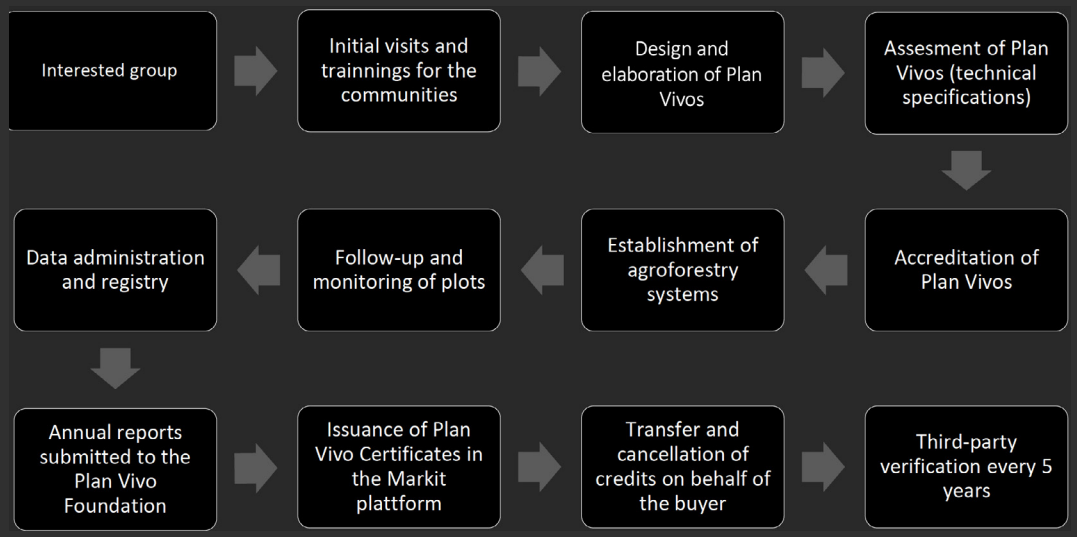

Figure 5. Operative cycle of Scolel’te by Cooperativa AMBIO. Source: Cooperative AMBIO, 2019

belowground, cultivation of products for family subsistence, minimizing market and social risks, use of local resources, and community participation (Soto-Pinto et al., 2008).

These interventions helped to resolve several land-use challenges, such as low productivity of shifting cultivation systems, poor utilization and degradation of lands, scarcity of forest products, and needs for income. By incorporating trees and intensifying existing cornfields, coffee plantings, cattle pastures, and fallow vegetation, products and ecosystem services became more diversified, soils were improved, biodiversity increased, and additional carbon was stored in the ecosystem (Soto-Pinto et al., 2008).

Long-term engagement of producers also reinforced land tenure security of individuals and communities (Osborne, 2011). The majority of farmers participate in the project as individuals, using their own family managed landholdings for the reforestation and agroforestry projects. Some communities also participate on a collective basis, enrolling communally owned forest lands in the project. Individual plot sizes range from 1 to 10 ha (Ruiz-de-Oña-Plaza et al., 2011).

The Plan Vivos are then presented to Cooperativa AMBIO and form the basis of discussion with farmers regarding technical feasibility, social and environmental impact and carbon sequestration potential of each plan (Figure 5).

Figure 6. Scolel'te technician Miguel Cruz, measuring trees in Alan k´antajal, Chilon, Chiapas. Photo credit: Cooperativa AMBIO

Once plans are judged to be viable, they are then registered with Cooperativa AMBIO and become eligible for assistance. The level of financial support to farmers is based on the expected net carbon sequestration rate, which varies according to specific interventions and their extent (Table 2).

Over the 25 years of operation of the Scolel'te program, periods for payments have changed in response to the needs of local producers and communities and the types of land management implemented. Initially, farmers committed to maintain agroforestry systems for a period of 15 years with the bulk of payments made during the first three years to cover implementation and maintenance costs (Ruiz-de-Oña-Plaza et al., 2011). The newest scheme consists of 7 payments to producers distributed over 10 years. The rules of the Plan Vivo Foundation specify that most of the payments must be delivered to the producer within the first 4 years (Cooperativa AMBIO, 2019).

Cooperativa AMBIO trains producers to be community technicians, who are in charge of reporting the progress of the project in the plots of the area under their charge (Rontard et al., 2020; Figure 6). In 2008, regional and community technicians' teams were formed in order to promote Scolel'te within new communities. Most of these technicians were previously producers themselves, which facilitates communication and trust (Ruiz-de-Oña-Plaza et al., 2011).

Carbon and biodiversity monitoring is carried out by technicians and participants of the Scolel'te program (Cooperativa AMBIO, 2020b; Figure 6). A team of local technicians monitors all of the registered plots and Cooperativa Ambio's professional team organizes, supervises, and supports the entire procedure. Each year, farmers and technicians monitor tree mortality, growth, tree species richness, health conditions, and the requirements for pruning, shade management, or clearing, with final remarks from the local technician. Independent, third-party verification is conducted in 5% of the monitored parcels, which guarantees transparency and compliance with the program (Ruiz-de-Oña-Plaza et al., 2011; Cooperativa AMBIO, 2022).

To address problems of gender inequality, in 2016 Scolel'te developed a program in rural communities of Chiapas to promote equal opportunities and equal benefits for men and women (Cooperativa AMBIO, 2021). Since 2018, Cooperativa Ambio provided technical advice for the Environmental Services Program of the National Forest Commission in Ejido San Francisco in the northern Selva Lacandona. Activities included creation and maintenance of firebreaks, planning of agricultural burning to reduce risk of spreading fires, and promoting greater participation of women and youth in capacity development and monitoring activities (Cooperativa AMBIO, 2021).
Since 2000, the Scolel'te program has expanded into six different regions of Chiapas (Figure 1).

Agroforestry/Forest management system	Description	Saleable t CO_2 /ha
Temperate: Improved fallow	Management of secondary vegetation (fallow) for the production of timber, firewood and other products; planting of *Pinus sp.* and thinning to encourage the growth of naturally regenerating *Quercus sp.*	123.04
Temperate: Living fence	*Pinus sp*. and *(Cupressus spp)* are the most common species for living fences. This system prevents erosion, serves as a windbreak, offers protection for crops against the movement of animals and people, and provides timber.	64.24
Temperate: Forest restoration	Management of natural regeneration of *Pinus sp* and *Quercus sp,* planting in open areas with *Pinus sp*, *Cupressus sp*, and *Quercus sp.*Grazing is excluded to protect young trees. These species produce good timber and are commonly used for house construction, fuelwood.	292.1 (30% risk buffer applied)
Tropical: Taungya	Maize is intercropped in the between trees, which are arranged in lines with a density of 333–667 trees/ha of native tree species. After 3 or 4 years, crops are phased out and the system continues as a tree plantation.	188.73
Tropical: Improved fallow	Management of secondary vegetation (fallow) for the production of wood, firewood and other products through enrichment planting of cedar (*Cedrela odorata*), pink poui (*Tabebuia rosea),* mahogany *(Swietenia macrophylla)* and other species with economic and cultural value.	171.79
Tropical: Living fence	Living fences represent a productive space that is generally underutilized. They provide several benefits, such as protection of crops from trampling by animals and people, erosion prevention, reduced runoffs and windbreaks.	90.27
Tropical: Improved shade-grown coffee	Coffee is intercalated with timber trees, such as cedar (*Cedrela odorata*) and mahogany (*Swietenia macrophylla*).	122.84

Table 2. Agroforestry and forest management systems used for temperate and tropical regions of the Scolel'te project and associated carbon estimations. Values for saleable tCO2/ha reflect net carbon storage compared to baseline conditions, minus a risk buffer of 10%. Source: Cooperativa AMBIO, 2020b

Conservation International began a partnership with Cooperativa Ambio in 2007, involving eight communities of coffee farmers across the Sierra Madre in the Scolel'te program, especially in the buffer zone of El Triunfo Biosphere Reserve. The goal was to diversify the incentives offered to farmers for implementing carbon and biodiversity friendly land use practices. The project grew to include 19 communities in the Sierra Madre by 2010 (Schroth et al., 2011). Forest restoration implementation grew significantly in this region, and by 2019, forest restoration areas represented 77% of the total registered area for Scolel'te in temperate areas of the Sierra Madre and the northern part of Chiapas (Cooperativa AMBIO, 2020a). These areas belong to ejidos or groups of organized smallholders. Some of them harvest pine resin, increasing the number of beneficiaries (Cooperativa AMBIO, 2020a). Producers also create fire breaks (Figure 7) and protect natural regeneration after forest fires (Figure 8).

In 2019, Scolel'te, formed an alliance with the United States Forest Service to launch the Community Forest Monitoring Protocol in various communities of the El Ocote Jungle Biosphere Reserve (Cooperativa AMBIO, 2020a). In 2020, AMBIO began implementation of a project to monitor forest cover in protected areas of Selva Lacandona and Zoque Complexes in collaboration with World Resources Institute and Global Forest Watch. The objective of this initiative was to verify deforestation alerts identified through satellite images with support from community technicians.

Figure 7. Natural regeneration of forests following fires in ejido San Jose las Rosas, Comitan Municipality, Chiapas. Photo credit: Cooperativa AMBIO

Figure 8. Producers preparing a fire break in ejido Nueva Reforma Agraria, Villa Corzo, Chiapas. Photo credit: Cooperativa AMBIO

Outcomes and impacts

In 1997, the International Automobile Federation purchased the first carbon certificates from Scolel'te for US$10 per ton of carbon. Over the past 25 years, verified carbon certificates have been purchased by hundreds of different groups. Major buyers include International Automobile Association, Future Forest, Workers of The World Bank, and the UK Department for International Development (Ruiz-de-Oña-Plaza et al, 2011). By 2020, a total of 684,022 Plan Vivo Certificates had been sold, each verifying the storage of 1t of CO2 (Cooperativa AMBIO, 2021; Figure 9 and 10).

Currently, 60% of the income from sale of Plan Vivo certificates goes to payments for producers and community groups and 40% goes to support ongoing activities conducted by Cooperativa AMBIO, including implementation, monitoring, training of technicians, and communications with participants (Figure 11). In 2020, the project included a total of 1,438 participating households, 17 community groups with PES agreements, 1,896 households in community groups, and 9,669 ha under agroforestry or forest management (Cooperativa AMBIO, 2021).

Since the beginning, the *Scolel'te* program used native tree species for planting, contributing to local biodiversity conservation.


Plan Vivo
Carbon management and rural livelihoods

CERTIFICATE OF PLAN VIVO CARBON OFFSET

201 Tonnes of CO_2

Certificate Number: A02 0049, A02 0050, A02 0513

From: **Scolel Té Project, Chiapas, Mexico** in 2008

To: **The Association of Tropical Biology and Conservation**

Signed for and on behalf of BioClimate Research and Development

Name: Willie McGhee **Director** Date: 12/01/09

Plan Vivo c/o BR&D (BioClimate Research and Development Limited). BR&D is a not-for-profit company, registered in Scotland.
Registered office: 17 Croft Street Dalkeith, Midlothian, Edinburgh, EH22 3BA www.planvivo.org
BR&D is shortly to transfer governance of Plan Vivo to the Plan Vivo Foundation (info@planvivofoundation.org)

Figure 9. Plan Vivo Certificate issued for sale of 201 tCO2 to the Association for Tropical Biology and Conservation (ATBC) to offset the carbon footprint of their 2007 annual meeting. Source: ATBC archives

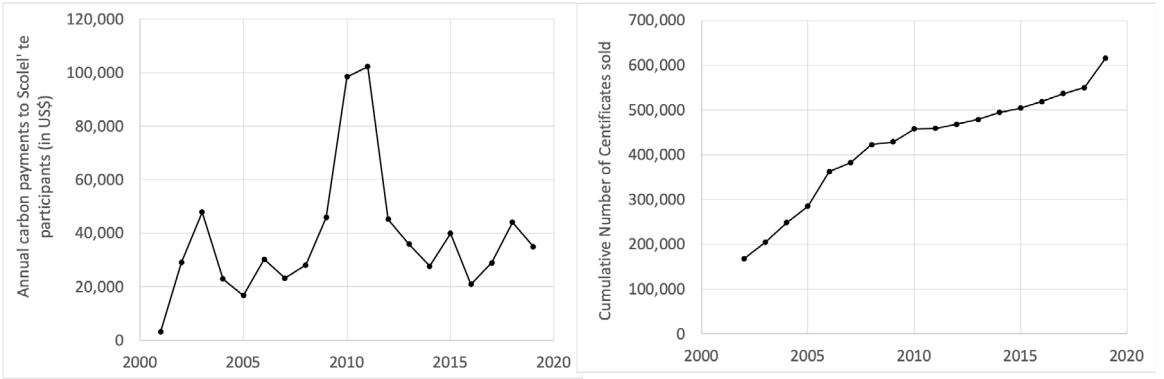

Figure 10. Annual carbon payments to Scolel'te project participants (left) and cumulative carbon certificates sold (right) from 2000–2019. Compiled from data in Cooperativa AMBIO, 2021

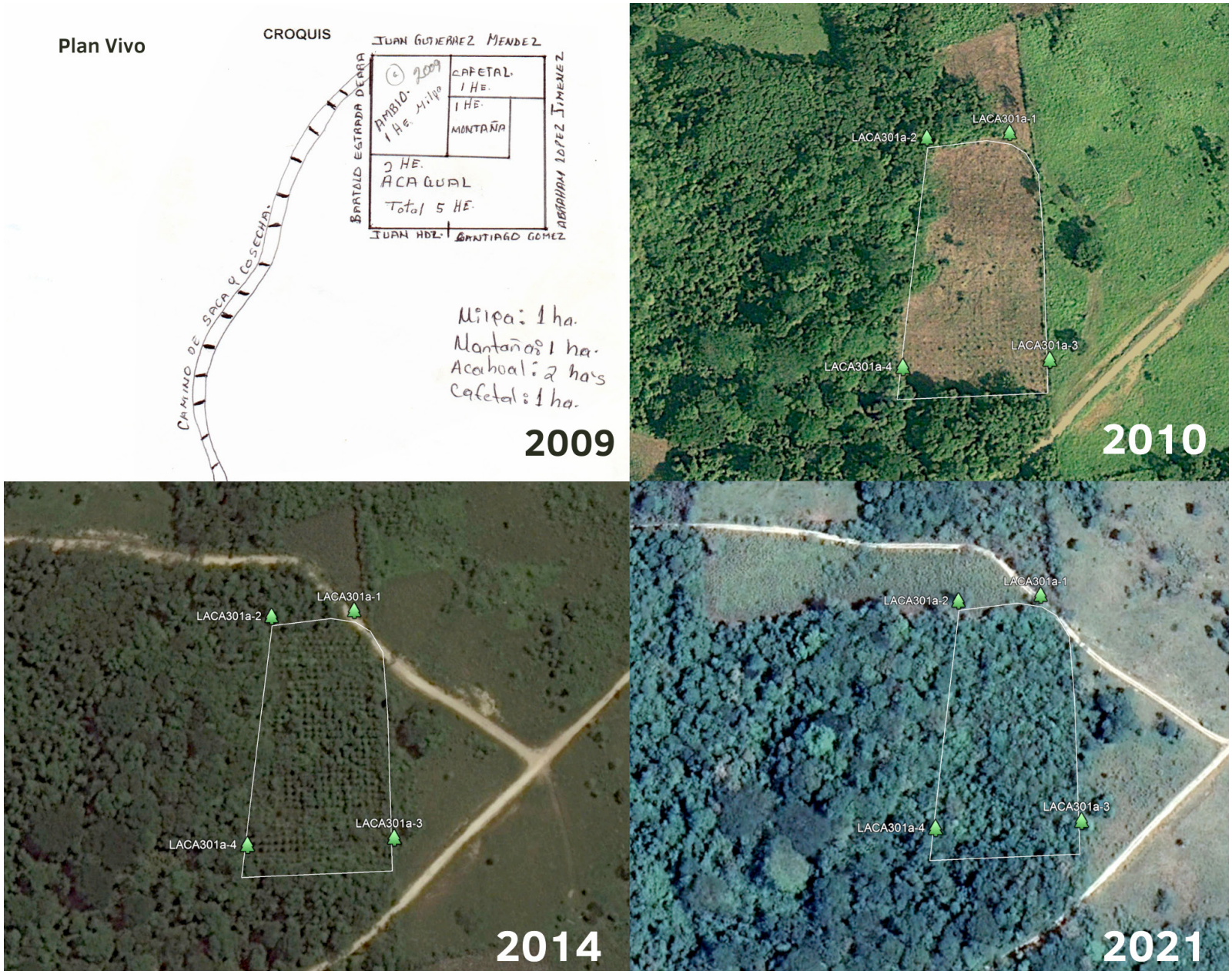

Figure 11. Evidence of reforestation in a 1-hectare plot under the Taungya Agroforestry System, Ejido Cristóbal Colón,Municipality of Ocosingo, Chiapas; Source: Cooperativa AMBIO, 2020

In 2020, 24 native tree species were recorded in project sites, including 4 endemic species and 5 species of high conservation concern: two “vulnerable” species (oak, Quercus, and cedar, *Cedrela odorata*), two “endangered” species (Mexican mahogany, *Swietenia humilis,* and avocado, *Persea schiedeana*), and one critically endangered species (Dalbergia granadillo) (Cooperativa AMBIO, 2021). Reforestation activities (including natural regeneration) collectively include 102 tree species, based on a 2017 baseline (Cooperativa Ambio, 2019).

Payments to smallholders are sufficient to cover their initial costs in establishing carbon forestry practices, but are insufficient to enable changes in livelihoods or practices that substantially increase household income, and account for only 1–25% of overall household income (Ruiz-De-Oña-Plaza et al., 2011). Income benefits for producers vary annually, depending on market prices and other economic factors. The *Scolel’te* project has created jobs for over 42 technicians and has provided a strong framework for parallel development projects such as installation of fuel-efficient stoves, wildfire protection, low-emissions livestock farming and agriculture, beekeeping, and supply of non-timber forest products (Cooperativa AMBIO, 2018).

The acceptance of the project in the communities is clearly demonstrated by the permanence of established agroforestry systems (Figure 12). In some areas, tree planting contributed to the establishment of coffee and cocoa plots, which have produced good economic outcomes for the smallholders, including the diversification of commercial products, generation of extra income, as well as the generation of non-timber products, which have created a new regional market (Cooperativa AMBIO, 2018).

Since 2016, *Scolel´te* has developed local strategies to promote gender equity in rural communities of Chiapas. Some of the impacts achieved include the integration of working groups, the strengthening of participants’ capacities and the creation of spaces that promote the exchange of ideas and experiences. Efforts in communities are generating a vision of the important work carried out by women, young people and elderly people, in conservation of the environment, as well as the needs and their specific interests (Cooperativa AMBIO, 2020b).

Both Cooperativa AMBIO and *Scolel’te* have been recognized nationally and internationally for the quality and impacts of their work. In 2010, *Scolel’te* was selected as one of the 25 best social initiatives in the Iniciativa Mexico awards. In 2012, AMBIO was a finalist of the UNDP’s Equatorial Prize, and in 2013 the organization received the Premio Nacional al Mérito Forestal, awarded by CONAFOR, Mexico’s National Forest Commission (Cooperativa AMBIO, 2022).

Key success factors and innovations

Foremost to Scolel'te's success is bottom-up participatory community involvement from the very onset of the project. Communities and smallholders decide on the type of restoration or reforestation scheme from a basket of options that suits them best, ensuring that the carbon credits generated are complementary to the income from small-scale sustainable agricultural activities and are therefore sustainable in the long term. (Ecometrica, 2017). Cooperativa AMBIO was created specifically to work with small-scale producers and developed skills to work with rural producer groups. As stated by Helena Barona of Cooperativa AMBIO, "One of the successful aspects of the Scolel'te program is that the work that is being done in the field—the agroforestry systems—adapts to the needs of the producers. That is different from an initiative that follows its own scheme, pursues its own interests, and responds to a short-term goal that leaves the producer with little benefits when the project is over." (Helena Barona, 2022, personal communication).

The longevity and expansion of the Scolel'te project within Chiapas is largely due to the successful articulation with international-level actors (University of Edinburgh, Plan Vivo Foundation) and strong alliances and coalitions in Mexico between government agencies and other NGOs. Through these alliances, Cooperativa AMBIO has been able to manage and develop strategies that go beyond carbon capture, including support for different production systems. From the beginning, the project was closely coordinated with researchers and research institutions, which provided a strong evidence base for project planning, implementation, and monitoring, and generated critical guidance regarding assessment of net carbon stocks in different types of interventions (Ruiz-de-Oña-Plaza et al., 2011). The carbon market aspect provided self-sustaining support and resources, while intense local engagement with farmers, technicians, students, and researchers kept the project on course and faithful to the core project goals.

Connecting the sale of carbon credits to the needs and interests of the communities allows an adaptive process, in contrast to external actions that do not respond to these interests. In addition, other productive actions—training, recognition of local knowledge, among others—integrate communities and producers as core components of the program. A key success factor for Scolel'te has been the provision of financing, infrastructure, and access to markets that enables smallholders to take ownership of the transformation and marketing of forest products created by their work (Soto-Pinto and Jiménez-Ferrer, 2018). The focus on benefits for smallholders and communities lies at the core of all Plan Vivo projects (Appendix 1).

Key challenges

A major challenge has been the instability of the global carbon market, which creates a high level of risk for those who develop projects based solely on the sale of carbon credits. To overcome this risk, it is important to emphasize other components, such as livelihood security and improved land-use management that achieve lasting objectives (Helena Barona, 2022, personal communication).

Other government-led payments for environmental services (PES) programs have led to some competition with Scolel'te. In 2019, the first year of implementation of the Sembrando Vida program created challenges, since smallholders receive a high payment to participate (monthly support of approximately USD$225 for establishing agroforestry production systems (Cooperativa AMBIO, 2020a). Legal and technical obstacles to commercial wood harvesting within project areas poses additional challenges. Wood production was assessed in 2019 and good quality wood has been produced, but not yet commercialized (legal and technical procedures are not developed yet) (Cooperativa AMBIO, 2018). Low carbon prices on the voluntary market and small plot areas strongly limit the income for farmers participating in the project. Added to the uncertainty of obtaining timber benefits, these have been major disincentives for farmer participation (Ruiz de Oña Plaza et al., 2011).

Drought conditions also have posed challenges for Scolel'te producers, increasing tree mortality and altering seed production cycles. Strategies to address problems associated with drought include: selection of seeds of high-quality local species for production in nurseries, mulching to reduce moisture loss, constant monitoring of seed generation, diversification of forest species, and developing alliances with government institutions (Cooperativa AMBIO, 2018).

Figure 12. A producer in Nueva Esperanza in the municipality Maravilla Tenejapa, Chiapas. Photo credit: Cooperativa AMBIO

Key lessons learned

- ***Significant carbon sequestration benefits can be integrated into regional production systems, along with socio-economic, cultural, and environmental benefits.***

- ***Seeing results first-hand helps to motivate participation.*** *Farmers in communities replicated agroforestry practices because they observed demonstrated benefits by their neighbors rather than to receive payments (Henrickson and Corbera, 2015).*

- ***Reforestation alternatives will only be adopted by farmers if they respond to expressed needs of local people, reduce risks, alleviate constraints, and increase productivity.*** *Farmers will become interested if they can participate and design innovations from the beginning of the project and if the initiatives are better alternatives than those offered in the territory. Public programs must consider community priorities based on an integral regional vision, environmental education, strengthening of local capabilities and organization (Soto-Pinto et al., 2012).*

- ***Farmers are the leading experts regarding their context and livelihood conditions.*** *Intensive participation of communities may allow better implementation and monitoring, especially when these programs are integrated into their own community management plans (Soto-Pinto et al., 2012).*

- ***Providing incentives based on rewarding local labor may be a more efficient use of funding for forest carbon offset projects than relying on PES schemes.*** *Government-based PES payments may in effect act as hidden subsidies and rely more on state regulation than market-based principles (Hendrickson and Corbera, 2015). They also exclude marginalized populations who do not hold legal land titles.*

- ***Strong cooperative action dynamics within the community reinforce synergies between participation in carbon forestry projects and other conservation programs.*** *Opportunities to strengthen individuals' social relations can be more influential in mobilizing participation than economic incentives alone (Hendrickson and Corbera, 2015).*

- ***Diversifying productive practices builds capacity for natural resource management, while being flexible so as to avoid existing institutions that might marginalize non-rights holders.*** *Diversifying production in agroforestry systems increases both economic and environmental sustainability and minimizes effects of ecosystem service tradeoffs for producers (Soto-Pinto and Jiménez-Ferrer, 2018).*

- ***An effective local organization is key to the success of community-based carbon credit programs.*** *From the beginning Cooperativa AMBIO protected the mission and interests of the program as well the producers involved, assumed financial and responsibility towards buyers, and implemented complementary activities to strengthen local capacities and generate opportunities for greater impact.*

Parting shot

"Before, I used to grow corn and beans, but the land stopped growing, and the price of corn is very low and it does not work anymore. When the Scolel'te program arrived in my community, I entered it, and then I began to plant the trees" .

—Mr. Pascual Pérez, Ejido la Tronconada, Municipio de Salto de Agua, Chiapas

Figure 13. Scolel'te participants in the farm of Sr. Pascual Pérez (on right with white t-shirt) in Salto de Agua, Chiapas. Photo credit: Cooperativa AMBIO

Learn more

Further information and resources

Websites

Cooperativa Ambio
https://ambio.org.mx/

Plan Vivo Foundation
https://www.planvivo.org/

Information about purchasing Plan Vivo Carbon Credits
https://www.planvivo.org/Listing/Category/purchase-carbon-credits?Take=19

Videos

Scolel'te (2017) in Spanish with English subtitles
https://www.youtube.com/watch?v=dW5-IZniNWY

Cooperativa AMBIO youtube channel
https://www.youtube.com/channel/UCUMtSMQV2VQTj3iZx5TLKDQ/videos

Testimony of Rogelio Morales López, a producer in the Scolel'te program (2020) in Spanish with English subtitles
https://www.youtube.com/watch?v=kP1_t5FuTf4

Plan Vivo - The Carbon, Ecosystems & Community Standard & Network (2012)
https://www.youtube.com/watch?v=aOvAys8hPqA

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Appendix 1. Key features of a Plan Vivo project.

Source: Plan Vivo, 2022

Aspect	Core feature/principle	Variations
Activities	Projects support communities in land-use planning for carbon, livelihood and ecosystem benefits.	Land-use activities depend on the project context. E.g. Smallholders planting woodlots and fruit orchards on individual plots/community groups with forest management plan for community forest.
Participants	Smallholders and community groups draw up land-management plans	The participant type depends on how land is owned and managed in the project area. E.g. Tree-planting project may mainly target smallholders, OR forest conservation project may mainly involve forest-user groups.
Payment mechanism	Participants receive staged, performance related payments via a transparent mechanism.	How funding reaches communities depends on the local financial context. E.g. Only payments in cash/in kind may be possible. OR payments may be made via a local microfinance institution.
Project coordination set-up	A clear institutional structure with the capacity to mobilise and support communities.	There is no prescribed institutional set-up. A project may be coordinated by a single NGO performing all functions, or several organisations sharing functions.
Livelihood and ecosystem objectives	All projects aim to empower communities to protect and restore ecosystems.	Specific objectives depend on the project context. E.g. Project targets restoration of mangroves, OR project aims to increase food security through production of NTFPs.
Funding sources	Funding is needed for project development and on-going PES, coordination and verification.	Projects may use a single or combination of different (market and non-market) funding sources. E.g. Only voluntary carbon finance or blended finance approaches
Size (number of participants and area)	Projects normally create a replicable system where participants can join over time (landscape approach).	No minimum or maximum size, although projects often pilot activities and scale up over time. E.g. from a small number of participants managing under 100 hectares, up to thousands of participants across multiple districts.

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