Mexico and the GEF

Mexico is one of the world's 12 megadiverse countries, with more than 10 percent of the biological diversity of the planet[1]. A combination of mountainous terrain and the country's location in the neo-arctic and neo-tropical transition zone contributes to Mexico's high alpha, beta and gamma biodiversity. Mexico is particularly rich in the number of species present in the country[2]. Mexico is also considered to be one of the countries with the highest ecological diversity in the hemisphere[3].

The GEF portfolio in Mexico includes 54 national projects for more than $450 million –23 projects in biodiversity, 19 in climate change, six multifocal, four in chemicals and two in international waters. Mexico has also been part of 30 regional and global projects representing more than $196 million –10 projects in biodiversity, seven in climate change, five multifocal, six in international waters and two in chemicals.

Regarding the GEF Small Grants Programme (SGP), Mexico, as an upgraded country, has received more than $13 million for over 577 CSOs and community-based projects since its start in 1994. Considering the globally relevant biodiversity and Mayan cultural identity in the Yucatan Peninsula, Mexico was the first SGP to be implemented regionally. In 1999, the scope was expanded to the Pantanos de Centla Biosphere Reserve and the Coastal Plain of Tabasco. In 2006, project finance was extended to Chiapas and since 2012 the Programme operates in the Yucatan Peninsula, Tabasco state and 9 micro-regions in the Chiapas state.

CSO Experiences in Mexico

The active engagement of CSOs in actions to protect the global environment has contributed to the national portfolio in Mexico, which includes numerous projects implemented by and in partnership with CSOs.

The following projects showcase some experiences of full-sized projects (FSP) and medium-sized projects (MSP), implemented by CSO in Mexico, and the impacts achieved by the SGP.

Sacred Orchids of Chiapas: Cultural and Religious Values in Conservation	
Country	Mexico
Focal Area	Biodiversity
Project type	MSP
Allocation	$887,392 (GEF), $1,173,746 (cofinancing)
GEF Agency	World Bank
Executing partner	Pronatura Sur
Type of partner	Non-governmental organization
Approval	December, 2007
Status	Completed (Implemented: December 2007-June 2012)

[1] Toledo and Ordóñez 1993
[2] Mittermeier and Goettsch 1992
[3] Dinerstein *et al.* 1995

Project Overview

Chiapas is the second most important state in Mexico in terms of biodiversity, where various species are collected for ceremonial purposes, including religious and traditional rituals, by indigenous religious groups as well as by Christian churches, both locally and internationally. The four most widely used groups of species in these rituals are bromeliads, palms, orchids, and cycads –considered as sacred plants to various cultures. The habitats for these species are tropical mountain cloud forests, tropical rainforests, and temperate pine-oak forests. Pronatura Sur implemented this project to reduce pressures on endangered forest species used for religious ceremonies and improve the livelihoods of local communities. This project increased conservation measures by establishing a collaborative framework among religious entities, traditional indigenous groups, forest owners, and the government for the sustainable use of non-timber forest products with ritual and ceremonial value, through:

1. Improving knowledge management for the conservation and sustainable use of species used in ceremonies. Activities will be targeted to using the existing information to develop management practices, as well as to close information gaps that limit the possibility of developing effective conservation strategies. This information will enable measures for the management of these species.
2. Producing Cultural Participatory Management Plans, based on an integrated approach, including technical and cultural practices, to promote natural resources management and social development as a whole. Activities will aim at strengthening indigenous, local communities and rural peasants' capacity and organization for the sustainable managing and harvesting of ceremonial-use species (non-timber forest products) and conservation of their habitats.
3. Building partnerships between local communities and international and national religious groups for the conservation and promotion of fair markets for non-timber species and products. These partnerships will link communities and users groups, facilitating trade agreements to improve market sustainability.

Partnerships

A comprehensive consultation process was undertaken to design this project, including interviews with national and international experts to obtain feedback on the proposed activities and on the feasibility of the proposed activities and their potential impact. Commercial intermediaries and forestry technical assistance providers were also consulted to obtain historic information about distribution of the species and quantities that were collected in the project areas in the last 20-30 years. Field visits were coordinated to obtain information about the conditions of the forest prior to the project in the sites where collection of plants was taking place. In addition, rural participatory assessments were carried out to obtain information on status and trends of the populations and the quality of the forest sites. As a result, Pronatura Sur established a model of effective partnerships for the implementation of this project with:

- **International organizations.** Because the project addressed conservation measures of species used for religious purposes, a key partnership was established with the Alliance of Religions and Conservation (ARC), a secular body that helps the major religions of the world to develop their own environmental programs, based on their own core teachings, beliefs and practices. Pronatura Sur and ARC co-hosted an International Seminar on Faith and Conservation in Chiapas, in which local and international religious groups participated. As a result, a model partnership of religious congregations working for nature conservation was agreed. The model is being replicated by ARC in Asia and Africa. Another partnership was created with The Nature Conservancy, which contributed cofinancing for the geographic and

biodiversity databases for the project area; training, technical support and activities within the communities; and support for the activities leading to the establishment of protected areas.

- **Government agencies.** Various national government agencies were actively engaged in the project, including the Ministry of Environment and Natural Resources (SEMARNAT), the National Commission for the Knowledge and use of Biodiversity (CONABIO), the National Forestry Commission (CONAFOR), the Federal Environmental Protection Agency (PROFEPA), the National Commission of Protected Natural Areas (CONANP) and the Ministry for Indigenous Peoples (SEPI). Through these collaborative efforts, the wealth of new knowledge generated by the project improved regulations of non-timber forest products, and is being used as the foundation for the National Strategy for the management of non-timber forest products. Also, results achieved were included in the national report to the UN Convention on Biodiversity as part of Mexico's achievements in fulfilling the goal of the global conservation strategy of plants.
- **Indigenous Peoples organizations and local communities**. Indigenous peoples, in particular Mayan groups (Tzotzil and Tzeltal), and local communities from the Chiapas Highlands were key partners in the activities. Their active engagement ensured that indigenous practices and traditions were prioritized, as well as of indigenous governance, promoting an inter-cultural dialogue in the locations where the activities were implemented. As a result, participating indigenous peoples organizations and communities are organized for planning, decision making and benefit sharing in non-timber resources management.

Mainstreaming the Conservation of Ecosystem Services and Biodiversity at the Sub-watershed scale in Chiapas	
Country	Mexico
Focal Area	Biodiversity
Project type	FSP
Allocation	$1,555,000 (GEF), $4,850,000 (cofinancing)
GEF Agency	United Nations Environment Programme (UNEP)
Executing partner	Conservation International Mexico
Type of partner	Non-governmental organization
Approval	July, 2010
Status	Under implementation

Project Overview

The Sierra-Costa region of Chiapas, stretching from the Sierra Madre de Chiapas mountain range to the Pacific Coast, is home to many threatened and endangered species, endemic species of salamanders and butterflies, and an important bird area. The region also supports the largest mangrove forests in Mexico, which serve as critical breeding and foraging habitats for birds and numerous fish species. Land use practices in the region are threating biodiversity conservation and ecosystem services through coffee production and cattle grazing, deforestation and wood harvesting, improper use of fertilizers and agro-chemicals, uncontrolled fires, and unsustainable hunting and collecting of animals and plants. To address these threats, Conservation International Mexico is implementing this project to mainstream biodiversity conservation into natural resources management at the sub-watershed level through the integration of ecosystem services

considerations in decision-making in the Sierra-Costa region of Chiapas. Targeting ten sub-watersheds in the region, the project aims at:

1. Developing the knowledge base among stakeholders at the sub-watershed scale of the interactions between ecosystem services and land uses. Methods, tools and protocols for assessment and monitoring of ecosystem services, biodiversity, and land use data and policies are being developed, for use by watershed committees, other key government agencies, non-governmental partners and universities.
2. Mainstreaming ecosystem services and biodiversity into land use policies, planning, and promotion by land users and decision makers. Activities are focused on the integration of ecosystem services and biodiversity considerations into natural resources management policies and plans at the sub-watershed level through training programs for key watershed committees' members, policy-makers and land users; the strengthening of sustainable production practices in agriculture, livestock farming and forestry; and the implementation of restoration and soil conservation pilot activities.
3. Increasing access by land users to public and private payment for ecosystem services (PES) mechanisms (e.g., carbon, watershed services, biodiversity). These mechanisms will provide funding and incentives for implementation of land use practices and strategies that both conserve ecosystem services and biodiversity and improve local livelihoods. Activities include training and technical assistance for land users and non-governmental stakeholders on preparing projects that qualify for government PES programs; and developing market feasibility studies and marketing plans for market-based PES mechanisms of sustainable products.

Partnerships

A detailed analysis and planning exercise was conducted with input from a broad range of stakeholders representing the key federal, state and municipal agencies, universities and researchers, NGOs, watershed committees, and others who have an up-to-date understanding of conditions and needs in Chiapas related to biodiversity conservation, ecosystem services and PES mechanisms, land use planning, research, monitoring and training in these areas, and other themes that are central to the project. Studies of existing efforts and institutional capacities in Chiapas were undertaken, and discussed with stakeholders at two workshops, for the detailed design of the project. Based on these consultations, Conservation International Mexico was able to establish the following partnerships for the implementation of this project:

- **Government agencies**. The active engagement of government agencies is being promoted at the following levels:
    a) Federal level, through the National Commission of Protected Natural Areas (CONANP), which is responsible for the introduction and strengthening of production practices and the implementation of restoration and soil conservation activities that conserve ecosystem services and biodiversity; and the National Commission of Water (CONAGUA), which will serve as one of the main channels for the project to engage regularly and effectively with municipalities and watershed management committees, building on its ambitious strategy to expand coverage and strengthen capacities of watershed committees for conserving ecosystem service in the Sierra-Costa region.
    b) State level, by involving the National Institute of History (IHN) in ecosystem services and biodiversity monitoring and research, in promoting and supporting eco-friendly production activities and in strengthening the land use planning and policy coordination activities of the watershed committees; and the Sustainable Forestry Commission of Chiapas (COFOSECH), to pilot reforestation, soil conservation and ecosystem restoration

activities, to improve land users' access to PES and to support for sustainable production practices.

c) Municipal level, in the 17 municipalities of the Sierra-Costa region, 14 of them on the Pacific side of the Sierra and three on the Grijalva side, where the ten sub-watersheds selected for project implementation are situated. The mayors in these municipalities are presidents of the watershed committees. These partnerships are based on the need to fully engage with municipalities which are formally in charge of financing and managing the watershed committees in their geographic area of administration.

- **Civil society organizations**. Collaborative efforts were established with CSOs working in the Sierra-Costa region of Chiapas, which are contributing to ecosystem services and biodiversity monitoring, capacity strengthening of watershed committees, training and technical assistance for ecofriendly production practices and forest restoration activities, and access to government-funded and market-based PES programs. These partnerships not only strengthen existing initiatives of partner organizations and identify bottlenecks but provide project support and coordination. Key partners include: Ambio, Pronatura Sur, the Institute for Sustainable Development in Mesoamerica (IDESMAC), The Nature Conservancy, and the El Triunfo Conservation Fund (FONCET).
- **Local communities**. Because the project is targeted to addressing land use practices under threat, the active involvement of community-based land use organizations is critical. Numerous types of community organizations are engaged in the activities, including local and regional associations of cattle farmers, regional associations of forest farmers, cooperatives and similar forms of producers' organizations, and voluntary groups engaged in nature and environmental protection.
- **Academic and research institutions**. The participation of academic and research institutions aim at capturing their expertise for ecosystem services and biodiversity monitoring; research regarding relationships between land use, habitat change and ecosystem services and biodiversity loss; and training and technical assistance for local policy decision-makers and land users promoting and introducing ecosystem services and biodiversity friendly land use practices. Key partnerships include ECOSUR and the Autonomous State University of Chiapas (UNACH).

El Triunfo Biosphere Reserve: Habitat Enhancement in Productive Landscapes Project	
Country	Mexico
Focal Area	Biodiversity
Project type	MSP
Allocation	$750,000 (GEF); $1,394,700 (cofinancing)
GEF Agency	World Bank
Executing partner	Instituto para el Desarrollo Sustentable en Mesoamérica A.C. (IDESMAC)
Type of partner	Non-governmental organization
Approval	July, 1999
Status	Completed (Implementation: September 1999-September 2002)

Project Overview

Mexico ranks fourth in the world among megadiversity countries. Threats to biodiversity include deforestation, overexploitation, uncontrolled tourism, economic development, and unsustainable grazing policies. To address these threats, the Government of Mexico developed a strategy to protect critical habitats, which includes strengthening the management of priority reserves and promoting local participation in the conservation of these reserves. The El Triunfo Biosphere Reserve is considered a priority conservation area, due to its remarkable biodiversity conservation value. The El Triunfo Biosphere Reserve covers 120,000 ha, comprising a buffer zone of about 93,500 ha (79 percent), and a core zone of about 25,700 ha (21 percent). The core zone is pristine forest and is on land owned by the federal government. The buffer zone is private land, owned by communities (also known as *ejidos*), and individual farms of differing sizes, with a total population of about 14,000 people. About 60 percent of the buffer zone is densely forested, with the remaining 40 percent of these lands under agricultural production –mainly coffee. The cutting of forests for the establishment of new coffee plantations was classified as the second most important threat to the Reserve's biodiversity in its Management Plan. The coffee sector provided an excellent opportunity for integrating conservation in the productive system. Thus, the Instituto para el Desarrollo Sustentable en Mesoamerica (IDESMAC) implemented this project to conserve biodiversity and increase habitat in productive landscapes of the El Triunfo Biosphere Reserve buffer and influence zones by preserving coffee cultivated under diverse shade trees, reconverting other coffee production regimes, and promoting other sustainable production opportunities, through:

1. Promoting community participation and supporting local efforts to adopt sustainable agricultural practices, including shade-grown coffee. Activities were focused on enabling farmers and local communities to actively participate in the promotion of biodiversity-friendly actions. Training in the use of participatory techniques and tools and community workshops were organized to define action plans.
2. Promoting sustainable agricultural production that reduced fragmentation of forest habitats. Activities targeted the identification and promotion of diversified agricultural production which also provide new sources of additional income generation (e.g.: honey, cacao, ornamental plants, eco-tourism, among others), while specifically focusing on biodiversity-friendly coffee. Certification criteria for biodiversity-friendly coffee from the Biosphere Reserve were defined jointly by project partners, including communities.
3. Supporting the conservation of native species. Through capacity development and training, communities were engaged in the formulation of their own local environmental plans, becoming the main actors in monitoring their flora and fauna. This training enabled communities to increased their participation in the benefits of conservation and apply biodiversity monitoring methods on-farm. A platform for environmental information exchange was also developed.

Partnerships

A whole network of organizations around the concept of sustainable coffee production has been built during project preparation and implementation, providing a powerful foundation for promoting the concept of biodiversity friendly coffee. This network helped turn the concept of sustainable coffee production in a realistic vision of poverty reduction and biodiversity conservation. Through a participatory project preparation process, IDESMAC established the following partnerships for its implementation:

- **Local Communities** and producers were actively engaged through an alliance with seven cooperatives of local farmers in 41 communities in Chiapas. These cooperatives collectively increased their memberships from 400 to over 900 families. Through increased capacities, the

participating cooperatives achieved the transformation of 1,740 hectares into organic coffee and 910 hectares into shaded coffee that are sustainable from an economic, social and environmental perspective. Around 1,000 ha. of primary forest are protected through the certification program, and an additional 1,050 has. of forest are protected under biodiversity conservation agreements with two communities. The volume of coffee produced by over 700 producers certified and sold as biodiversity-friendly rose from 1,820 quintals in 1999 to 11,035 quintals in 2002, increasing the cooperatives' income by 50-125 percent. The economic gains that came from these efforts were critical to transforming the communities into those that actively supported biodiversity conservation. In addition, six of the seven cooperatives transformed into well-organized legally binding cooperatives with transparent rules and monitoring mechanisms, greater participation of members, including women, in decision-making processes, better financial management and access to credit, orientation toward improving social, economic and environmental conditions of its members, and in some cases direct access to organic and bird-friendly certified coffee export markets in North America and Europe. Each of the cooperatives built capacity to apply biodiversity monitoring methods on-farm. The participating cooperatives were Campesinos Ecológicos de la Sierra Madre de Chiapas. S.C. (CESMACH), Indígenas y Campesinos Ecológicos de Angel Albino Corzo S.S.S. (ICEACC), Unión de Ejidos Villa de Mapastepec (UEVM), Unión Nueva Alianza S.S.S. (UNA), Nubes de Oro S.S.S (NDO, antes Flor del Toronjil de la Tierra), Unión de Campesinos Ecologistas de Acacoyagua (UCEA), Finca Triunfo Verde (FTV).

- **Government Agencies,** at the federal and state level, provided guidance and support for the activities, integrating key project results into policy in the agricultural sector. An inter-institutional forum was established, the *Roundtable El Triunfo*, which brought together government representatives and other partners working in the project region. The multi-stakeholder forum enhanced coordination and collaboration in the El Triunfo reserve. Main agencies involved included the National Institute of Ecology (INE), responsible for the administration of the Biosphere Reserve and part of Mexico's Ministry of Environment and Natural Resources (SEMARNAT); the Federal Ministry of Agriculture (SAGAR); the Institute of Natural History (IHN), a decentralized institution of the Chiapas state government; the Mexican Coffee Council and the State Coffee Council in Chiapas.
- **Certification Agencies**, responsible for accrediting certification for biodiversity friendly coffee. Through the engagement of OCIA International and CERTIMEX, 1,740 hectares of organic coffee and 910 hectares of shaded coffee were certified, representing the most comprehensive coffee certification for sustainable production worldwide as it incorporated both organic and bird friendly (shade) criteria. Based on the partnerships with the certification agencies and the extensive consultations and workshops with other coffee organizations and certifying agencies in Mexico, a new organization was established –the Council on Sustainable Coffee (*Consejo de Café Sustentable),* to promote sustainable coffee production in Mexico. The multi-stakeholder Council is composed by 16 organizations (cooperatives, certifiers, academics and non-governmental organizations) in five states, representing about 30,000 producers.
- **Academic Institutions** provided technical guidelines for implementation of alternative production technology and diversification. A key partnership was created with the Autonomous University of Chiapas, which instituted the first diploma in Sustainable Coffee, and provided technical assistance to the cooperatives. In addition, the Smithsonian Migratory Bird Center provided support to certify bird-friendly shade grown coffee.
- **Private Sector**. Alliances were established between the cooperatives and private sector companies to facilitate access to diversified markets for the processing and sale of higher-

value differentiated coffees. A key partner was Starbucks, opening the market for biodiversity-friendly coffee to the North American market.

- **Civil Society Organizations,** also working in conservation inside the El Triunfo Reserve were engaged in developing complementary projects for marketing, certification, and training. Key partners included Produce Chiapas, Rainforest Alliance, and Pronatura Chiapas.

Public-Private Funding Mechanisms for Watershed Protection	
Country	Mexico
Focal Area	Biodiversity
Project type	FSP
Allocation	$5,000,000 (GEF), $15,000,000 (cofinancing)
GEF Agency	Inter-American Development Bank (IDB)
Executing partner	The Nature Conservancy (TNC)
Type of partner	Non-governmental organization
Approval	June, 2010
Status	Under implementation

Project Overview

Freshwater ecosystems –the diverse communities of species found in lakes, rivers, and wetlands—are among the most endangered of natural ecosystem due to development and climate change. These ecosystems have lost a greater proportion of their species and habitat than ecosystems on land or in the oceans due to increasing threats from dams, water abstraction, overharvesting, pollution, deforestation, and the presence of invasive species. Climate change promises to cause further challenges given anticipated changes in the seasonality and annual patterns of precipitation. To protect biodiversity while conserving water sources for human consumption, the Nature Conservancy (TNC) is implementing this project aimed at preserving and restoring watersheds and helping protect important water supplies through a public-private funding mechanisms: the Water Funds.

Water funds are ecosystem service-based projects that use a multi-institutional governing board and a trust fund financial structure to establish a long-term, sustainable source of funding and a decision-making entity to protect or restore watersheds in order to provide a regular supply of clean water to downstream users. The key components of Water Funds include:

- *Ecosystem services mechanisms* that include people and nature;
- Sustainable *financial mechanisms* with transparent management;
- Multi-stakeholder *institutional mechanisms* including public and private partnerships;
- *Concrete conservation actions* to generate services and conservation benefits; and
- *An accountability system* to ensure delivery of services and protection of natural ecosystems.

The project, which is part of the Earth Fund platform, is being implemented in Ecuador, Colombia, Peru, Brazil and Mexico. The two Water Funds established in Mexico are:

1. The **Chiapas Water Fund,** *Fondo Semilla de Agua*, which is protecting freshwater sources through the conservation and sustainable growth in the basins of the Upper Grijalva, Sierra Madre and Chiapas Coast. This area covers over 2 million hectares, where about 2.5 million poeple live. The Fund is promoting actions that contribute to reducing the impact of landslides and floods in rural and urban communities, helping to protect the safety and well-being of thousands of people. Activities are also focused on diminishing the sedimentation of Grijalva Hydroelectric System's damns, the most important in Mexico.
2. The **Monterrey Metropolitan Water Fund** (FAMM), which provides a vehicle for large water users to make contributions focused on preserving the watershed of the San Juan River and thus ensuring the environmental services the city receives. Conservation actions help reduce the negative consequences of extreme natural events, like hurricanes and storms, and generate greater awareness among the community for a stronger commitment to the conservation of water and nature. The FAMM is helping to protect water sources that provide services to over 4 million people in the city and its metropolitan area, while supporting the sustainable development and wellbeing of the region.

Partners in both Water Funds in Mexico include private sector companies, government institutions, civil society organizations, and universities.

Organic apiculture as an alternative for the conservation of natural resources	
Country	Mexico
Focal Area	Biodiversity
Project type	SGP
Allocation	$36,536 (GEF SGP); $80,633 (cofinancing)
Executing partner	Kabi Habin S. P. R. de R. L.
Type of partner	Community-based organization
Status	Completed (Implemented: April 2004-April 2005)

Project Overview

South Eastern Mexico, which includes the states of Campeche, Chiapas, Quintana Roo, Tabasco, and Yucatan where the SGP is implemented, possesses a great diversity of ecosystems and species as well as significant endemism. Biodiversity is enhanced due to the nature of the terrain in areas like the Yucatan peninsula, where slight elevations of a predominantly calcareous soil produce unique island-like biota in a matrix of karstic sinkholes or *cenotes*. Among other large tracts of forests, South Eastern Mexico harbors the Lacandon rainforest constituting the largest remaining expanse of evergreen rainforests and harboring 22 percent of the country's biodiversity, including 50 percent of butterflies, 46 percent of birds, and 26.8 percent of mammals. Beekeeping is one of the traditional economic activities of the Mayan population in the Yucatan Peninsula. It represents the main monetary income. Kabi Jabin members were forced to participate in the existing apiculture intermediation network being exploited by those who dominate the honey market. In recent years the honey production has been a decline because of the tropical forest lost, the erratic variation of the honey prices and the commercial intermediaries market control. Kabi Habín implemented this project to consolidate apiculture as a sustainable alternative for the conservation of the tropical forest, improving the quality of life an association that comprises 41 members belonging to four Mayan communities. Organic apiculture projects require the conservation of the vegetal cover and therefore it is intrinsically linked with the

conservation of biodiversity. In particular, it helps in achieving the following Strategic Priorities: Strengthening conservation, management and sustainable apicultural use of tropical forest ecosystems; developing capacity of CBOs and NGOs to participate in the conservation of the tropical forests; promoting organic apiculture and the sustainability of its outcomes; strengthen the involvement of local and indigenous people in the conservation of the tropical forest and its biological diversity; and reducing poverty. In particular, the key activities of project aimed at:

- Promoting conservation of more than 1,000 hectares of tropical forest ecosystems, through the management and sustainable apicultural
- Building the capacity and strengthening the institutional development of Kabi Jabin to produce and trade organic honey, thus preserving the tropical forest and its biological diversity
- Pilot testing Organic Apiculture as a key sector for SGP in Mexico
- Strengthening the involvement of four Maya communities in the conservation of the tropical forest
- Increasing honey production and trade, thereby producing sustainable livelihoods and helping 100 communities get out of poverty

Impacts

Kabi Habín was able to innovate and improve their production quality standards and processes to comply with the rules and requirements needed for getting organic certification. As a result, the project has been increasing the socio-economic conditions of four Maya communities as the income from the apicultural activities has increased from $504 by beekeeper in 2005 to $3,458 in 2013. Also, Kabi Jabin established a permanent link with expert biologists and apicultural technicians, allowing continuity in capacity-building and institutional development. SGP was also instrumental in creating a strong link with the NGO Educación Cultura y Ecología, focused on certificate of Fair Trade products. Particular impacts achieved include:

- **Environmental Impact.** Forest ecosystems are a key habitat for bees, which also play a fundamental role in biodiversity conservation due to pollination. Therefore, forest conservation and honey production are linked and are affected by the expansion of the agricultural and stockbreeding, forest fires and traditional and not regulated forestry. In fact, organic honey production is an indicator of good forest conservation as organic beekeepers have to ensure that the pollen and nectar collected from their bees is free from pesticides and chemical residues. In general, organic apiaries need to be surrounded by an area with a radius of at least 2 kilometers in which only organic or traditional Mayan agriculture or clean wild habitat exists. A circumference of 2 kilometers per apiary, means that least 63 hectares of tropical forest surrounding each apiary is protected. Therefore, the 100 Kabi Jabin beekeepers are protecting about 4,000 hectares of tropical forest. As such, one of the main results of this project is the increased capacity of the Mayan community to manage forest resources through apiculture. In 2003, at the beginning of the project, the association started with 650 of beehives protecting 386 of forests. Today, the association has 4,500 beehives and protects 4,000 hectares of forest surface. About 141,512 kg of organic honey are produced annually. Given that the area of intervention is between Sian Ka'an and Calkmul Biosphere Reserves, the vegetal cover is majorly Sub-evergreen Tropical Forest, a rich ecosystem home to numerous native honey species. As such the project area is habitat for at least 64 different species of mammals, 18 which can be found in the Official Registry of Mexican Ecology, a resource which outlines flora and fauna that are in danger of extinction, rare, threatened or are under protection. The area is also habitat of jaguarundis, ocelots, pumas and margays. The fauna also includes Central American Agoutis, Geoffroy's Spider Monkeys, Guatemalan

Black Howlers, Baird's Tapir, White-nosed Coatis, Ocellated Turkeys, Crested Guans, toucans, and green parrots.

- **Socio-economic impacts.** The Yucatan Peninsula has a population of almost three million inhabitants. The third part is Maya, who live mainly in rural areas in conditions of marginalization and poverty. Its gross domestic product *per capita* reaches just $600 per year. However, in southern Quintana Roo State, the GDP *per capita* of the Mayan population does not reach the $300. All members of Kabi Jabín are Mayan peasants using traditional slash- and -burn agricultural system for their milpas. Mayan communities depending on the milpa and still linked to the beekeeping intermediation network, are in an impoverishment process similar to the one who suffers most of the Mayan population. However, Kabi Jabín, with his beekeeping innovation has allowed to the associate families to obtain an extraordinary economic benefit. The best indicator of socio-economic benefits is in terms of tons of honey accepted by the organic market, since the revenue generated are up to 25 percent higher, both for honey quality and due to the fact that they now sell directly, without the help of any intermediaries.

Replication and Scaling up

After the success of this pilot project, SGP Mexico replicated this project with other communities and started a cluster of apiculture projects that now comprises 63 organic honey production projects that protect more than 119,000 hectares of forest.

Community-Based Carbon Accounting: A Pilot Project on How Communities can Engage in REED+	
Country	Mexico
Focal Area	Climate Change
Project type	SGP
Allocation	Two consecutive projects of $31,731 and $30,000 (SGP-COMPACT); $93,977 (cofinancing for the two projects)
Executing partner	U'yool'ché A.C. - Ejido Felipe Carrillo Puerto
Type of partner	Organization of local and indigenous communities
Status	Completed (Implemented: 2006: Preparatory phase; 2008-2010: Project 1; and 2011-2012: Project 2)

Project Overview

In Mexico, 80 percent of forests are owned by *ejidos* and communities. An *ejido* is a Mexican model of corporate ownership of the land. It is a society of social interest composed of Mexican peasants by birth that received inalienable property in the form of land, forest or water resources by the Mexican government –free of charge—; provided that its use and exploitation follows the guidance and rules of the State. It is therefore necessary and important to find means that allow forest owners to become productive and sustainable in using resources while preserving this heritage for future generations.

The Sian Ka'an - Calakmul Corridor is a vast forested area that links two biosphere reserves of great importance in terms of biodiversity, and the sustainability of its local communities. U'yool'ché A.C implemented this project aimed at the conservation of the forest and its associated biodiversity by piloting the participation of local and indigenous communities in

carbon sequestration projects that can serve as an example for REDD+ (see Box 1). This goal can only be accomplished by identifying the needs and aspirations of local communities and empowering them in the fight against climate change.

The U'yool'ché A.C. project began in 2006 with the interest of indigenous communities to develop carbon sequestration techniques in the Mayan Zone. To start, the community conducted a survey to understand this new concept and the applicability of a forest carbon project in the Mayan forest. Since few communities in the region had diversified forest conservation activities and financial alternatives, forest conservation and regeneration were vulnerable to external contingencies. A sustainable management approach was considered a viable alternative to generate revenue to protect the tropical forest and create jobs. The project aims to generate an alternative way to finance forest conservation activities by exploring carbon markets. As a pilot project, another goal has been to develop methodologies and to generate knowledge for the development of other forest carbon projects in the Corridor region of Sian Ka'an - Calakmul. In recent years, the project has evolved toward generating experience and capabilities in the context of REDD+ preparation in the country.

Box 1: REED+
Reducing Emissions from Deforestation and Forest Degradation (REDD) is an effort to create a financial value for the carbon stored in forests, offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development. REDD+ goes beyond deforestation and forest degradation, and includes the role of conservation, sustainable management of forests and enhancement of forest carbon stocks.

Two projects were implemented:

1. A first grant from the Community Management of Protected Areas Conservation Programme (COMPACT) of the GEF SGP (see Box 2), supported the creation of a participatory management methodology to preserve the forest and avoid deforestation in the *ejido*.
2. A second GEF SGP grant was approved to help transfer and improve the capacities of the local communities in the *ejido*, contribute to the carbon credit certification process, and to demonstrate that local communities can engage in REDD+ by providing an example that could be replicated and upscaled by other local communities across the world.

Key activities during the project were:

- 2006- Conducted pre-feasibility study with the community, external experts, and the technical support of the GEF SGP 2007- Declaration of 1,230 hectares of the *ejido* into a community reserve.
- 2008 – 2010- Established community based management strategies to avoid deforestation and allow carbon capture in the reserve. Prepared certification with the Plan Vivo Foundation for the sale of carbon credits.
- 2010 – 2011- Certified as a "voluntary conservation area", the first of this kind in the Yucatan Peninsula, by the National Commission of Natural Protected Areas. Development of biodiversity, water, and socio-economic monitoring system.
- 2011- Finish the certification of the project, initiate capacity building activities, and create learning modules for students, farmers and public servants. Increased scale to work with more communities in the region, including 11 more from Calakmul, and one honey producing cooperative.

Box 2: **COMPACT of the GEF SGP**
The Community Management of Protected Areas Conservation Programme (COMPACT) was launched in 2000 as an initiative of the GEF SGP, UNESCO, and the United Nations Foundation (UNF) to develop World Heritage Sites, Biosphere Reserves and other socio-ecological production landscapes into "learning laboratories for sustainable development". To date, COMPACT has been demonstrating that strategic support to community-based initiatives can significantly increase the effectiveness of biodiversity conservation and ecosystem service protection within globally significant protected landscapes while helping to improve local livelihoods.

In addition, local communities worked closely with local NGOs to ensure the success of the project during its implementation.

Impacts

The projects implemented by U'yool'ché A.C., an organization formed by an interdisciplinary team of professionals and partners with the objective to promote, encourage and assist the conservation of natural resources by local and indigenous communities, achieved the following results:

- Learning process: All courses and workshops were conducted as a dialogue where experts were invited to share their knowledge with the community.
- Community research methods: Instead of hiring outside experts, most of the scientific research was developed by the community supported by the Colegio de la Frontera Sur (ECOSUR), a public institution of scientific research and graduate studies. The most notable experience was the creation of a local allometric equation, which is essential to calculate carbon and to strengthen project ownership by the community.
- Systematization of information: The latest innovation consisted in the systematization of the information and the training of all key projects, which helped sharing capabilities generated by the project.

Since the proponents and beneficiaries of the project include indigenous people (Mayan Yucateca), Mayan language is used in the documents and broadcasting. Some workshops were held in Mayan. Traditional knowledge is always used to develop methodologies including for the field reforestation process. The project also provided the GEF SGP further experience and expertise to channel effective support to indigenous communities and act as a co-financing partner or grant delivery mechanism for other donors and agencies for similar community-based projects in developing countries. Specific impacts include:

- **Environmental Impact**. The most noticeable and important outcome has been the declaration of a community conservation area of 1,230 hectares consisting of semi-evergreen forest. Since the community monitors the biodiversity of the area, three baselines were conducted: one for vegetation, one for biodiversity, and one for water resources. The information from these baselines is used by the community to monitor and track progress in all these areas. For water, the community is using the methodology of "Global Water Watch"; for vegetation the community established 16 permanent sampling sites; and for biodiversity, cameras and other devices are used. It is important to note that the community reserve protects the habitat of many animal and plant species of which 23 are under international protection status or rapidly disappearing. In addition to the results in forest and biodiversity conservation and management, the *ejido* is now capable to fight forest fires in the 47,000 hectares of the community. The community has also conducted a number of trainings and workshops and is preparing for the verification of the carbon certification in December 2011. The certifier of the carbon project is Plan Vivo (http://www.planvivo.org), a foundation that has a very important community-based approach which requires many environmental and social safeguards in the certification process. In addition, Plan Vivo Foundation require a participatory process in which the community makes decisions by consensus. To initiate the certification process with Plan Vivo the community, with the support of GEF SGP, submitted a project concept note that was validated in 2010. The community then submitted a project document, and two technical specification documents that explain how many carbon credits would be generated. For the technical specifications the community is using two approaches: reforestation of native species for carbon capture, and avoided deforestation through community conservation actions. These three documents were sent to the Plan Vivo Foundation for review, which will be followed up by a visit of a verifier, in this case ECOLOGIC, who are scheduled to visit the project on November, 2011. It is expected that the community will be able to sell its first carbon credits in the voluntary market in the

beginning of 2012. U'yool'ché A.C. is already in negotiations with local hotels who are interested in buying the credits.

- **Socio-Economic Impacts**. One of the most important socio-economic impacts of the project is the enhancement of the capacities of the indigenous people to understand climate change, forest carbon monitoring and other sustainable management issues and methodologies. In particular, the project conducted knowledge exchanges to increase the scale of the project through community-to-community workshops. A two day module where local technicians share their experiences with farmers from other communities, have been developed. In order to sustain the results of the project in the long term, the project trained students on forest carbon methodologies and approaches though a 5-day seminar for young graduates of the *ejido* as well as students about to graduate from local universities to transfer knowledge from farmer to students. The community has also created posters to disseminate information of various aspects of the project, one of which is about REDD+ and it is available in both languages: Mayan and Spanish. Furthermore, the community trained five technicians, two of which are in the process of certification with the National Forestry Commission. These two technicians will become the best spokespersons of the project. Other significant socio-economic contributions of the project include the creation of more than 20 temporary jobs, the improved ability to fight forest fires in the *ejido* area, and improved access to medicines as 30 percent of the revenue generated is spent on medicines for the members of the *ejido*.
- **Policy Impacts.** Statewide, it has been demonstrated that community engagement can achieve better results to deal with socio-economic and environmental issues. Currently the NGO and the President of the *Ejido* participate in the technical advisory council of REDD+ and have participated in several forums about this topic. The project has been discussed and presented in numerous forums and the knowledge generated by it has been shared extensively with other communities and also with government officials. The local, federal and national governments have use the project as an example in the development of other national REDD+ projects. For example, in the framework of UNFCCC COP16, the project was visited by journalists, students, NGOs, international civil servants and officials to share this experience with a large number of actors. Nationally, along with other projects of local NGOs, the community and SGP are working to establish safeguards for socio-economic and environmental issues.

Sustainability

Supported by the National Forestry Commission (CONAFOR), the project has been designed to be sustainable financially as it generates income alternatives by investing heavily in forming a team of community technicians and specialists. In addition, the community works with college students to spread the knowledge and lessons learned generated through the project. In particular, the SGP COMPACT team has generated learning modules for communities, students, governments and transformed the initial project in a "school of carbon sequestration." The local community is also trying to achieve the targets for carbon credit trading during 2012 – 2015.

Replication and Upscaling

U'yool'che AC has been leading the upscaling process in other 12 communities in the region and transmitting capabilities from one community to another.

Local Risk Management in the Yum Balam Protected Area	
Country	Mexico
Focal Area	Climate Change
Project type	SGP
Allocation	$873,504 (SGP GEF) for 40 projects

Project Overview

The Yum Balam Wild Flora and Fauna Protected Area is located within the Atlantic Hurricane Belt and it is vulnerable to very strong winds, tropical storms and heavy rains. It is also located in an area of high fire incidence with 989 fires recorded to date. The 2005 Atlantic Hurricane Season was the most active hurricane in recorded history with two category 5 hurricanes (Emily and Wilma). These hurricanes destroyed thousands of trees in the protected area and became a serious fire menace, especially during the dry season (April-May). In 2006, a fire emergency affected 50,000 hectares and revealed the necessity of creating a Forest Fire Prevention and Combat Program. As a result, the National Commission of Natural Protected Areas (CONANP) developed a forest fire prevention program surrounding the reserve. To support the work of the CONANP, the SGP in Mexico, has supported 40 projects for a total of approximately $873,504 in the protected area and its surroundings benefiting approximately 2500 families from 8 communities.

To date, the government and community efforts to manage the risk of forest fires has proven successful and there have not been any significant fires in the Yum Balam reserve, and its surroundings. Even though there is no official information about the carbon stock maintained on the site, based on the impact of a fire that started after Hurricane Gilbert in 1999, the reserve is avoiding the emission of approximately 54.98 tons of CO_2 by hectare.

Local Risk Management Programme

In 2002, after the impact of the hurricane Isidore in the Yucatán Peninsula, the SGP in Mexico with the support of the Bureau for Crisis Prevention and Recovery of the United Nations Development Programme (UNDP) started the Local Risk Management Program. The Program aims to mitigate climate change by decreasing the possibilities of forest fires after hurricanes; and increasing the resilience of communities to climate change by including risk management considerations in the project design.

About the reserve

The Yum Balam reserve is located in the north area of Quintana Roo Maya and represents the effort of the Mayan people –with the support of the civil society, the academia and the government—to conserve their natural and cultural heritage. The reserve was officially declared a Flora and Fauna Protected Area on June 5, 1994 and its surface of 154,052 hectares is home to a variety of ecosystems including sub-deciduous tropical forest, sub-evergreen tropical forest, flooded forests, mangroves, lagoons, wetlands, coastal waters and marine environments.

Yum Balam flora has at least 414 species, of which 96.5 percent are native and represent 18 percent of the flora in the Yucatan Peninsula. In terms of fauna, Yum Balam is home to 580 marine fish species and 23 freshwater fish species; 340 bird species; 22 wild mammals including three that are endangered or in danger of extinction; 14 amphibian species; 67 reptile species; 168 insect species; 186 arthropod species; 18 lepidopteron species and six dipteran species. The reserve is inhabited by about 15,000 people, mainly Mayan indigenous people, and includes numerous Mayan archeological ruins.

Local Risk Management in the Otoch-ma'ax Yetel Kooh Protected Area	
Country	Mexico
Focal Area	Climate Change
Project type	SGP
Allocation	$21,941 (GEF SGP)
Executing partner	Najil Tucha
Type of partner	Indigenous Peoples Organization
Status	Completed (Implemented: November 2005 – June 2007)

Project Overview

The Yucatan Peninsula is located within the Atlantic Hurricane Belt and it's vulnerable to very strong winds, tropical storms and heavy rains. The 2005 Atlantic Hurricane Season was the most active hurricane in recorded history with two category 5 hurricanes (Emily and Wilma). The Otoch-ma'ax Yetel Kooh Reserve, located in the hurricane trajectory, resulted in high damages caused by sustained winds between 150 and 200 Km/h (categories 2 - 4) and heavy rain. The hurricanes Emily and Wilma destroyed thousands of trees in the protected area –about three tons of wood by hectare— becoming a serious fire menace to forests during the dry season. Given this situation, the Najil Tucha implemented this project aimed at diminishing the risk of forest fires by reopening the paths closed by the trees; creating a fire prevention path surrounding the Protected Area; and extracting and using the deadwood.

The Najil Tucha raised co-financing from the National Commission of Natural Protected Areas (CONANP) to prevent and avoid forest fires and recover the vegetable cover. Visitors will be able to observe some of the effects of the hurricanes Emily and Wilma and appreciate the efforts of the community to avoid forest fires and conserve the protected area. This project helps to avoid the emission of approximately 295,000 tons of carbon dioxide (CO_2) equivalent.

Local Risk Management Programme

In 2002, after the impact of the hurricane Isidore in the Yucatán Peninsula, the SGP in Mexico with the support of the Bureau for Crisis Prevention and Recovery of the United Nations Development Programme (UNDP) started the Local Risk Management Program. The Program aims to mitigate climate change by decreasing the possibilities of forest fires after hurricanes; and increasing the resilience of communities to climate change by including risk management considerations in the project design.

About the reserve

The Otoch-ma'ax Yetel Kooh (House of the spider monkey and the puma) is an effort of the local community of Punta Laguna that started in 1979 to preserve the forest and the existing Mayan archaeological remains of the area. The Otoch-ma'ax Yetel Kooh Reserve was recognized by the Mexican Government as a Protected Area of Wild Fauna and Flora in June of 2002. The Otoch-ma'ax Yetel Kooh Reserve has 5,367 hectares covered by different vegetation types such us tropical sub-evergreen forest, flooded forest and flooded grasslands; and contains one to the more important superficial hydrological systems of the Yucatan Peninsula. In addition, the reserve is home to 215 bird species (114 resident and 44 migratory) and a population of approximately 300 spider monkeys (Ateles geoffroyi). The Punta Laguna community provides guided tours where visitors can observe birds and spider monkeys in their natural habitat.