



# Integrated Coastal Watershed Conservation

Cross-sectoral and participatory conservation, and monitoring in the context of climate change in Mexico

<b>PROJECT FULL NAME</b>	<b>COUNTRY &amp; REGION</b>	<b>IMPLEMENTING AGENCY</b>	World Bank
Conservation of Coastal Watersheds to Achieve Multiple Global Environmental Benefits in the Context of Changing Environments	Mexico, Latin America 	<b>EXECUTING AGENCIES</b>	National Commission for Protected Areas (CONANP), National Forestry Commission (CONAFOR), National Institute of Ecology and Climate Change (INECC), and a private institution, the Mexican Fund for the Conservation of Nature (FMCN).
			
GEF PROJECT ID: <b>4792</b>	<b>FOCAL AREAS</b>		
PROJECT TYPE: <b>FSP</b>	<ul style="list-style-type: none"> <li>Biodiversity,</li> <li>Climate Change Mitigation</li> <li>Land Degradation</li> <li>Sustainable Forest Management</li> </ul>		
GEF PERIOD: <b>GEF-5</b>		GEF Project Grant <b>\$39,518,181</b>	Co-financing Total <b>\$239,886,000</b>

## Summary

The project promotes integrated management of coastal watersheds to conserve biodiversity, contribute to climate change mitigation, and enhance sustainable land use in the Gulf of Mexico and Gulf of California, where impacts from climate change are significant and habitats of globally significant biodiversity are provided. Collaborating with three federal agencies and a private foundation, the project focused on improving sustainable management of protected areas and surrounding watersheds including the areas where local communities manage agroforestry systems. In addition, local communities were engaged through sub-projects that supported sustainable cattle ranching, honey production, adventure tourism and others. These

same stakeholders were involved in project monitoring and development of the Integrated Watershed Action Plans. The project achieved improvement of protected areas management covering 1,748,204.73 hectares, improved management of productive landscapes in the watersheds covering 35,784 hectares, and due to the emphasis on community participation, strengthened socio-ecological resilience of the watersheds to climate change and other potential future environmental and social perturbations. Community pride and ownership in the sustainable management of watersheds was a key outcome. Based on all these outcomes, an integrated watershed management approach is being scaled up at the local and national level.



Coffee cultivation in the coastal watershed © Santiago Gibert

## Global Environmental Benefits

Key global environmental benefits and direct benefits to local communities at the end of the project include following:

- 1,748,204.73 ha of protected area were consolidated<sup>1</sup>, surpassing the end-target projection (1,100,000.00 ha) and achieving 158% of results.
- 10 protected areas are in the process of showing an improvement in their management effectiveness according to the Management Effectiveness Tracking Tool for protected areas (METT), Annual Operational Plans in line with Integrated Watershed Action Plans (IWAPs) and availability of sustainable finance.
- \$28.6 million have been raised for permanent endowment fund for protected areas (achieved 100% of the end-target)
- 35,784 ha of watersheds included Payment for Ecosystem Services as part of their management strategies, and agro-ecosystem and sustainable forest management sub-projects in accordance with Integrated Watershed Action Plans (IWAPs), surpassing the end-target of 18,696 ha and achieving 191% of results.
- 5.53 MtCO<sub>2</sub>eq were avoided/sequestered across the relevant watersheds, surpassing the original end target 4.015 MtCO<sub>2</sub>eq and achieving 137% of results.
- 6 Integrated Watershed Action Plans (IWAPs) were finalized achieving its outcome target.
- 6 local partners have incorporated better land management practices.

## Environmental Challenge

Mexico will be disproportionately affected by climate change. The impacts of climate change, such as hurricanes, drought and forest fires, will be most evident in the coastal areas of the Gulf of Mexico and the Gulf of California, where



Figure 1: Six project sites on conservation of costal watersheds

mountain ranges run parallel to the coast, and deep canyons and ravines connect the mountains with the ocean. They harbor important ecosystems, where globally significant biodiversity is at risk. The threat to the Gulf of Mexico and Gulf of California coastal watersheds is increasing due to poor land use planning and lack of enforcement of environmental regulations. If no action is taken, studies show a 35% additional loss of rain forests and 18% additional loss of temperate forests by 2050 in these two regions. Such forest losses would be accompanied by significant loss of biodiversity, increased GHGs emission, and a decrease in other sustaining ecosystems goods and services. To reverse these trends, a multi-institutional effort is required.

## Integrated Approach and Key Features

The project provided strong evidence of how Integrated Watershed Action Plans, paired with key activities, can reduce biodiversity loss, GHG emissions, and land degradation, through strengthening sustainable land use and socio-ecological resilience of watersheds.

### Cross-sectoral coordination for integrated approach

Inter-ministerial coordination starting from the project design stage was critical to achieve sustainable land management at the watershed level. The project was designed in collaboration with three federal agencies: the National Commission for Protected Areas (CONANP) strengthened the consolidation of protected areas, National Forestry Commission (CONAFOR) led watershed management through a Payment for Ecosystem Services scheme, and the National Institute of Ecology and Climate Change (INECC) facilitated participatory development of the Integrated Watershed Action Plans (IWAPs). A private institution, the Mexican Fund for the Conservation of Nature (FMCN) worked on agroforestry sub-projects with

<sup>1</sup> The protected areas were considered to be consolidated if they have: (a) a published management program or a clear strategic plan (logical framework or similar) that defines results, activities, and indicators for decision making; (b) core and complementary personnel that can implement the main activities identified in the strategic plan; (c) a financial plan including financial gap analysis and implementation of strategies to reduce gaps (described below); (d) essential infrastructure, equipment, and recurrent funds for basic operation, including those to address natural contingencies; and (e) a diversified budget with investment from national and international sources.



Figure 2: Image of collaboration among different agencies in watersheds

local communities in the watersheds. With each agency's technical expertise, the project established the Technical Project Committee to coordinate actions with the aim of reducing negative externalities (e.g., inappropriate land use practices that lead to deforestation and unwarranted GHGs emissions) while maximizing synergies and multiple benefits from the same landscape. The implementation success of the project hinged on its cross-sectoral and inter-ministerial coordination from the beginning to the development and uptake of the landscape-oriented integrated approach which was made manifest in the agreed IWAPs.

### Extensive community involvement in project design, implementation and monitoring

Local communities were actively engaged in the project through sub-projects, which were designed, organized and supervised by local organizations which helped to build trust and ownership of the project. The project identified and approved 32 sub-projects for sustainable land management and improvement of local livelihoods proposed by local organizations, such as honey production, sustainable cattle ranching, pepper production, adventure tourism. Throughout implementation of the sub-projects, interests and commitments of local communities to conserve their natural resources were strengthened. Furthermore, the local residents started recognizing the value of ecosystem services provided by the basins, and the importance of conserving riparian areas and maintaining the connectivity of well-preserved natural areas. As a result, local communities were actively engaged in not only the sub-projects, but also project monitoring activities. This monitoring data will feed into development of the IWAPs.

The regional coordination unit also invested significant effort in selecting, training, and accompanying the community organizations to implement the sub-projects

with local communities, and this investment was considered instrumental in the project's success. In total, 1,669 workshops, which were participated by 16,173 people (6,585 women and 9,588 men) including 20 % of indigenous, were held in four years to strengthen local capacities.

### Sustainable financing mechanisms

The project included a component to increase financing and secure permanent funding for the targeted protected areas. The project partners have raised \$28.6 million, 100% of the project's original end-target, which is a significant achievement given that recently many potential funders have become disinterested in funding protected area trust funds. For capitalization of the Coastal Watersheds Fund, the project managed to get contribution from private companies including \$189,000 from Braskem-Idesa and \$346,000 from Materias Primas de Monterrey (presently COVIA). The other funding sources include: \$4.71 million from Packard Foundation, \$486,000 from Hydraulic Infrastructure Fund of Sinaloa (FIHSIN), \$100,000 from Resources Legacy Fund (RLF), \$1.086 million from Helmsley Foundation, and \$12.601 million from KfW (German Development Bank).

### Innovative monitoring tools both at national and local levels

INECC has developed IWAPs in six watersheds with comprehensive technical data that identify priority sites to invest in defined activities that will maintain ecosystem services. Biodiversity, deforestation and community water monitoring systems [utilizing the Global Water Watch methodology<sup>2</sup>] are in place in the following watersheds: Tuxpan, Antigua, Jamapa, Huazuntlán, Temoloapa and Usumacinta basins, and this decision-making support tool with comprehensive technical data will be applicable to other areas.

Civil society organizations together with community members across the six watersheds monitored water quality and quantity following the Global Water Watch methodology. The civil society organizations adopted the monitoring methodologies into their core practice. The information generated and analyzed through the monitoring systems has informed the IWAPs for each watershed to strengthen local institutions and promote adaptive management.

With strong contributions from community-based monitoring, the CONANP team, together with civil society organizations, periodically gathered biodiversity data. This data and information were incorporated into the database on the National System for Biodiversity Monitoring, which is a product of five-year collaboration between National Commission for Knowledge and Use of Biodiversity (CONABIO), CONANP, CONAFOR and FMCN.

2 Global Water Watch (GWW) promotes citizen participation in water monitoring, bringing together community groups with adequate technology to obtain credible information that helps to encourage adequate care, or sustainable management, of the landscape. The monitoring of water quality and quantity parameters allows people to propose the use of practices that allow a sustainable use of land and water. The GWW-Mexico website is designed to maintain the biological and physico-chemical database of surface waters, collected by citizens certified by GWW.

## Lessons Learned

### Integrated approach

In the coastal watershed in Mexico, landscape level planning and management, including protected areas and productive landscapes, was key to address drivers of environmental degradation. This integrated landscape approach became possible through effective inter-governmental collaboration across territorial areas from the design to implementation of the project. Agencies involved in the project are responsible for protected area management, mitigation of climate change through reduction of deforestation, monitoring of land use change, reduction of biodiversity degradation and associated carbon stocks, and improving socio-economic factors in local communities. This effective cross-agency collaboration also produced innovative community-based monitoring tools on integrated watershed management.

### Stakeholder engagement

Successful implementation of this project is strongly associated with active engagement of local organizations and communities, and building trust with them, which has been achieved through the tangible benefits that local communities realized during the project. Since local organizations were heavily involved in design and implementation of sub-projects to improve sustainable watershed management and community livelihoods. The sub-projects directly provided socio-economic benefits to local communities and the community members recognized the value of ecosystem services provided by the watersheds. They were actively involved in not only the sub-projects, but also more broadly in project monitoring activities. The community-based monitoring information was highly valuable data for the development of appropriate integrated watershed action plans.

### Scaling up the project

With clear benefits for both the environment and human wellbeing, this new integrated approach caught the attention of the national government and other municipalities. The Mexican government has now widely disseminated lessons learned from this innovative watershed level approach to other local governments. This model of landscape conservation will be shared nationally with the aim of scaling up the experience and approach in other watersheds.

## References and Multimedia

- Project website (only in Spanish): <http://www.c6.org.mx/cuencas-costeras/manejo-integral-de-cuencas/>
- PAMIC (Planes de Acción para el Manejo Integral de Cuencas Hídricas, or Action Plans for the Integrated Management of Water Basins) website (only in Spanish): <http://cuencas.cms.matrushka.com.mx/>
- FMCN's Annual Report 2017, available at <https://www.fmcn.org/uploads/infos/file/pdf/OqUS5jNYxaXZWEJCcDLt6Ry4crMg33Hgad62Kq9g.pdf>

## Contact

- Mark Zimsky, GEF, Biodiversity Focal Area Coordinator, Senior Biodiversity Specialist, [mzimsky@thegef.org](mailto:mzimsky@thegef.org)
- Adriana Moreira, Senior Environmental Specialist, World Bank, [amoreira@worldbank.org](mailto:amoreira@worldbank.org)
- Sylvia Diez, Senior Environmental Specialist, World Bank, [sdiez@worldbank.org](mailto:sdiez@worldbank.org)
- Renée González, Conservation Director, the Mexican Fund for the Conservation of Nature (FMCN), [renee.gonzalez@fmcn.org](mailto:renee.gonzalez@fmcn.org)

Available at:  
<http://www.thegef.org/topics/knowledge-learning>

The Global Environment Facility (GEF) was established on the eve of the 1992 Rio Earth Summit to help tackle our planet's most pressing environmental problems. Since then, the GEF has provided close to **\$20 billion** in grants and mobilized an additional **\$107 billion** in co-financing for more than **4,700 projects** in **170 countries**. Through its Small Grants Programme, the GEF has provided support to nearly 24,000 civil society and community initiatives in 128 countries.

