

Case Study: The Mexico Forest Fund

by Ricardo Bayon

*Last year, the government of Mexico began paying local landowners to maintain forests as a way of protecting local watersheds and ensuring the provision of watershed services. As the program enters its second year, the **Ecosystem Marketplace** takes a closer look at how the fund has operated, what people are saying about it, and how it is planning to stimulate local markets, not just for water, but also for carbon and biodiversity.*

The Sierra Gorda Biosphere Reserve in the Mexican state of Queretaro is a biological marvel. Located at the crossroads of two continents, this 383,567-hectare (1 million-acre) reserve contains plants and animals that do not usually mix. Here black bears co-exist with spider monkeys and cactuses live in areas adjacent to pine, oak, and magnolia forests. In fact, with more than 14 different ecosystems, altitudes that start at 300 meters (980 feet) and go to 3100 meters (10,170 feet), and average rainfall that ranges from 350 to 2,500 mm (13 to 98 inches) per year, the Sierra Gorda is considered one of the most ecologically diverse spots on the planet.

But while the Sierra Gorda may be a haven for biodiversity, it is an extremely difficult place to make a living as a small farmer. "The land in many parts of the reserve," says Roberto Pedraza, Director of the Grupo Ecológico Sierra Gorda (The Environmental Group of Sierra Gorda), a local non-profit, "is not suitable for most forms of agriculture or ranching. It just isn't productive enough." So when Pedraza and his colleagues told some of the local farmers that the Mexican government might be willing to pay them as much as 400 pesos (\$40) per hectare per year to leave their forests alone, most jumped on the opportunity. "It took some education," explains Pedraza, "but not much convincing." And by the end of 2003, farmers living on over 13,000 hectares of land in Sierra Gorda, began receiving between 300 (\$30) and 400 (\$40) pesos to maintain their forests.

The money came to these farmers as part of a "payment for ecosystem services" program established by Mexico's National Forest Commission (CONAFOR, the acronym in Spanish) that began operating in 2003. Called the "Mexican Forest Fund", the program pays Mexican landowners to protect watershed and provide watershed services by keeping their forest cover intact.

"The way the program works," says Carlos Gonzalez Vicente, who oversees the fund at CONAFOR, "is that people apply to get paid for their water services. We take a look at the applications with certain criteria in mind: First, we are looking for forested areas in areas that CONAFOR has determined are a priority for the forest sector. Secondly, the National Water Commission (Comisión Nacional del Agua, CNA) has determined that certain areas are priority areas in terms of recharging important aquifers. So we give preference to these areas. And finally, we are also looking for sites that provide watershed services for downstream communities of more than 5000 people. Once we have selected the areas that will receive payment, we use satellite imagery to obtain a baseline of forest cover, and we sign a letter of agreement for five years with the landowners. At the end of each year, if the forest cover is maintained, they get paid."

Last year the fund paid out 192 million pesos (\$19 million dollars) for maintaining forest cover on some 126,000 hectares. In 2004, according to Gonzalez Vicente, they expect to increase the coverage to 160,000 hectares. Money for the fund (\$20 million dollars to be precise) came from the federal government, specifically fees charged for water usage by the CNA.

"The program this year," says Gonzalez Vicente, "was extremely successful." But he worries that too many expectations may have been raised. "Most of the people who applied for the money didn't receive it," he adds. "We had applications for more than 560,000 hectares and were only able to cover 126,000." Luckily, he says, in 2004 the money from the government has been increased to \$30 million.

Pedraza, too, is happy with the way the Forest Fund has been operating in the Sierra Gorda. "Our job," he says, "was to tell people about the fund, encourage them to apply, and compile, collate, and send the applications. In the end we sent in applications for 80 pieces of land within the reserve, and 9 ejidos [special landowning cooperatives found in Mexico] outside the reserve. The fund approved the applications of 50 of the small landowners and 7 of the ejidos." He hopes that this year, more applications will be approved.

Though Pedraza's group didn't get any money for the work it did on behalf of the fund, he says the work was time well-spent because the payments have been very helpful in alleviating the pressure put on the local forests by small farmers, in particular by the grazing of livestock on forests in the watershed.

"That is perhaps the only problem I can see with the Mexican Forest Fund," he says. "They don't require that the landowners remove their livestock from the forests. They just look at satellite imagery. So what could happen is that people could leave their livestock in the forest, the livestock damages the under story while the big trees remain and the satellite image looks the same, and then the big trees die off and the forest doesn't recover." To deal with this issue in the Sierra Gorda, Pedraza and his team have convinced all of the participating landowners in the reserve to remove their livestock in return for the Fund's money.

"Generally they have no problem with this idea," he explains. "For them farming and ranching in these parts is difficult business. They'd be lucky to maintain one head of cattle on 10 hectares, so the 300 or 400 pesos per hectare per year more than makes up for the loss of their grazing opportunities."

Though the Mexican Forest Fund appears to be working well in Sierra Gorda, Pati Ruiz, the founder of the Grupo de Ecológico Sierra Gorda who is currently serving as Director of the Sierra Gorda Biosphere Reserve within Mexico's National Commission for Natural Protected Areas, worries about the program's future. "As I see it," she says, "the two key issues for the Fund are sustainability and monitoring. So far the fund has been an excellent tool for the people of Sierra Gorda to protect their natural resources and their water, but we need to be thinking about what happens in five or ten years, if and when the program stops."

To address this problem, Ruiz and Pedraza are working together to find and establish local markets for the ecosystem services of the Sierra Gorda. They are looking downstream and cataloguing all the potential customers of the reserve's watershed services. Already they have identified 300 potential customers, including a wood factory, an electric utility, and many others. "Obviously we don't expect the poor people to pay for these services," she adds, "we are looking for people and companies with the means to pay."

But, she cautions, once the customers have been identified, the hard work begins. "It is not enough to know that there are potential customers," she says, "you also have to get them to realize that they are receiving a service from the forest, and to pay for a service that has, until then, been free." To do that, she is working with other local groups to build what she calls "an ecological conscience".

Good monitoring and enforcement are also crucial. According to Ruiz, in order to get people to pay for the service, they need to see that it is indeed being provided. This involves producing information on water flows and their relation to forest cover that have "a certain scientific rigor." It also involves a certain level of vigilance and enforcement. "People," she explains, "need to know that if they are being paid to keep forests and provide watershed services, somebody out there is going to be watching to make sure they deliver." To this end, Pedraza's Grupo Ecológico is setting up hydrological monitoring stations throughout the watershed.

But in all of this, the Sierra Gorda is, once again, unique. Not all the people receiving money from the Mexican Forest Fund have the kind of thorough support and follow-up being provided by the Grupo Ecológico in Sierra Gorda. Thanks in large measure to money provided by various foundations and the Global Environment Facility (GEF), Pedraza, Ruiz, and their colleagues have been able to invest hundreds of person-hours informing small farmers about the Forest Fund, helping them apply for the money, and providing valuable follow-up. By contrast, in the rest of Mexico, the initial legwork, as well as issues of monitoring, issues of evaluation, and issues of long-term local markets are most likely being left by the wayside or shouldered by the participants themselves.

CONAFOR's Gonzalez Vicente is well aware of these shortcomings and says his office is busy working to try and resolve them. Nevertheless, he argues, as a first step, the Forest Fund has been extremely influential. "Not only has it helped people make the connection between water, environment, and security," he says, "to understand that forests provide services, but it is just the first phase of a much broader program of developing markets for ecosystem services."

In addition to paying people for the watershed services of forests, CONAFOR will this year begin looking at the possibility of paying landowners for carbon and biodiversity services. "We began with water," he recounts, "because in some ways water is the easiest service to deal with. With water it is relatively easy to identify the users. With biodiversity it is not so easy." Carbon, he notes, is more akin to water: there are already potential

buyers, particularly at the international level. He foresees the demand for carbon coming as a result of Kyoto, the European Union's Emissions Trading Scheme, and other similar international markets. In order to explore how the Forest Fund might help stimulate markets for carbon and biodiversity, the Mexican government this year allocated an additional \$5 million dollars for CONAFOR's budget. "They want us to experiment and innovate," says Gonzalez Vicente.

"In the end," he adds, "we are optimistic. People are tired of relying on temporary and fleeting government subsidies for conservation. They want solutions that are fair, robust, and, most importantly, sustainable." Perhaps for that reason the idea of markets for ecosystem services has begun to take firm root in Mexico. Back in the Sierra Gorda, both Ruiz and Pedraza agree. They say that in their part of the world, if nowhere else, the Mexican Forest Fund has already made a huge difference. They say they would like to see all the farmers in the Sierra Gorda getting fairly compensated for the services they help provide. "And most importantly," concludes Ruiz, "we want to find ways to allow them to make a living in this magical place at the same time that they help conserve it."