Mangrove Rehabilitation in Laguna Terminos Mexico
Restoration through Community Engagement in the Developing World
by Brett Davis

A project is underway in the mangrove forests of Isla del Carmen on Laguna de Terminos of Campeche, Mexico, that demonstrates the powerful role social engagement can play in restoration ecology. The mangroves there, which are vitally important to the local fishing industry and many other ecosystem services, have started to die in several locations due to sedimentation of natural waterways caused by storm events. As a result, fishing in the area has declined in recent years and those trying to make a living from the life in these waters have either had to go further into the Gulf of Mexico for their catch or lose their jobs.

Several Mexican government agencies in coordination with the Gulf of Mexico Large Marine Ecosystem project (GoM LME) initiated a rehabilitation project in 2009 to revive 200 hectares of dead and dying mangroves. The project coordinators took a unique approach to the restoration when they successfully involved the local community in a direct and enduring way that has had multifaceted benefits.

value in order to succeed at saving these mangroves. He helped show them the role mangroves play in the ecosystem and to experience the benefits of mangrove rehabilitation. "Involving stakeholders in ecological restoration programs from the start of the project, and providing ways for them to participate in both planning and technical implementation is critical." He and others partnered with representatives from the Mexican Environmental Secretary, National Forestry Commission, Carmen University and the Mexican Area Protected Commission, to develop a plan that would pay locals, often fisherman and their families, to re-establish waterways and to help with project monitoring efforts. "At first, the project workers were just happy to have work." Although they were being paid only 6 dollars per day for difficult labor, they knew the work would be there for them. As the workers spent time with Arturo in the field talking with him and being immersed in the ecosystem, they learned more and more about the short and long-term benefits of what they were doing.

RESTORATION IN THE DEVELOPING WORLD

It is necessary to put the project into a socio-economic context to understand the success of what is happening with social engagement in Laguna de Terminos. Social engagement on a restoration project in the developed world might involve unpaid volunteer work that happens at one, or a few points, along a project timeline. In the fishing villages of Mexico, however, it is both necessary and beneficial to pay workers to be on a project full time. Not only are the people there using the work as primary source of income, but the intense labor they are doing pays off in the form of improving local ecosystem services. Also, while participating on the project, many of the workers, who have no formal education or training in the sciences, develop a better understanding of ecosystem functions and have more invested interest in the outcome of the restoration work. Workers are helping in mapping work and some post-monitoring activities. "The challenge is now the replicability of the program". Arturo, Herminia and several of the recruits have
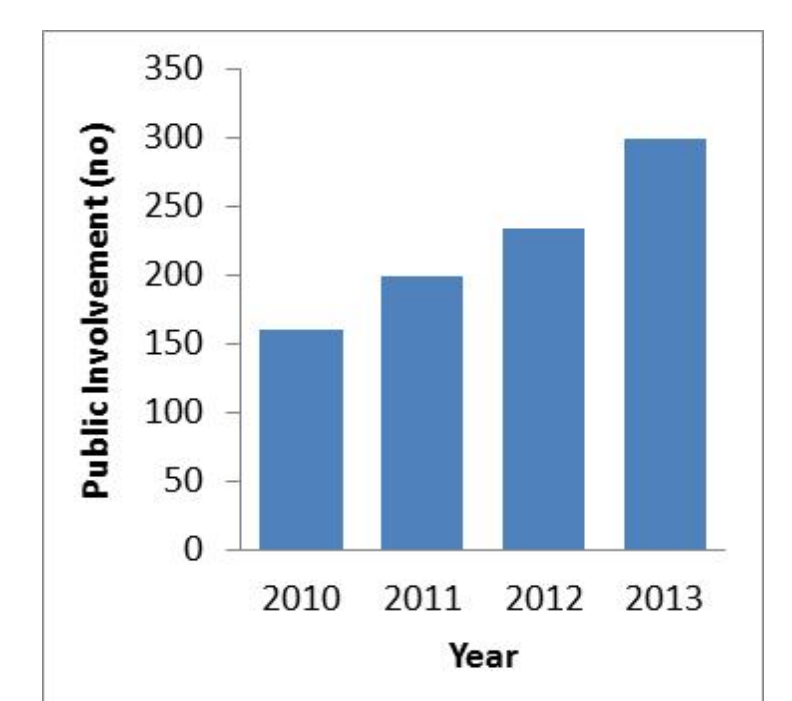

Arturo - Project Coordinator GOM LME
Eduardo - Project Manager CONAFOR

12 project workers hand digging canals to bring water back to area

Mirna, Manuela, Maria
Project workers and wives of fishermen

The local University studying mangrove science and greenhouse production

Plantings, once the only solution, now come after restoring hydrology

Science and monitoring practices will be shared in workshops around Mexico

SOCIAL ENGAGEMENT IN RESTORATION

Before the project, most of the inhabitants of Isla Aguada, the community where the fisherman live, had little understanding of the connection between the health of local mangroves and the fish, shrimp and crab populations they rely on. For many years they incorrectly believed that increasing competition from foreign fisherman was the main reason that the catch size was in decline. The mangrove forests were being cleared for agricultural or residential use, being mined for building material and charcoal, and, most importantly, being cut off from water exchanges as a result of sedimentation from storm events.

Arturo Zaldivar-Jimenez grew up as one of these fishermen and now has a Ph.D. in ecological restoration from the GoM LME. He knew that it was necessary to educate the community about their

Herminia del Carmen Rejon Salazar is a representative for the community and person in charge of organizing workers for the project. She has watched as word has spread about the work being done in Laguna de Terminos. She became the link between the sponsoring agencies and local workers, and her house is where they regularly come together to track progress. The nature of interaction between those involved is quite remarkable, with an almost indistinguishable hierarchy of funding representatives and field workers sitting around the same table, often over meals, discussing the project. "At first it was just a handful of people who were here for the idea of the project, but as the time went on workers from all parts of the community came because of the guaranteed work and trust in what the agencies were doing that did not previously exist".

already been to workshops with neighboring communities and states in Mexico to share information on the work being done. In addition, several students from the University in Ciudad del Carmen, located in the closest city, have used the project as a laboratory for fieldwork and learning.

Arturo believes that "success of ecological restoration projects should be measured in terms of ecological and social benefits." If we consider the success of the work being done and that most of the ecosystems in the fastest rate of decline are in developing countries, then one can appreciate that their work in Campeche has great significance as a case study for restoration projects around the world.

One of several hydrologically isolated mangrove forests

Sources:
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