



SUCCESS STORY

Engaging Communities to Improve Waste Water Management

MTU-UNISON Linkage: Training a Core of Water Resource Experts

Universidad de Sonora / Michigan Technological University



Photo by Alex Mayer, Michigan Technological University

Local high school students participate in building constructed wetlands for wastewater treatment. The 1.2km pipe funnels the discharged water.



Photo by Alex Mayer, Michigan Technological University

Untreated wastewater in the creek adjacent to community in Sonora.

Rosario de Tesopaco is a poor rural community in northwest Mexico that has struggled to successfully address its water sanitation needs for decades. Over the years, this community saw consultants come and go, leaving behind sanitation systems that were inappropriate for the area. These systems were ultimately abandoned due either to poor design or to the extensive technical knowledge needed to maintain the systems for these expensive solutions. The disrepair of the water sanitation systems left the community with odor-filled raw sewage areas and health problems such as incidents of waterborne diseases.

The **Universidad de Sonora–Michigan Technological University (MTU)** partnership funded by USAID/Mexico’s Training, Internships, Exchanges, and Scholarships (TIES) program and supported by Higher Education for Development worked closely with the community to develop an effective plan to treat the wastewater. University partners took a collaborative approach to tailor the project to the needs and capacity of the local community and positioned the community members as leaders and owners of the project—a critical factor for the ultimate success and sustainability of the project. The environmental engineers from the Mexican and U.S. higher education institutions surveyed local residents to assess community needs. These collaborations at the local level contributed to preferred design solutions. The partners also offered technical and management assistance to the community to enable maintenance at the local level.

Agustin Robles Morua, a TIES scholar, worked closely with municipal officials to develop the community-based plan. He was instrumental in Rosario de Tesopaco obtaining a \$250,000 grant from the Mexican federal agency for social development (Secretaría de Desarrollo Social SEDESOL) to build a low-maintenance constructed wetlands for wastewater treatment. The wetlands have been in operation since September 2006. This “green” solution not only effectively treats wastewater issues locally, without the bothersome smell for local residents, it also reduces health hazards and will eventually contribute to the creation of a natural habitat.



Photo by Michigan Technological University

Dr. Alex Mayer (far left) during a visit in the construction speaking to local engineer Rafael Buelna.



Photo by Michigan Technological University

Modest local home near the original wastewater site on the perimeter of Rosario.

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By interviewing local residents about their needs, Agustin and students and faculty at MTU helped identify and solve another environmental issue—the creation of a local landfill. This spinoff project identified by partners received funding support by SEDESOL to better handle solid waste.

Much of the success of this partnership can be attributed to some remarkable individuals' contributions. Agustin's work yielded excellent insights into how local, state, and federal officials in Mexico might better work with local communities to achieve public health and environmental outcomes. His background in industrial engineering, master's degree in environmental policy from MTU, and his current PhD pursuits at MTU in environmental engineering funded by Mexico's Science and Education Ministry (CONACyT) and supported by his academic advisor, Dr. Alex Mayer informed his approach.

Additional support for the project came through Carolina Romero, the head of Micro-Regions project in Sonora, which works with the most marginalized, poverty-stricken community in Mexico through SEDESOL. Carolina's knowledge of the situation in Sonora brought national attention to issues related to poverty, the environment, and the successes from this model project in Sonora.

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