

WATER SYSTEM OF THE STATE OF TABASCO

City of Macultepec Wastewater Treatment

Tabasco, Mexico



from top: Surface flow constructed wetland; View of treatment facility

Constructed wetlands treat wastewater and help protect a critical Mexican Biosphere Reserve.

Macultepec is a city of 50,000 inhabitants located in the State of Tabasco. The municipal sewer had been discharging untreated sewage into the nearby Pantanos de Centla Biosphere Reserve, a biologically diverse area that is home to more than 550 species of flora and fauna.

The State required a wastewater treatment system that would protect the ecologically rich Biosphere Preserve and improve service to its constituents. Given the cost of energy and the state's inability to charge for wastewater service, an energy efficient, inexpensive solution was needed.

Biohabitats designed a totally passive treatment system that has no moving parts. Treatment consists of a primary sedimentation tank, a reed bed for treatment of solids, and surface flow constructed wetland, plus a UV disinfection Unit. Treated effluent flows into the Gonzalez River which feeds into the Biosphere Reserve. Construction costs were 500 pesos/person (about \$38) and operational costs are 50 centavos/person per month (3.8 cents). Treatment capacity is 125 lps (2.85 million gpd). The plant has become a model for large-scale waste water treatment based entirely on constructed wetlands.

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