AGRICULTURE SUCCESS STORY
Anaerobic Biodigesters in the Yucatan Peninsula Mexico

RAMIRO CABALLERO, RODRIGO MUÑOZ***

OVERVIEW:

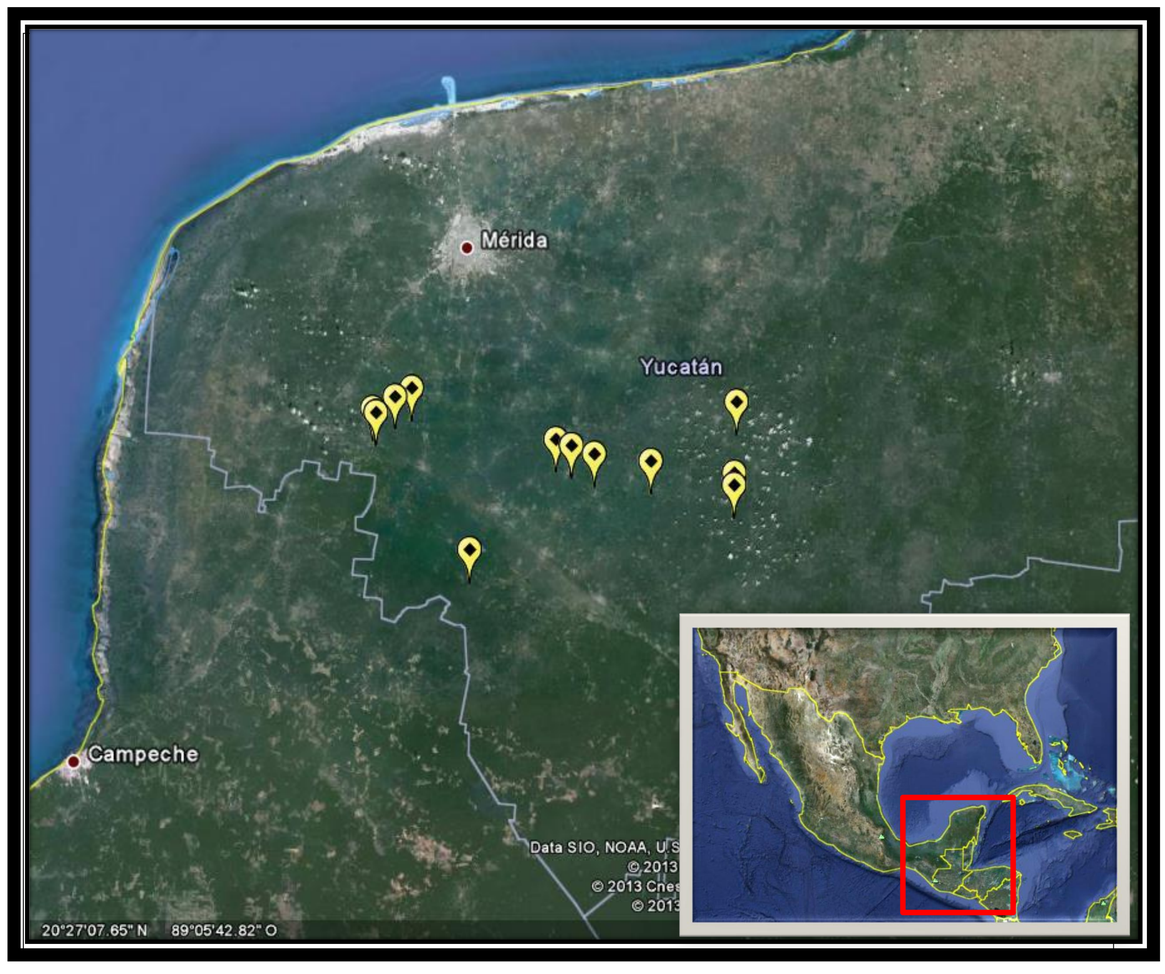
This project consists of 13 wastewater management systems for 44 swine farms. These systems capture methane and improve air quality. The effluent is used to provide forest plantations with nutrients and water.

Each system includes an anaerobic biodigester, enclosed flare, solid separator, storage lagoon, and forest plantation. This project is registered as a Clean Development Mechanism (CDM) project and is currently starting its 4th verification.

Currently, we are implementing electricity generation systems fueled by biogas to supply electricity to all our farms.

PROJECT START UP DATE: May 2009

ACTUAL ANNUAL EMISSION REDUCTIONS: 62,000 $MTCO_2E$



ACTUAL METHANE EMISSIONS

Animal Type	Standing Animal Population (head)	Volatile Solids (VS), kg/hd/day [1]	Total VS, kg/day [2]	B_0 Ultimate Methane Yield, m^3/kg [3]	Ultimate Methane Yield, m^3/day [4]	Actual Emissions reductions CO_2e, TON/year [5]
Breeding Farms	41,697	0.50	20,849	0.48	6,329	28,411
Weaners Farms	95,730	0.27	25,847	0.48	2,605	11,653
Finishers Farms	42,362	0.27	11,438	0.48	5,759	25,905
TOTALS	**179,789**		**58,133**	**0.48**	**14,693**	**65,969**

[1] Information from CDM PDD
[2] Calculated
[3] Information from CDM PDD
[4] Onsite measurement
[5] Calculated using CDM Methodology AMS III-D V12, without PE

COST & REVENUE INFORMATION

	Actual	Future Project (Generator)
Installed cost (US$)	**11,000,000**	**2,435,000**
O & M (US$/year)	**1,100,000**	**157,000**
Electricity offsets (US$/year)	**N/A**	**1,148,000**

	Actual	Future Project (Generator)
Other benefits (US$/year)	**ER**	**ER**
Other revenue streams:		
Payback period (years)	**N/A**	**3**

PROJECT HIGHLIGHTS

- This project was the first of its kind in the Yucatan Peninsula. It successfully provides water treatment systems combined with methane reduction systems. It also promotes reforestation because the effluent from the water treatment system provides water and nutrients .
- Keken has a sharecropper production system. Most of the sharecroppers have adopted the systems implemented by Keken. This contributes to the evolution of regional swine production into sustainable activity.
- We are installing electricity generators fueled by biogas in order to reduce the operational cost of the farms and avoid the use of electricity from the electricity company.

OTHER ENVIRONMENTAL AND HUMAN HEALTH BENEFITS

- **Reduces water pollution by:** treatment before land application
- **Improves air quality by:** reducing odors and volatile organic compounds (VOCs)
- **Improves rural sanitation and human health by:** reducing breeding sites for flies, other disease vectors, and other unsanitary conditions; reducing pathogens, helminths, and protozoa in the environment

SYSTEM DIAGRAMS/PHOTOGRAPHS

FOR MORE INFORMATION

***RAMIRO CABALLERO**
GRUPO PORCICOLA MEXICANO (GPM)
CALLE 27-A, NUM 495-A ENTRE 56 y 56-A
COLONIA ITZIMNA, MERIDA, YUCATAN
MEXICO, CP 97100
+52 (999) 930 2200
+52 (999) 930 2200
ramiro.caballero@keken.com.mx

****RODRIGO MUÑOZ**
POCH
RENATO SANCHEZ 3838
LAS CONDES, SANTIAGO
CHILE, CP 7550240
+56 2 22070154 / +1 647 464 3136
+56 2 22634766
rodrigo.munoz@poch.cl