

“Development of Technical Standards to promote the Design and Construction of Biodigesters in Mexico”



GMI – AGRICULTURE - MEXICO

Background

- In recent years there has been an increase in the development of anaerobic digestion systems in México.
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- The growth of these systems is related to the trading of emission reductions and the use of biogas as source of energy.
- At the beginning of the project there were approximately 400 systems, mainly lagoon type, installed with the support of the private and public sector.
- Failures in design, construction and operation of the biodigestors were identified generating, in some cases, lack of trust in the technology.
- Likewise, through the country profile they were identified, among others, technological and market barriers.
- The project was focused to generate tools to reduce these barriers, to assure the quality in the development of these systems and to support a better development of businesses and suppliers.

The Project

During the period 2008-2009 and with the support of the Environmental Protection Agency of the United States, the project “Development of Technical Standards for the Design, Construction and Installment of anaerobic systems in Mexico” (Project XA-83395801-1), was developed.

Objective

Develop, publish and apply technical standards in anaerobic digestion systems, lagoon type, as well as the strengthening of the capacities and the certification of businesses and associated suppliers to these systems.

Participants

- **Ministry of Environment and Natural Resources (Secretaría de Medio Ambiente y Recursos Naturales (SEMARNAT))**: Developer and technical supervisor of the project
- Ministry of Agriculture , Stockbreeding, Rural Development, Fishing and Food Supply (Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación (SAGARPA))** through the Trust of Shared Risk (FIRCO) which is the Developer of the project together with livestock producers, implements a federal program that offers supports for the construction of anaerobic digestion systems and the use of the biogas.
- Guanajuato Produces Foundation (Fundación Guanajuato Produce)**: Administrator of the financing resources supplied by the EPA and link of communications
- National institute of Forest and Agricultural Research (Instituto Nacional de Investigaciones Forestales y Agropecuarias (INIFAP))**
: Technical advisor
- Technical Coordinator**: Ing. Francisco Márquez Mendoza

- Consultants**: Ing. Humberto Pérez Frías, Ing. Fernando Cisneros Morales



Technical Standards for anaerobic digestion systems



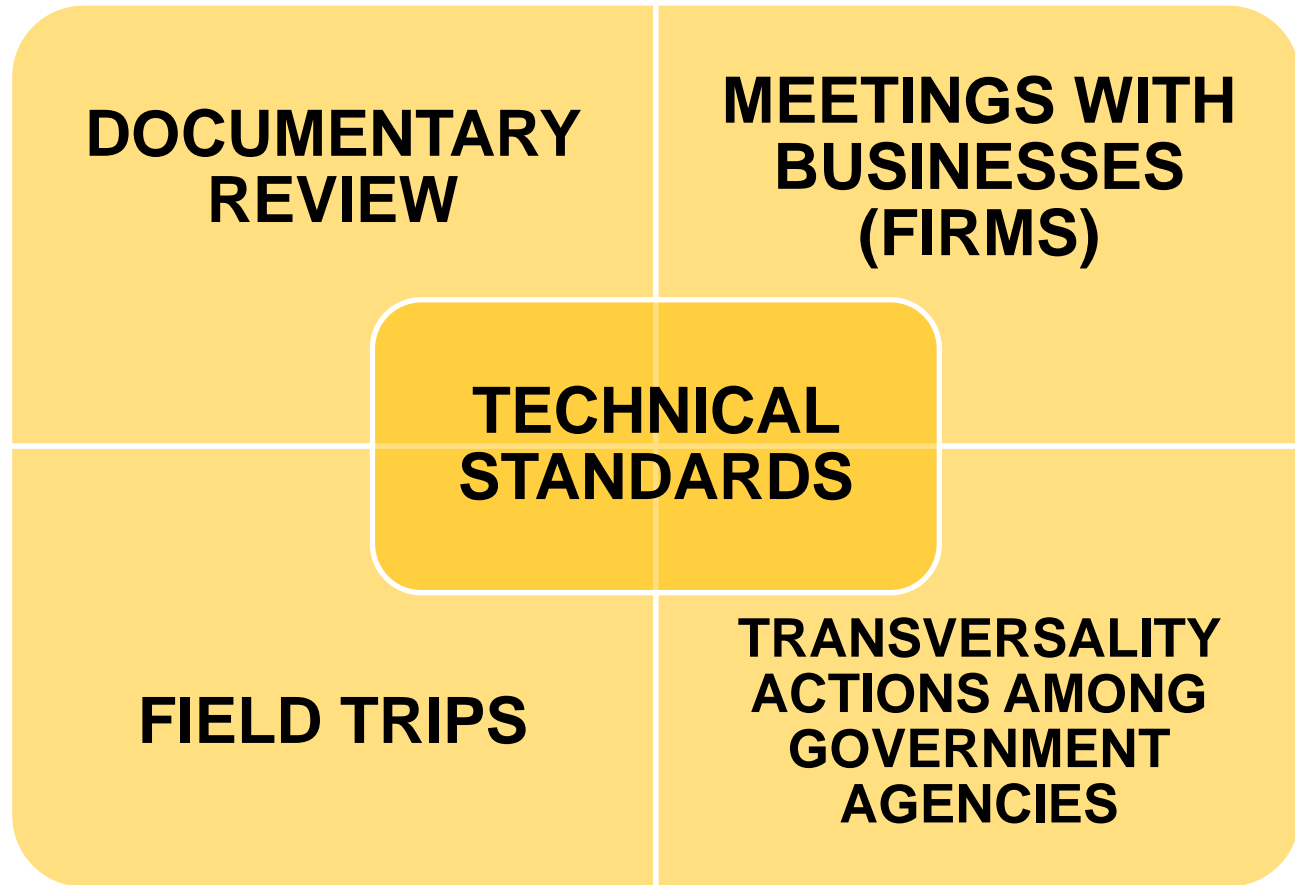
Design of the Certification process of firms



Business training

COMPONENTS OF THE PROJECT

DEVELOPMENT OF TECHNICAL STANDARDS



1. DOCUMENTARY REVIEW

ACTIVITIES

- ✓ Review of Electric, Environmental and Construction Regulations
- ✓ Review of international standards of Biodigestors
- ✓ Review of theoretical background of the process of anaerobic digestion
- ✓ Review of technical files of already built systems and in operation

MAIN RESULTS

- ✓ Knowledge of the legal framework to comply for the development of these Projects at a national level
- ✓ Establishment of technical criteria for the design and construction of biodigestion systems

2. FIELD TRIPS

Visits to systems in different regions of the country:



- ✓ Identification of relevant aspects in the design, construction and operation to consider in the technical standards.
- ✓ Promotion of the use of standards in the future.



3. Meetings with the supplier firms

DATE/MEETING HEADQUARTER	# PARTICIPANT FIRMS*	RESULTS
18-Ago-09 FIRCO	14	Strengthen bonding with the suppliers, which actively participated with technical contributions for the development of the standards.
29-Oct-09 FIRCO	15	
18-Dic-09 SEMARNAT	15	
19-Mar-10 SEMARNAT	19	

* In total, during the project, more than 36 firms were contacted



4. Transverse Actions



Coordination agreements to promote the project:

- ✓ Adoption of the technical standards and of the proposal of the certification system by government agencies to evaluate projects.
- ✓ Capacity building to firms and livestock producers with anaerobic digestion systems
- ✓ Guidelines for the use of biogas
- ✓ Convergence of governmental supports for the expansion of the technology.



MAIN RESULTS

- ✓ Development of an agreed document that establishes design criteria, characteristics of materials; construction, operation and maintenance guidelines, as well as security criteria for covered lagoon type biodigestors and the use of its energy systems, developed and traded in Mexico.
- ✓ These Technical Standards constitute a reference for livestock producers and businesses and are an evaluation tool for projects that request economic support from the Federal Government through the program of Renewable Energies of the Ministry of Agriculture, which is operated by the Trust of Shared Risk.

Document structure of the Technical Standards

- ✓ Introduction
- ✓ Objective
- ✓ Field of Application
- ✓ References
- ✓ Definitions
- ✓ Clasification
- ✓ Sizing of the Biodigestion System
- ✓ Construction of the Biodigestion System
- ✓ Security Measures
- ✓ Maintenance
- ✓ Information Requirements for the presentation of projects (in the case of projects that receive governmental support)
- ✓ Annexs
- ✓ Bibliography

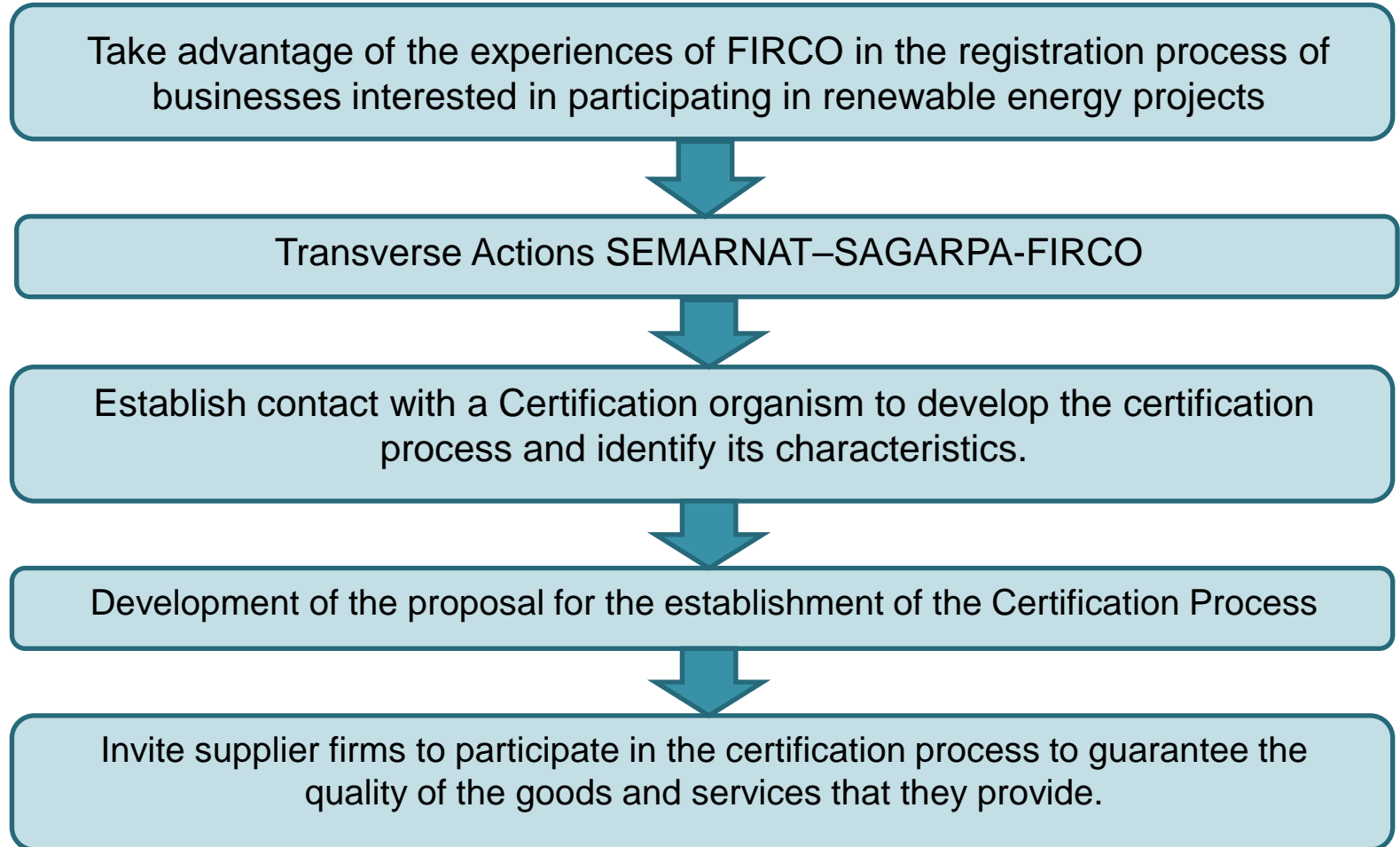
CERTIFICATION OF BUSINESSES (FIRMS)

The second component of the project consisted of generating a proposal to certify businesses and suppliers of anaerobic digestion systems based on the Technical Standards.

The purpose of the certification is to:

- Reduce the distrust of the potential users in the quality of this technology and of the businesses that supplies it,
- Assure the quality of the goods and services offered by the businesses,
- Avoid the use of materials and supplies of poor quality
- Develop a database of certified and reliable businesses for the use of public agencies that promote this technology
- Generate processes of improvement in the quality of the goods and services to contribute in the growth of the market of these technologies

Main Activities



PARTICIPANT ENTITIES

Participant	Main Function
Supplier firms	Participate in the certification process
Link Organism	Link between the businesses that desire to be certified as a reliable businesses in the installation of biodigestor systems and the Agency of Certification
Certification Organism	Certify businesses for its reliability and proper application of the technical specifications of the anaerobic digestion systems
Institution or Technical organism	Field verification of the technical especifications of the anaerobic digestion systems
Public agencies	Will take advantage of the process of certification in its promotion and financing for renewable energy systems and will generate registers of reliable businesses.

Development of the certification process

Identification of
supplier
businesses

Development of a
Data Base of
reliable firms

Commitment to
apply the technical
standards

Registration in a
Certification
Organism



GENERAL CERTIFICATION PROCESS

Invitation to the suppliers of anaerobic digestion systems to certify their firms and manage and conduct the applications through a link organism

Reception and analysis of the applications and required documents by the Certification Organism

Document evaluation of the firms and emission of a preliminary registration

Witness in field the quality of the systems installed by the firms

Registration of certified reliable firms

Follow up and control of firms

In some cases, suspension or cancellation of the registration as a reliable supplier

Main Results

- ✓ At present, the Trust of Shared Risk (FIRCO) has established the Database of reliable businesses in anaerobic digestion systems.
- ✓ This Registry of Businesses is public and contains information on the projects developed and clients contact data that can give information on the results of the services provided by the businesses, besides the data of the business itself .
- ✓ 56 businesses are listed in this Registry, with different degrees of advance toward the certification
- ✓ The livestock producers that request support of financing for anaerobic digestion systems, through the governmental program operated by FIRCO for the use of renewable energies, may now hold information to select suppliers for their project

[http://proyectoenergíarenovable.com/Empresas/Padron Biodigestores/](http://proyectoenergíarenovable.com/Empresas/Padron_Biodigestores/)



Proyecto de Energía Renovable

Registro Empresas
Térmicos Solares

Registro Empresas
Fotovoltaicos

Registro Empresas
Biodigestores

Registro Empresas
Eficiencia Energética

Padrón de Empresas BIODIGESTORES

Padrón de Empresas
Confiables Sistemas
Térmicos Solares

Padrón de Empresas
Confiables Sistemas
Fotovoltaicos

Padrón de Empresas
Confiables Sistemas
Biodigestores

Padrón de Empresas
Confiables Sistemas
Eficiencia Energética

INICIO

Buscar

entrar

PONENCIAS CURSO -
TALLER

Nombre de la Empresa	Consultar	Estatus de Situación de la Empresa				
		Proceso de Registro	Registrada	Confiable	Proceso de Certificación	Certificada
SARLO DE MEXICO S.A. DE C.V.						
AZ GREEN SA DE CV						
BIOFERMENTADORES DE ALTA EFICIENCIA, S.A. DE C.V.						
BIOGENERADORES DE MEXICO, S.P.R. DE R.L.						
ENVIRONMENTAL FABRICS DE MEXICO S DE RL DE CV						
SERVICIOS AMBIENTALES Y DE ENERGIAS RENOVABLES DEL CENTRO S.A. DE C.V						
MAQUINARIA, SA DE CV						
MOPESA MOTORES POWER SA						
HIDRO ECOLOGY CONSTRUCCIONES, S.A. DE C.V.						
GEO PROYECTOS Y DISEÑOS AMBIENTALES S.A DE C.V						

Registro Empresas
Térmicos Solares

Registro Empresas
Fotovoltaicos

Registro Empresas
Biodigestores

Registro Empresas
Eficiencia Energética

Padrón de Empresas
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PONENCIAS CURSO -
TALLER

- Curso - Taller
"Eficiencia Energética para
Identificación y
Dictaminación de
Proyectos"
Ciudad de México del 10 al
16 de Abril

Fideicomiso de Riesgo Compartido Información General para el Registro de Empresas Confiables Biodigestores



I) Nombre o Razón Social de la Empresa: SARLO DE MEXICO S.A. DE C.V. *

II) Registro Federal de Contribuyentes: SME050302R54 *

III) Responsable o Representante Legal de la Empresa:

Apellido Paterno: LOPEZ * Apellido Materno: MADRIGAL * Nombre(s): GUILLERMO *

IV) Información General de la Empresa:

Calle: MIGUEL HIDALGO * No. Ext. 111 * No. Int. BIS Colonia: MIGUEL HIDALGO *

Estado: EDO. DE MÉXICO Municipio/Delegación: TLALNEPANTLA DE BAZ * C.P.: 54060 *

Oficina 1: Lada 55 * Teléfono 53612285 * Extensión Fax: 55 53612328 Oficina 2: Lada 55 Teléfono 50120232 Extensión Celular: 25886901

Correo Electrónico: sarlomex@prodigy.net.mx *(únicamente una cuenta de correo)

Correo Electrónico 2: *(únicamente una cuenta de correo)

Página Web: www.sarlodemexico.com.mx

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PONENCIAS CURSO -
TALLER

- Curso - Taller "Eficiencia Energética para Identificación y Dictaminación de Proyectos" Ciudad de México del 10 al 16 de Abril

operación, de todos los componentes del sistema de biodigestión).

Indique los sectores que atiende su empresa y el número de sistemas instalados para cada una de estas

<input type="checkbox"/>	Doméstico	<input type="checkbox"/>	Sistemas	<input checked="" type="checkbox"/>	Industrial	<input type="checkbox"/>	Sistemas
<input type="checkbox"/>	Servicios	<input type="checkbox"/>	Sistemas	<input checked="" type="checkbox"/>	Agropecuario	41	Sistemas
<input type="checkbox"/>	Comercial	<input type="checkbox"/>	Sistemas	<input type="checkbox"/>	Otros(especificar)		

Sistemas

Sistemas de Biodigestión instalados dentro del **Sector Agropecuario.**

No.	Tipo de Sistema Instalado y su Aplicación	Estado y Municipio	Localización del Proyecto	Información del cliente para Contactar
1	ELABORACIÓN BIODIGESTOR TIPO LAGUNA SITIO 11-3-A	TECAMACHALCO, PUEBLA	GRANJAS CARROLL'S MÉXICO SITIO 11-3-A	Nombre: ING. JORGE LANDA HERRE Telefonos: (72) 597 2472 Email: jlhgcm@prodigy.net.mx
2	BIODIGESTOR TIPO LAGUNA SITIO 11-3-B	TECAMACHALCO, PUEBLA	GRANJAS CARROLL'S MÉXICO SITIO 11-3-B	Nombre: ING. JORGE LANDA HERRE Telefonos: (72) 597 2472 Email: jlhgcm@prodigy.net.mx
3	BIODIGESTOR TIPO LAGUNA SITIO 15.3E	TECAMACHALCO, PUEBLA	GRANJAS CARROLL'S MÉXICO SITIO 15.3E	Nombre: ING. JORGE LANDA HERRE Telefonos: (72) 597 2472 Email: jlhgcm@prodigy.net.mx
	BIODIGESTOR TIPO	PEROTE, VERACRUZ	GRANJAS	Nombre: ING. JORGE LANDA HERRE

CAPACITY BUILDING

As third component of the project, four training and diffusion workshops were carried out, addressed to supplier businesses of anaerobic digestion systems, as well as to livestock producers.

In these workshops, 178 persons and organizations participated from different States of the Republic.

The main themes undertaken in these workshops were:

- ✓ Potential use of the biogas in the agricultural sector
- ✓ Technical specifications
- ✓ Businesses certification process
- ✓ Investment analysis of anaerobic digestion systems for the generation of electric and/or thermal power
- ✓ Financing
- ✓ Certificates of reduction of methane emissions

BEST MANAGEMENT PRACTICES FOR ANAEROBIC DIGESTION SYSTEMS MANUAL

The manual:

- ✓ Seeks to support the establishment and operation of anaerobic digestion systems with greater and more practical technical information.
- ✓ Provides information on the regulatory framework, related to the construction and operation of the digestion systems, that the livestock production units must comply
- ✓ Focus information to livestock producers, technicians from the local governments and technicians of the private sector
- ✓ Is a complement of the Technical Standards document.

Next Steps

- Encourage businesses and suppliers to complete their certification.
- Increase the promotion of the results and products of the project.
- Formalize the collaboration of third party organisms in the Certification process.
- Development of standards for other types of anaerobic digestion systems.
- Continuous improvement of the Process