

November, 2005



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Project Idea Note

Methane capture from swine manure treatment for Kibbutz Lahav, Israel

⇒ Project Participants

The following participants are involved in the project:

Project Developer

- Name: Kibbutz Lahav
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Tel: 08-991-3206 ; Fax: 08-991-0380
- Type of organization: A rural collective community engaged in the swine business.
- About the organization: This project is developed by Kibbutz Lahav which operates a swine farm with 11,000 pigs, the largest swine farm in Israel. The swine farm complies with all Israeli environmental regulations.
- Technology supplier: SAE Group LTD, Italy

Applicant

- Name: Elysium - carbon trade & investment
Address: Kibbutz Yakum, 60972, Israel
Email: elysium@assif.co.il
Tel: 09-957-9399 ; Fax: 09-957-8385
- Type of organization: Private Limited liability company focusing on greenhouse gas trade & investment and project management.
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Project Information

- Name: Methane capture and treatment from an anaerobic digester for swine manure.
- Location: Kibbutz Lahav, South Israel
- Category: Manure management from farming production
- Description of the project background:

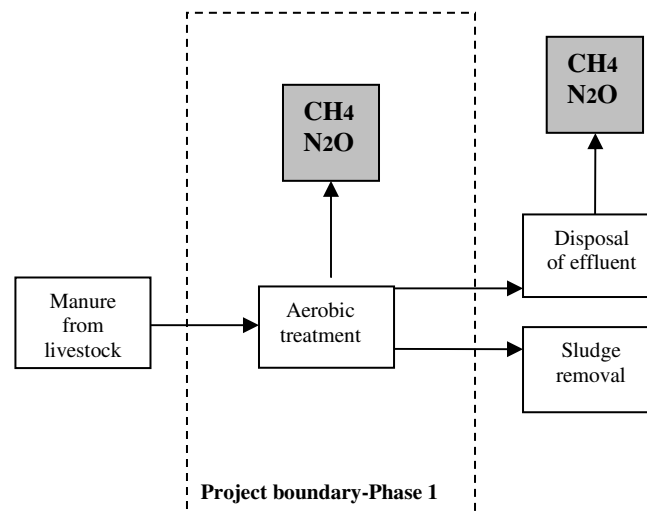
The swine farm is situated at Kibbutz Lahav. Given its will for continuous environmental improvement, Kibbutz Lahav is interested in treating its swine farm's sewage, bringing the effluent to irrigation water quality, and using them in agriculture.

Technical Aspects

- The main propose of the project:
Reducing greenhouse gas emissions by implementing an anaerobic process in the treatment of swine manure.

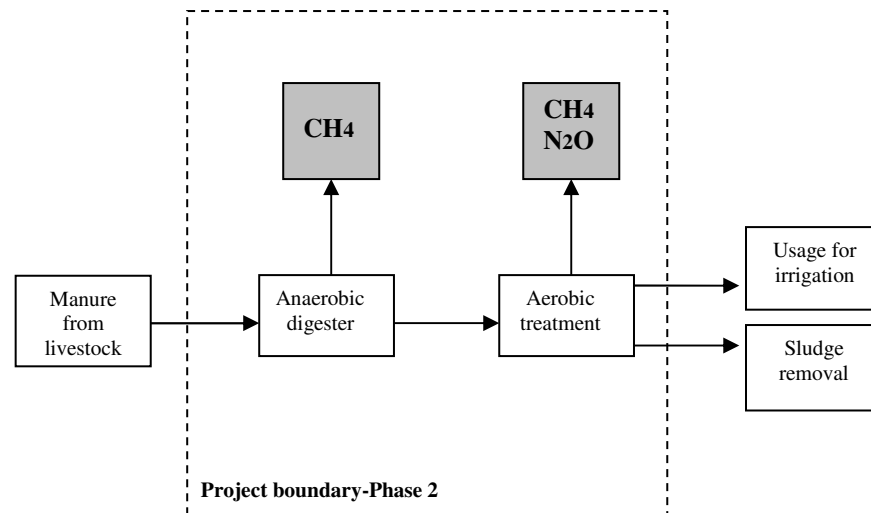
Description of the technology to be employed:

Phase 1 – Installation of an Aerobic treatment.



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Phase 2 – Installation of an Anaerobic Digester Pretreatment - An anaerobic digester is a reactor sized both to receive a daily volume of organic waste and to grow and maintain a steady-state of methanogenic bacteria for degradation.



The anaerobic digester is one of the few manure treatment options that reduces the environment impact of manure and generates energy. Biogas extraction and burning from the digester are managed using an automatic control system in which, through parameters such as biogas flow and pressure differences, optimal operation conditions are established. Therefore, it is possible to state that the external environment does not affect digester treatment; it operates independently from meteorological factors.

The anaerobic manure treatment process is an advanced technology system. Only few other countries have implemented this technology due to the high investment costs involved. The potential to sell CERs is an important source of revenue to ensure coverage of project costs, implementing the anaerobic digester system.

- Time schedule:

	Treatment system type	Size of treatment system	Irrigation project	Starting date of the treatment system
Phase 1	Aerobic treatment	0.8 hectare	No	1/1/2006
Phase 2	Anaerobic digester	1,800 m ³	Yes	1/1/2007*

- The system will be operable within 6 months of receiving anticipated initial authorization for the project.

- Current status of implementation:

Phase 1 – Is scheduled to be completed in 3 months.

Phase 2 – Is scheduled to begin working in 1 year.

- Key permits and expected days of approval for construction of Phase 2:

- Building permit 90 days for approval
- Permit for sewage effluent use approval at project completion
- Irrigation permit 90 days for approval

GHG reduction

- Greenhouse gases targeted for emission reductions by the project:

The GHG emissions relevant for this analysis include; the open release of CH₄ from the anaerobic treatment, losses of CH₄ due to leakage in the digester and the emissions of N₂O for each scenario. The emissions for the baseline and project scenario are represented by the following components:

Baseline:	Project:
Anaerobic treatment	anaerobic digester + aerobic treatment
CH ₄ emissions from the anaerobic treatment	CH ₄ emissions from the aerobic treatment
N ₂ O emissions from the anaerobic treatment	CH ₄ emissions inside the project boundaries, related to digester losses
	N ₂ O emissions from the aerobic treatment

- Estimation of the project specific GHG emissions:

The following table represents the emission reductions results for the project activity through the crediting period:

Year	2007	2008	2009	2010	2011 (and following)
Total emission reduction (tCO₂)	9,212	9,212	9,212	9,212	9,212

- Crediting Period:

This project applies for a crediting period of 7 years with the potential of subsequent renewal(s).

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- Estimated abatement of GHG emissions in comparison to the baseline scenario:

CERs = BL – Pr

Where

CERs – Certified GHG emission reductions

BL – Baseline emissions

Pr – Project emissions

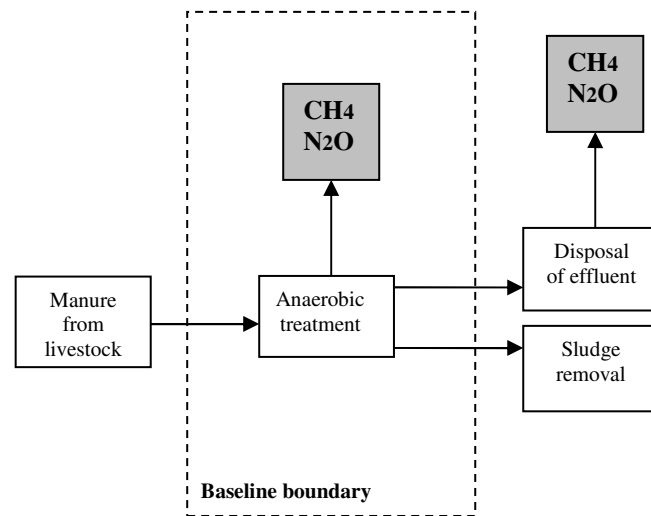
	Total emissions	
	tons CO ₂ e / year	tons CO ₂ e/7years
Baseline emissions	9,754	68,278
Project emissions	541	3,787
CERs	9,212	64,491

- Framework of the considered baseline scenario:

According to the approved methodology (AM0006 – “GHG emission reductions from manure management systems”), the baseline treatment system is represented by the use of an Anaerobic treatment as the treatment process of liquid waste from the swine farm. The anaerobic treatment leads to the direct release of CH₄, and N₂O into the atmosphere as a result of the anaerobic digestion process.

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- The following figure shows the baseline activity and boundaries:



- Project boundary: The baseline boundary is restricted to on-site emissions. Thus, the project boundary includes only emissions (and emission reductions) from the treatment process of swine manure at Kibbutz Lahav.
- Leakage: The project does not envisage emissions generated outside the project boundary that are significant and reasonably attributable to changes in the manure treatment. The project already includes the potential fugitive emissions related to the digester, as emissions in the project boundary.

Expected Ecological and Socio-Economical Effects

- Expected global/local positive and negative environmental effects of the project:
 - Decrease in Soil pollution
 - Decrease in Groundwater pollution
 - Water conservation and reuse
 - Decrease in Greenhouse gas emissions
 - Decrease in Odor events
- Expected social and economic effects of the project:

The project will impact in a positive way on Kibbutz Lahav's community and surrounding area in several ways; The treated effluent will be appropriate for irrigation in the kibbutz plantations and crops, thus improving the sustainability of agriculture in this arid region. In addition, the project will decrease the risk of soil and groundwater pollution. The anaerobic digester will eliminate odor events that have become a disturbing problem to the community, and by that will improve the quality of life. The anaerobic digester is a significant improvement compared to current practices on Israeli swine farms.
- The project's contribution to sustainable development in the host country:

Israel is a country with few natural resources. Water, especially in the region where Kibbutz Lahav is situated, is scarce and limits the viability for sustainable agriculture. Providing a sustainable source of high-quality effluent is an important long-term goal. Preventing groundwater and soil pollution while ensuring a sustainable source of water for agriculture, complement the reduction in health risks and odor events that the community is exposed to. This allows the community both a more stable economy and a better quality of life.