

Biogas Energy and Solar Heater at Tan Lap Slaughter and Foodstuff Facility Project (BEST)

Project Objective

This project aims to:

- Improve the environmental conditions of Tan Lap community;
- Replace conventional energy (fossil fuel) by renewable energy (biogas and solar);
- Reduce greenhouse gas emissions.

Description

The Biogas and Solar Energy for Tan Lap Slaughter and Foodstuff Facility Project (BEST) consists of two components: a biogas digester and a solar water heater

The biogas digester will treat organic waste from both the slaughter house and the food factory. This will significantly improve the environmental conditions in the community of about 500 people. Three biogas technologies are under consideration: (i) upright digester with attached gas holder; (ii) horizontal digesters with separated gas holders; and (iii) lagoon. Special enzymes, including catabolic enzymes responsible for decomposition and anabolic enzymes responsible for synthesis, will be used to reduce the retaining time and increase the gas yielding. The produced biogas will be used for co-generation with an overall efficiency up to 82%. Both pure biogas co-generator and dual co-generator are under consideration.

A solar water system with 85% thermal conversion efficiency will also be used instead of coal, to heat water up to temperatures between 65°C and 85°C. The system will include a series of solar water heaters, a solar hot water tank, a circulation pump and auxiliary parts. It is estimated that the project will help Duc Viet Food JS. C°. save Euro 66,400 (Euro 30,000 from the replacement of coal by solar

Project Highlights

Project ID	: 3-V-024 & 025
Country	: Vietnam
Lead Partner	: Energy Environment and Climate Change Ltd. Company (ENCC)
Partners	: Duc Viet Foods Joint Stock Company (DVF) and Wolfgang Mostert
Total Project Cost	: € 529,500
EEP Financing (% to total project cost)	: € 200,000 (37.8%)
Technical Focus	: Biogas and Solar Energy
Activity	: Demonstration
Duration	: 15 months

energy and Euro 36,400 from the utilization of biogas-electricity and heat). In addition, 967 tonnes of CO₂ will be mitigated annually as a result of using renewable energies.

Real data from the project will be used for an economic and financial analysis in order to test the return on investment of the pilot project.

Relevance to Country's Energy and Environment Policies

This project is relevant to the energy and environment policies of Vietnam as greenhouse gas emissions will be reduced, local environment pollution will be eliminated and the national energy security will be enhanced.

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Innovation and Knowledge Transfer

The biogas plant using either upright or horizontal digester to treat organic waste from a slaughter house and food processing facility is a new technology in Vietnam, both in terms of material feeding and digester's structure. So far, only household biogas plants, which treat human and animal manure, are common in Vietnam. The experience gained from the Tan Lap biogas plant will be invaluable towards promoting the use of industrial scale biogas technology in the future.

Other innovative features of this project are the use of special enzymes, biogas co-generation technology and biogas filter. The success of the Tan Lap's co-generator will encourage other users to switch from normal biogas generator to biogas co-generator.

At the end of this project, a final workshop will be organized in order to disseminate the outcomes of the project including the economic and financial analysis to relevant stakeholders. After the workshop, it is expected that the project documents will be made available on DVF's website, EEP's website, ENCC website, etc. The project consultant, constructors and suppliers will also use the gained experience for their marketing activities in Vietnam.



Solar heater system (Photo courtesy: Mai Huy Tan)



Biogas plant (Photo courtesy: Le Thi Xuan Thu)



Old coal boiler to be replaced

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