Optimization of Household Composite Biogas Project (OHCB)

Project Objective

The Project objective is to:

- Contribute to reduce global emission of greenhouse gases;
- Contribute to reduce local environmental pollution caused by manure from animal husbandry in rural area;
- Contribute to substitute fossil fuel by affordable renewable-biogas for cooking, lighting, generating electricity, etc.

Description

At present, more than 10,000 household composite biogas (HCB) plants have been installed and used in Vietnam. These HCBs are produced by a number of Vietnam producers based on Chinese designs. However, non-optimization of designs and lack of operation guidelines are main concerns. Inappropriate designs, no standardized gas-piping and gasmeter as well as no operation guidelines lead to significantly reduced working efficiency of HCB. Furthermore, inappropriate operation still causes environmental pollution and disqualifies Vietnam HCBs from CDM scheme. The operation of HCB project will help solve these problems.

The project activities include (i) revision and optimization of design(s) for a number of HCB sizes: 4m^3, 6m^3, 8m^3, 10m^3, etc.; (ii) standardization of gas piping, gas meters and appliances; (iii) preparation of Installation Guidelines to be used by HCB producers/ distributors; (iv) preparation of Operation Manual, which will help optimize the working efficiency of HCB and reduce environmental pollution and help qualify HCB for CDM scheme; (v) demonstration production, installation and operation of 200 HCBs Vietnam; (vi) organization of HCB workshop to disseminate the outcomes of the project (standard design(s), installation guidelines, operation manual, etc.) to relevant stakeholders such as local HCB producers/distributors, biogas projects, etc.

Project Highlights

Project ID	: 2-V-010
Country	: Vietnam
Lead Partner	: Sustainable Energy Development Consultancy JS company (SEDDC)
Partners	: Energy Environment and Climate Change Ltd. Company (ENCC), Mr. Wolfang Mostert
Total Project Cost	: € 220,250
EEP Financing (% to total project cost)	: € 98,625 (44.79%)
Technical Focus	: Biogas
Activity	: Demonstration
Duration	: 15 months

The project beneficiaries include HCB producers/ distributors, potential biogas users (local households), and biogas projects (which promotes household biogas).

Shaping a household biogas digester at a project site

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Relevance to Country's Energy and Environment Policies

Vietnam animal husbandry has been rapidly increasing in the last ten years with an average growth rate of 8% per annum. The development of animal husbandry significantly contributes to poverty reduction but also creates environmental concerns due to huge amount of animal manure discharged to the environment (in average, 80 million tonnes of animal manure annually).

Household biogas technology have been promoted by a number of national and donor funded programmes in Vietnam in order to treat animal waste and to provide affordable renewable energy to farmer. HCB, in comparison with other types of biogas plants, has a number of advantages such as being suitable for weak soil and for high ground water table. It has a long life time and is able to be relocated. However, there is room for improvement with the current designs to increase HCB working efficiency and help HCB qualify for CDM scheme.

The proposed project: "Optimization of Household Composite Biogas Project" will concentrate on optimising current HCB's designs and on the preparation of standardized installation guidelines. The project will create the following added values:

- Animal husbandry development
- Reduction of deforestation
- Generation of income activities
- Gender Equality

For more information:

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Progress meeting (December 2011)

Innovation and Knowledge Transfer

Through implementation of the project, the design(s) of current HCB will be optimized, while the piping and auxiliaries will be standardized. 200 optimized HCB will be produced and installed for demonstration. The end users in the project will be provided with an operation manual.

A final workshop will be organized in order to disseminate information about the optimized design(s) among relevant stakeholders.

After the workshop, the project documents including optimized design(s), installation guidelines and operation manual will be disseminated to MARD and national biogas programmes such as National Energy Efficiency Programme, QSAP, LIFSAP, etc.

Installing a household biogas digester
Photo courtesy: Le Thi Thoa