



# EC-ASEAN ENERGY FACILITY (EAEF)



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## SUMMARY OF PROJECT IMPLEMENTED UNDER EAEF CO-FINANCING

**DATE OF SUMMARY:** 28 February 2007

**Contract:** 156-2005  
**Title of project:** Capacity Building for Calaca, Batangas Local Government Unit (LGU), Public Market Vendors and Households to Operate a Biogas Facility: Learning from European and ASEAN/Thai Best Practices  
**Beneficiary:** International Resources Group-Philippines, Inc. (Philippines)  
**Partners:** Centre for Energy Environment Resources Development/ Foundation for International Human Resources Development (Thailand)  
Energy Consulting Network A/S (Denmark)  
Centric Austria International – Center for Environmental Training and International Consulting (Austria)  
**Project Start:** 13 December 2005  
**Project End:** 12 December 2006  
**Facility:** 2 Adapting Institutional Framework      **Sector:** Renewable Energy  
**Total planned project cost:** EUR 400,001  
**Endorsed/contracted EC contribution:** EUR 200,000 representing 50%  
**Realised total project cost:** EUR 385,098.85  
**EC contribution:** EUR 188,698.44

### 1. Summary of the project

The primary aim of the project was to build the capacity of the Local Government Unit (LGU) at the municipal and barangay levels, public market vendors and households in six (6) barangays of Calaca municipality, Batangas province, Philippines to operate and maintain a biogas facility as a renewable energy alternative using biodegradable solid wastes.

The project also aimed to (a) assist the Calaca LGU in developing a solid waste management plan and Information, Education and Communication (IEC) plan that will support the sustainable operation of a biogas facility and (b) to increase awareness of responsible waste disposal practices on biogas technology among the households of the six poblacion barangays and the public market vendors through the conduct of seminars and site visit to an operational biogas facility.

### 2. Objectives

The overall objectives of the project were to contribute to:

- Increasing the security of energy supply of ASEAN countries and indirectly of Europe through capacitating community-level groups in renewable energy generation specifically biogas;

- Increasing the economic exchanges between the European Union (EU) and ASEAN countries by drawing from EU and Thailand (in particular) technology and experiences in biogas and supporting solid waste management system for the project;
- Improving the environment at the local and global levels by promotion of biogas as an alternative renewable energy source and by increasing awareness on converting biodegradable solid waste to biogas;
- Facilitating the implementation of the ASEAN Plan of Action for Energy Cooperation 2004-2009 through initiatives at the community and grassroots level with the end in view of replicating the integrated biogas/renewable energy generation and sound solid waste management in ASEAN region communities where public markets are common.

### 3. Activities

A comparison of the planned activities and the actual outputs is presented in the table below:

ACTIVITY	PLANNED	ACTUAL
Project Inception & Preparatory Activities	Staff mobilization, project team kick-off meeting and national project launching Site Visits and stakeholders meeting	First partners' meeting was held on 14 February 2006. Project launching was held on 15 February at the Calaca municipality covered court. A stakeholders' meeting was conducted on 4 January 2006. Site visits were held around the 6 poblacion barangays & the location of the dumpsite.
Assessment of Pre-Project Situation for Development of Capacity Building Program on Biogas Operation	<p>Assessment of pre-project situation in : (a) 6 Calaca barangays in terms of solid waste generation and collection; (b) the public market in terms of energy use for lighting and cooking &amp; solid waste generation &amp; collection</p> <p>Development of sustainable financing mechanism for the operation of a biogas facility</p> <p>Design solid waste management system plan to support the feed requirement of the biogas facility</p> <p>Design, produce and disseminate IEC materials on biogas generation from organic solid wastes and solid waste management</p>	<p>The following surveys were conducted:</p> <ul style="list-style-type: none"> <li>- Socio-economic and perception survey among 310 representative households of the 1,214 households in the 6 poblacion barangays and 198 representative market stalls out of the 380 stall owners and operators registered actively and doing business in the new public market. These selected respondents were interviewed in March 2006 using a structured questionnaire;</li> <li>- Waste analysis and characterization survey for sample wastes of these barangays and public market</li> </ul> <p>An assessment of the feasibility of different waste management options/combinations was conducted. A technical working group was formed to lead in the development of Calaca's Solid waste management plan.</p> <p>An IEC was developed. Various brochures, hand-outs and posters were developed, printed and widely distributed.</p>

<p>Training/Or ientation</p>	<p>Conduct of lectures, seminars and workshops, on operation &amp; maintenance of biogas plant, implementation of solid waste management system and institutional strengthening of the LGUs and Market Vendors' Association</p> <p>Site visit to operational biogas facilities in the Philippines</p> <p>Study tour to Thailand on Biogas technology</p> <p>Identification of possible funders of the biogas facility</p> <p>National and ASEAN Regional forums for discussions and exchanges on biogas, renewable energy and solid waste management</p>	<p>Around 300 representatives from the households in the 6 poblacion barangays participated in a series of seminars on biogas technology and waste management held on 29 May to 2 June 2006 and 8 July 2006 at the Calaca Central School and at the Bgy. Poblacion 6 barangay hall. A separate seminar was organized for 50 public market vendors held on 6 July 2006 at the Calaca covered court. Seminars were also conducted for the graduating classes of 3 secondary schools and a total of 300 students participated. Workshops and writeshops were conducted for LGU personnel within the months of July to October 2006.</p> <p>Around 60 participants joined the site visit to Infarmco's industrial-sized biogas facility on 10 June 2006</p> <p>7 representatives joined the study tour to Thailand conducted on 26 to 28 July 2006.</p> <p>A study was made on available financing sources for putting up a biogas facility as well as other waste treatment facilities. Exploratory meetings were held with the Land Bank of the Philippines, DBP, UNDP and ADB</p> <p>The National Forum was conducted on 17 October at the Science Centrum, National Power Corporation Compound, Calaca, Batangas. It was attended by around 100 guests from different municipalities around the Philippines</p> <p>The ASEAN Regional Forum was held on 18 October 2006 at the same venue attended by around 125 participants from different municipalities in the Philippines and other ASEAN countries including Lao PDR, Vietnam, Thailand, Indonesia and Cambodia.</p>
<p>Project Review and Modificatio ns</p>	<p>Mid-term review Final Project Evaluation</p>	<p>A mid-term project review was conducted on June 2006.</p> <p>A final project evaluation was done to evaluate if the project objectives were attained through the implementation of the different project activities.</p>

#### 4. Outputs

Please see above table.

#### 5. Impacts

The workshops and writeshops, the socio-economic and perception survey, waste analysis and composition survey and feasibility analyses of different waste treatment options provided good references/inputs in the development of a realistic, implementable and sustainable waste management development plan and enhanced the Local Government Unit's capability to undertake relevant projects such as biogas generation.

The SWMP provided the local government with a road map in managing their wastes in compliance with the mandates of the Ecological Solid Waste Management Act of 2000 or RA 9003.

The Information Education Campaign materials designed, reproduced and widely distributed to key stakeholders in Calaca increased the awareness of the people of the project as a whole and more specifically on proper solid wastes disposal practices and the potential benefits that could be derived from a biogas plant. The locals also realized their responsibility in ensuring sustainable waste disposal program and the need to work hand-in-hand with the Local Government Unit (LGU) to sustain the implementation of the 10-year SWMP developed by the project.

The experiences of and lessons learned from this project would prove useful to other municipalities in the Philippines and ASEAN countries who have not yet developed and implemented their waste management systems.

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