

Building a Market for Efficient Cookstoves, Thailand

Themes

- ★ Energy efficiency
- * Linkages with other environmental goals
- ❖ Financing mechanisms and private sector involvement
- ❖ Technical capacity development
- ❖ Awareness, culture and practices
- * Poverty alleviation (MDG 1)

PROJECT DATA

Name: High Energy Efficiency and the Promotion of Sustainable Agriculture
Implementing Organization: Institute for Sustainable Agriculture Development (NGO)
Location: Thailand, Sunsai District, Chiangmai Province
SGP Contribution: \$7,234.00 (Phase 1), \$11,656 (Phase 2)
Start Date: March 2000 (Phase 1), December 2002 (Phase 2)

ENERGY OVERVIEW

Energy Resource: fuel wood
Technology: efficient clay stoves, kilns from steel drums
Application: cooking
Sector: residential, commercial
Cost of stove: \$3.20 each
Households Served: 50 initially, now selling 400 stoves per month

BACKGROUND

Cooking in the Sunsai district of northern Thailand is done using firewood. Charcoal is also produced in the region from wood in local forests. In the Tambol Mae Tha area, encompassing seven villages, firewood is becoming increasingly scarce. Women must travel further to get it, or pay more for it. Forest destruction is a problem nationally; 75% of Thailand's original forests are gone.

PROJECT DESCRIPTION

Overview

The project sought to reduce impacts on the forest and provide local livelihood benefits, especially for women, by improving cooking and charcoal production processes. Both are strongly connected to income-generating activities.

Implementation

Initially 50 farmers built stoves for their own use. The terra cotta stoves use less wood and cook food faster, and a high demand for them was created among local women. Now, stoves are constructed and sold locally; men build the stoves and women are responsible for selling them. In order to sell them, women demonstrate their use in the marketplace, cooking two meals side by side on an open fire and a new stove to show the difference. Women have also begun to use the stoves to make snack foods, like rice puffs, which they also at the mar-



Training enabled Ban Mae Pa Haen community members to build an energy saving stove to generate curing steam for community services (Sunsai District, Chiangmai Province, Thailand).

ket. The other aspect of the project relates to changes in the local production of charcoal. The community has generated income from charcoal production for years, but this has severely impacted local forests. The project introduced fast-growing trees that the community could harvest in a sustainable manner. In addition, a new method of making charcoal was introduced using airtight steel drums as kilns. This also produces "wood vinegar" as a by-product, which happens to be a good fertilizer. Charcoal producers now sell this product by the bottle for use in gardens and compost, decreasing the need for fertilizers.

In a second stage of the project, the Office of Renewable Energy Development is heavily involved in promoting and increasing stove production. The government has engaged an advertising firm to sell 60,000 stoves per year, of which 5,000 are to be sold in the project area. The advertising firm has worked out a deal for local producers enabling them to sell at a lower price than retail shops, and to offer a special in which for every 10 stoves bought, one stove is free.

Environmental Benefits

Global: Greenhouse gas emissions from burning wood are reduced by spreading the use of the efficient clay stoves. Approximately 400 stoves are produced and sold per month. In the second phase of the project, the Office of Renewable Energy Development is assisting local production of stoves to meet a goal of 60,000 stoves per year. In addition, planting trees that are managed and harvested in a sustainable manner by the community for charcoal production also reduces net greenhouse gas emissions.

Local: Forests in the region are impacted less by wood collection. This benefits local ecosystems and may also help protect local water supplies via the forests' natural filtering capacities. In addition, wood vinegar is now available as an organic fertilizer. To the extent that it replaces the use of non-organic fertilizers it offers positive local environmental benefits.

Asia & Pacific: Thailand-I

Local Livelihood Benefits

Poverty alleviation: The project has impacted income generation in a number of ways:

- *Reduced need for firewood:* to the extent that women buy firewood, they now need to buy less of it.
- *Sale of stoves:* The local community now produces and sells stoves at a rate of 150 per month.
- *Sale of snacks:* Women now use the stoves to bake and sell snacks.
- *Sale of wood vinegar:* Charcoal producers now sell this additional product.

Reduced drudgery: Women now save time both in collecting firewood and in cooking, which is faster on the new stove.

Partners

The NGO implementing the project, the Institute for Sustainable Agriculture Development (ISAD), has helped bring in several other entities to partner with the community in an effort to address energy use and livelihood issues. For example, the Sustainable Agriculture Network, of which ISAD is a member, has provided technical assistance to the community. Government entities have also been involved. The government's Agricultural Research and Development Office has assisted in developing local organic gardens, which make use of the wood vinegar. The Department of Energy Development and Planning has also taught a course on solar ovens, building upon existing cooking-related project activities.

Capacity Development

The project has made use of a participatory process in which community members take the lead, with the NGO offering support and suggestions. According to an ISAD staff member, "We just formulate the process so that the community will realize there is a problem and participate in activities to correct it."

LESSONS LEARNED

Environmental Management

The project has introduced new innovative approaches to reducing forest impacts, including the efficient clay stove, and

the steel drum charcoal kiln, which is complemented by an income-generating by-product of wood vinegar. The project has also introduced forestry techniques that help minimize the impact of charcoal production.

Barrier Removal

Technical: Possibly the most significant barrier addressed through this project is technological. Without the project, the new stove might not have been introduced. Yet, now 400 are being produced and sold per month, which must mean that there are a sufficient number of people for whom this stove is affordable and provides livelihood benefits in addition to environmental ones. Thus, technology seems to have been a main barrier.

Financial: This project has been exceptionally creative in finding ways to generate income from more environmentally friendly cooking and charcoal producing activities. Such links make these adjustments financially viable and therefore more sustainable over time.

Scaling Up

The project has scaled up already in a very important sense. While it began by 50 farmers constructing stoves for their own use, a market has now developed for the stoves, spreading them to nearby communities. Further efforts are underway to scale up the kinds of income-generating activities that are made possible for women with the new stoves, such as selling snacks. In addition, a second phase of the project has strong government support for increasing sales. Through this effort, an advertising firm is helping market the stoves per year.

SOURCES CONSULTED

- Project Records THA-02-04 and THA-00-G29.SGP Project Database, <http://www.undp.org/sgp>
- David Dudenhoefer, "Energy Efficient Stoves for Rural Thailand: Less Carbon Dioxide, More Trees." Date unknown.
- Poonsin Sreesangkom, national coordinator, GEF Small Grants Programme Thailand. "Project Site Visit: THA-02-04, Alternative Energy for Agro-Products." September 26, 2003.