

“Sol de Vida:” Improving Women’s Lives through Solar Cooking, Costa Rica

Themes

- ★ Renewable energy
- * Innovative technology applications
- ❖ Institutional capacity development
- ❖ Awareness, culture and practices
- * Gender equity and empowerment (MDG 3)

PROJECT DATA

Name: Sol de Vida: Improving Women’s Lives through Solar Cooking

Implementing Organization: Fundación Sol de Vida (NGOs)

Location: Guanacaste, Costa Rica

SGP contribution: \$53,000 total (3 grants: \$20,000 in October 1994, \$3,000 in April 2000, \$30,000 in June 2000)

Start Date: Fundación Sol de Vida founded in 1994

ENERGY OVERVIEW

Energy Source: solar

Technology: passive solar cookers

Application: cooking, heating water

Sector: residential

Cost of each system: \$100-\$150 for materials, \$300 total including instructors, transportation and follow-up

Energy provided: oven temperature of 150° C on average with good sun

Number Served: 130 households, 10 new community organizations founded

BACKGROUND

Much of the Guanacaste region of Costa Rica, a former cattle-ranching area, is dry and flat with a high degree of sunshine, and is subject to recurrent droughts. People depend primarily upon wood for cooking in the region, subjecting the remaining dry tropical forest areas to intense pressure. Some households also have electric or gas stoves. Many women spend most of their time attending to household chores, including cooking.

PROJECT DESCRIPTION

Overview

Operating in the Santa Cruz and Nicoya counties of the Guanacaste region, Fundación Sol de Vida takes a holistic approach to expanding the use of renewable energy. The project not only promotes the use of solar power for cooking, but also seeks to build women’s capacity for other development activities through the process of constructing and using solar cookers.

Implementation

The project originated in 1989 when an American physics professor, William Lankford, visited Costa Rica and a number of women attended a workshop he gave on building solar cook-



Demonstration of cooking with a solar stove at a community festival (Costa Rica).

ers. After this, the women themselves established the Fundación Sol de Vida in 1994.

There are three general areas of work, all of which have received SGP funding: workshops to build solar cookers, outreach activities through the yearly Fiesta del Sol, and educational and demonstration activities at the Casa del Sol.

Solar Cooker Workshops: Capacity-building is integrated into every aspect of the project’s operation. Each community establishes its own independent organization, led by local women. There are five stages of project development: 1) assessing the feasibility of establishing a cooking project in a community by lending a woman a solar cooker for six months; 2) demonstrating solar cooking to generate interest in attending a workshop; 3) holding a construction workshop in which 10-15 women work together to build their own solar cookers, complemented by training sessions on organizational development, environmental issues, health, nutrition, human rights and self-esteem; 4) conducting follow-up and continued training on using and maintaining the cookers, combined with building trust by embarking upon complementary projects chosen by the newly-formed women’s group, such as micro-enterprises, community gardens, and chicken and pig-raising cooperatives; and 5) establishing an independent organization in each community that can seek funding and support on its own to sustain the women’s activities. The cost of the solar cookers and the workshop are shared by three parties: Sol de Vida, which organizes the training and finds trainers (often women who participated in previous training sessions); the women participants, who donate the labor and time to construct the cookers; and an outside donor, who covers the costs of materials for constructing the cookers.

Fiesta del Sol: These annual events have taken place every year

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in February since 1991. Communities hold these festivals to promote solar technology, to educate communities about environmental issues, and to share the results of the other activities of the women's groups formed in connection with the construction of solar cookers.

Casa del Sol: This resource center offers educational services to school children and the general public. It displays several models of solar cookers, a solar water pump, a solar heater and a solar dryer, as well as photovoltaic panels for lighting. One Casa del Sol project involves building parabolic solar stoves, which reach a temperature of 400° C. Casa del Sol hopes one day to sell these internationally.

Technology

The solar cooker promoted by Sol de Vida has been refined over the years to meet the specific needs of Central American families, and continues to evolve in response to local conditions. Basically, it consists of a wooden box that is set inside another box, surrounded by insulation. It is covered by two panes of glass, through which sunlight passes to heat the cooker to an average inside temperature of 150° C (with good sun). Pots rest on a black metal plate inside the box, and aluminum foil reflectors help focus the sunlight on it. The cooker also contains a thermometer to monitor the temperature. The cookers can be built with \$100-\$150-worth of locally-obtainable materials.

Environmental Benefits

Global: 130 families have switched from wood, electricity or gas to solar cooking, thereby reducing greenhouse gas emissions. There is good sun availability in this region year-round, but on days when there is not enough sun, these families still rely on traditional cooking methods.

Local: Those who have switched to solar cooking have reduced their use of wood from local forests.

Local Livelihood Benefits

Health: Solar cookers do not produce smoke like wood-burning stoves. Women also receive training in health and nutrition during the 22-day construction workshop. Finally, food can be cooked with less fat when a solar cooker is used. For all of these reasons, this project should be improving health in the community, especially for women and children involved in cooking.

Education: Women benefit from educational components of the construction workshops. In addition, solar cooking takes less time, so women have more free time which they can use in educational and other activities.

Improved opportunities: According to several accounts, this project has "liberated" the women in this region, enabling them to engage in personal development in ways that were not possible before. This is both because of the training provided during the solar cooker construction workshops, and because of the additional time available for other activities since solar cooking is less time-consuming. A critical element that enables

women to take advantage of the extra time is the fact that the project builds social as well as individual capacity by developing local groups and encouraging women to work together on other projects not related to cooking. For example, some of the groups now raise awareness about domestic violence, and are starting support groups to help women in this situation.

National Benefits

The project demonstrates ways in which solar cookers can be integrated into lifestyles in Costa Rica. Sol de Vida was awarded the "Premio Nacional de Energia" in 2000 by the Government of Costa Rica, and was mentioned in Costa Rica's State of the Nation report in 2000 as innovative projects in renewable energy. This suggests that demonstration benefits do exist nationwide, although no evidence has been found that the model has been taken up in other parts of the country.

Capacity Development

Sol de Vida's primary capacity-building activity is the construction of solar cookers. These workshops, combined with follow-up in the communities themselves, are specifically designed to build women's capacity to improve their own lives and that of their communities in ways that do not only relate to cooking. Not only do women learn individually about health, nutrition, self-esteem, human rights and more, but the workshops lay the groundwork for building trust between women and forming new women's organizations. This is capacity development in the truest sense: because of their experience in building solar cookers, these women are now more able to launch other activities to benefit their families and communities.

Beneficiaries

Women in the Santa Cruz region of Costa Rica are the primary beneficiaries, along with their families and communities. Secondly, other communities benefit by attending the Fiesta del Sol or by visiting the Casa del Sol, and learning about solar technology, environmental issues and the livelihood improvements associated with solar cookers.

Partners

Women's community groups: the primary partners of Sol de Vida are the new women's groups established in ten communities (so far) via the construction of solar cookers. These women provided the labor for building the stoves, and now take leadership in creating new projects to benefit their communities. They are also involved in helping other communities start similar efforts, since participants are encouraged to become trainers themselves.

Government: The Department of Agricultural Development donated the land for the Casa del Sol.

International: Sol de Vida originally received the support of the Central American Solar Energy Project (CASEP), which provided training on building solar cookers at the University of Costa Rica. CASEP also seeks to spread the Sol de Vida model to other countries. Similar programs currently exist in Guatemala, Honduras and Nicaragua.

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LESSONS LEARNED

Environmental Management

This project is an excellent illustration of how success can be achieved when a new form of energy use is integrated fully into the lifestyle of a community. Use of the solar cookers is sustained because women build the cookers themselves, investing time and energy. After construction, there is follow-up to ensure that the cookers are maintained properly, and to share recipes and cooking techniques. This too is a community-led activity, since the original construction workshop is designed to build cooperation between women from the same community, eventually leading to the establishment of a new, autonomous women's group.

Barrier Removal

Financial: Since women build the stoves themselves, only the costs of materials must be covered, plus small amounts for transportation and instructors for the workshops. Women who learn how to build these can then teach others to do the same, again at a low cost.

Technical: The Casa del Sol helps reduce technical barriers by creating locally-adapted models of solar-powered stoves, water pumps, water heaters and crop dryers. Educational programs at the Casa del Sol also help improve knowledge about these technologies, some of which can be reproduced locally. The fact that the Casa has designed a parabolic solar stove which they hope to export serves as evidence that barriers to solar energy technology are being reduced.

Institutional: This project is particularly strong in reducing institutional barriers, since whenever it works in a community it seeks to create a new institution - an autonomous women's group - which is educated and concerned about environmental issues and which has the capacity to undertake new projects on its own. So far, ten such community organizations have been created.

Gender: This is another particularly strong aspect of this project. Building women's ability to take actions on their own, particularly regarding the environment and livelihood issues, is a central goal of this program. The project is led almost completely by women. Its work illustrates how solar energy can be an instrument of development specific to women, opening up new opportunities for them and improving their standing in the community.

Scaling Up

Sol de Vida itself has concentrated its activities in the Guanacaste region of Costa Rica. Sol de Vida's goal is not sim-

ply to spread the use of solar cookers, but to enable women, armed with new skills and knowledge about the environment, health, human rights and other critical issues, to take on new activities of their own choosing. Sol de Vida's other efforts, the Casa del Sol and the Fiesta del Sol, seek more specifically to spread solar technology. However, throughout the work of Sol de Vida, human development is also critical. In fact, the two go hand-in-hand. For example, a Fiesta del Sol not only showcases the advantages of solar cookers, but also helps advertise the diverse activities of the women's groups formed through the solar cooker construction process, such as the sale of handicraft items or education about domestic violence.

Sol de Vida's model has been spread to other countries in Latin America by the Central American Solar Energy Project (CASEP). This U.S.-based nonprofit organization was founded by Professor William Lankford, who refined the model of a solar oven and conducted the first training in Costa Rica, from which Fundación Sol de Vida emerged. Several years later, a team of women from Costa Rica traveled to Honduras with support from CASEP to begin a project there. Today, the projects in Guatemala, Honduras and Nicaragua employ a model similar to that of Sol de Vida, which is in general promoted by CASEP.

The project does not promote a specific market mechanism to spread solar technology, either within Costa Rica or across Central America. Within Costa Rica, the spread of solar cookers is currently dependent upon Sol de Vida's ability to organize training workshops and to find donors to help cover the cost of materials. CASEP also relies on donors to spread the model to other Central American countries.

SOURCES CONSULTED

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