

Solar Household Energy, Inc. FY 2006 Annual Report June 2005 – May 2006

*Conducting global operations to improve lives and
relieve the environment through solar cooking*

Despite ongoing human economic distress and environmental destruction, one constant has enabled Solar Household Energy Inc. to make steady progress in improving the condition of people and the land in the developing world: the immense power of the sun. Harnessing that limitless source of free fuel for domestic cooking in suitable countries has been Solar Household Energy Inc.'s dream and purpose since our founding in 1998.

The 2006 fiscal year witnessed significant advances in Solar Household Energy's efforts to disseminate solar cooking technology in the developing world. And as the fiscal year drew to a close, Solar Household Energy was on the brink of realizing several projects including the completion of our first major shipment of HotPot solar ovens to West Africa.

We describe here highlights of our most recent fiscal year, as well as events up to October 2006, and our plans for the future.

Program operations

Through research and travel we identify communities in the developing world where there is urgent need for alternative household energy. There, we seek out organizations willing and able to partner with us in mounting programs to introduce solar cooking. Working closely with these local partners, we design distribution programs and fund them to the extent of our abilities. We train indigenous instructors on teaching solar cooking, on follow-up techniques and on the evaluation of results.

Our partners run the gamut of organizational types. NGOs like Feed the Children have provided infrastructure for us in the field. The entrepreneurs SYST-COM & Energie, Sarl, in Mali enable us to distribute HotPots in our preferred fashion through for-profit enterprises. We have worked with government funding such as our contract with the Environmental Protection Agency. International organizations like the World Bank also have provided support. Academia can play a role as it has at the University of Arizona where we were invited to collaborate on a project in Nogales. Solar Household Energy's motto: whatever works.

Our "HotPot" solar oven is manufactured through contractual arrangements with International Logistics Solutions (ILS), a private company based in Monterrey, Mexico. Our partners either purchase them from the manufacturer or receive them without charge through a grant from Solar Household Energy.

While some families can purchase the HotPots outright, most of our current programs subsidize or provide for work exchange "purchases." Although HotPot manufacturing costs are low – approximately \$28 per assembled and packaged unit for a basic model -- added transportation costs, import duties and national taxes can raise the cost above the affordability threshold for many of our targeted markets.

Solar Household Energy programs incorporate evaluation procedures that assess user acceptance of the technology. In



2006, we developed an innovative and simple user survey form that can be used even by the illiterate. The survey contains monthly calendar pages with a set of symbols for each day, to circle as applicable. Symbols indicate such data elements as whether the individual solar cooked on that day, the weather conditions, and whether the individual also purchased conventional fuel or foraged for wood.



Teresa Martínez filling out calendar, Oaxaca, Mexico

Surveys are collected from users during periodic follow-up visits that are carried out by local program personnel who also offer advice and encouragement.

During fiscal 2006, Solar Household Energy expanded the scope of its geographic reach. In the Western Hemisphere, we built upon our solid footing in Mexico to begin new efforts in El Salvador and Guatemala, and in other parts of the world, we extended our reach to Mali, Burkina Faso and Senegal.

Latin America

In **Mexico**, there is urgent need for alternative household energy. Fuel wood provides an estimated 69% of energy consumption in rural areas.

First among our partnerships anywhere is the Fondo Mexicano para la Conservación de la Naturaleza (FMCN) and its executive director Lorenzo Rosenzweig. Lorenzo's vision and support has enabled us to manufacture the HotPot in Mexico and to identify locales for its controlled distribution. FMCN has also made substantial financial contributions to our joint Mexico program. During FY 2006 some 3,000 HotPot solar ovens were distributed through joint FMCN-Solar Household Energy efforts in the states of Queretaro, Oaxaca, Coahuila and Zacatecas.

The effort was also funded in part by a two-year grant from the U.S. Environmental Protection Agency to analyze the impact of solar cooking on reducing human exposure to indoor air pollution. The Alcoa Foundation contributed to FMCN for this joint program.

HotPot solar oven distribution in Mexico is being carried out by a combination of efforts involving local NGOs, a state government environmental agency and private entrepreneurs. A significant target of Solar Household Energy support is the Grupo Ecologico Sierra Gorda, an environmental and social service-oriented NGO based in the Sierra Gorda "biosphere" protected area. Solar Household Energy helped to fund the salary of a full-time solar cooking promoter there and purchased a vehicle enabling her to travel to scattered mountain communities in that region.

In addition, a new project was initiated in the



Taste testing 'Nixtamal' Corn used to make tortillas, Michoacan, Mexico

border town of Nogales, in the state of Sonora. Funded in part by a small grant from Solar Household Energy Inc. The solar cooking training and evaluation is being managed by a team from the University of Arizona in Tucson.

Another important link to the academic community in support of Mexico operations has been established with the Technical University of Monterrey, the country's preeminent private institution of higher learning. Efforts are under way to harness a network of learning centers, linked to Monterrey Tech via the Internet, to introduce solar cooking to remote rural communities.

Solar Household Energy's original involvement in Mexico sprang from a World Bank "Development Marketplace" grant in 2003. In a May 2006 event announcing the latest round of Development Marketplace grant recipients, World Bank President Paul Wolfowitz cited Solar Household Energy Inc.'s HotPot as an example of a product that "helps poor people seize the opportunities they need to transform their lives and to create better futures for their children."

A new Mexican solar cook describes her experiences

Clara Matos, who lives in Santiago, in the state of Oaxaca, was introduced to solar cooking in 2005 by Lorena Harp, a solar cooking trainer and entrepreneur supported by Solar Household Energy, Inc. Following is an excerpt of a recent interview with Matos.

How did you become a solar cook?

I bought the solar oven last year and I took it home by Holy Week. My parents loved the cooker, and they are now using it. Now we cook everything in the solar oven -- beans, chicken, and vegetables. At first my parents didn't believe it would work. They said it was impossible to cook things with the sun. I just placed the cooker in the sun, and I placed the chicken inside. When it cooked well, they started to believe, and my dad was grateful because he is the one who gets the wood.

Have you noticed that you have saved wood?

Of course, we used to buy a lot of wood but now we buy less because of the solar cooker.

Have you seen a difference in the taste and color in the food you cook with wood and the food you cook with the solar cooker?

Of course, there is more taste with the solar cooker because it comes out juicy and the chicken comes complete. In the stove the chicken tends to rip apart.

Have you had a time when it gets cloudy and the food isn't completely cooked? What do you then?

I take the steel inner pot and I put it on the stove and finish cooking the food there.

Which way do you like cooking the most – using the gas stove, wood stove or the solar cooker?

With the solar cooker because it's simpler to use. For example when I'm cooking "Mole" on the stove, I have to stir it all the time so that it won't get stuck [to the cooking surface]. But using the solar cooker, you just leave it in alone and give it time to be ready.

Efforts to introduce solar cooking in **El Salvador** and **Guatemala** have advanced. El Salvador is the most densely populated country in Central America, and is experiencing a deforestation rate of 4.1% annually due in part to the fact that 75% of the population relies on burning wood to cook.

Solar Household Energy's largest partner organization in El Salvador, the NGO Feed the Children, signed an agreement based on a detailed pilot program to share financial and operational responsibility for a HotPot distribution program. A shipment of 250 HotPots from Solar Household Energy was received by Feed the Children in preparation for project launch in the fall of 2006. The complexity and idiosyncrasies of international shipping regulations involving Mexico and neighboring countries delayed the initial HotPot shipment.

During two trips to the region, Director of Programs for Latin America and East Africa, Camille McCarthy also established formal relationships with other NGOs that will be launching solar cooking pilot projects in late 2006. One such group is the Association Comunitaria Unida por el Agua y la Agricultura (ACUA) in Zaragoza, El Salvador.



HotPot Demonstration, Solola, Guatemala

In **Guatemala**, many families spend up to 25% of their income to purchase fuel wood. McCarthy solidified ties with Proyecto Genesis, a small health-oriented NGO with an urban constituency in Guatemala City led by a physician. She made similar arrangements with La Fundacion para la Conservacion de los Recursos Naturales y Ambiente en Guatemala (FCG), which focuses on rural communities.

To an even greater degree than El Salvador, import restrictions and tariff regulations in Guatemala required much time and creative thinking to overcome. (Pilot projects are scheduled to begin in Guatemala in late 2006.)

Africa

The first large scale shipment of HotPot solar ovens to Africa took place in FY 2006, when a 40-foot container holding 1,048 units was shipped to Bamako, **Mali**, one of the 10 poorest countries on the planet. An estimated 90% of Mali's population burns wood to supply their daily needs, but fuel wood is becoming increasingly scarce. Most of the HotPot units were purchased by an energy services company, SYST-COM Energie, Sarl, whose owners became enthusiastic solar cooking promoters after being introduced to Solar Household Energy Inc. in 2004. Africa Programs Director Christine Danton made two trips to Mali in FY 2006 to provide technical assistance to SYST-COM's owners in preparation for the arrival of the HotPot shipment.

In addition to distributing HotPots in Mali SYST-COM also will warehouse an inventory of HotPots purchased by Solar Household Energy for shipment to pilot project sites elsewhere in Africa.

In particular, the groundwork was laid in 2006 for pilot projects in **Burkina Faso, Senegal and Ghana**. In Burkina Faso, Solar Household Energy established a partnership with the Centre Ecologique Albert Schweitzer, which will oversee a pilot project involving 100 HotPots and four training sites. In Senegal, a relationship was established with the Women's Association for the Promotion of Sciences and Technology. That group will begin a 120-HotPot program in six rural communities in late 2006. In Ghana, an agreement was reached with the Agricultural and Rural Development Association of Ghana to launch, in late 2006, pilot projects in at least two communities involving 100 HotPots.



Mrs. Aissata Sissoko with the HotPot, Bamako, Mali

After traveling to **Cameroon** in 2005, Solar Household Energy scientific advisor Melanie Szulczewski, Ph. D., remained in contact with the environmental NGO APELD during FY2006 and set the stage for a 100-HotPot pilot distribution project that will be managed by APELD beginning in late 2006 using HotPots to be sent from Mali.

In an effort to identify solar cooking dissemination opportunities in East Africa, Camille McCarthy traveled to **Kenya** and **Tanzania** in 2006. Both countries are in the midst of environmental and economic crises resulting in part from rapid population growth. McCarthy explored partnership opportunities with a variety of environmental and social service-oriented non-profit organizations and we anticipate that pilot projects will be launched in early 2007.

HotPot Developments

As FY 2006 was drawing to a close, sales and distribution of HotPots by Solar Household Energy Inc. and its Mexican partners had depleted the original 7,500-piece HotPot production run. Solar Household Energy committed to purchase 2,500 new HotPots in the next production cycle, scheduled for late 2006.

During FY 2006, the HotPot's durable hinged polished aluminum "Morningstar" reflector component was manufactured for the first time in large quantities in Monterrey, Mexico.

The original cardboard-backed aluminum foil unit, manufactured in the U.S., continues to offer a less expensive but less durable alternative when price sensitivity is decisive. (Basic HotPot prices at the factory in FY 2006 were \$42 for the aluminum reflector model, and \$28 for the cardboard reflector model.)

In addition, in FY 2006 Solar Household Energy explored the feasibility of manufacturing HotPots in China and identified factories capable of supplying HotPot components economically should Solar Household Energy need to make large quantities available as part of a major project scale-up.

Spreading the word

In addition to its primary focus on implementing solar cooking dissemination projects in developing countries, Solar Household Energy seeks to share its insights on solar cooking with appropriate audiences, and support research efforts to advance solar cooking technology. During 2006 Solar Household Energy:

- Provided a grant to support research in rural Bolivia to determine whether people trained and equipped to solar cook during the period between 2001 and 2003, continued to solar cook. The study revealed that 93% continued to solar cook.
- Financed 50% of the salary of a Ph.D. student to support his efforts to determine how solar cooking projects can be financed by selling carbon emission reduction credits.
- Published or facilitated the publication of articles on solar cooking in several publications, including *Ode* magazine, a self-described "independent magazine about the people and ideas that are changing the world" which is published in Holland. Others are *VerdeAzul*, a new Mexican environmental magazine, and *Calidad Ambiental*, a technology magazine published by Mexico's preeminent engineering university, the Tecnológico de Monterrey. (Local solar cooking promoters in Mexico supported by Solar Household Energy also carried out local media campaigns to publicize their activities.)
- Our Louise Meyer and Mariana Diaz, the solar cooking project director of Fondo Mexicano addressed the 2006 Solar Cooking and Food Processing International Conference in Granada, Spain. They described Solar Household Energy's Mexico initiatives to a "who's who in solar cooking" audience from around the globe.
- Witnessed a 38% growth in average daily visits to Solar Household Energy's www.she-inc.org Web site.

Building capacity

Solar Household Energy added two new board members and two staff positions during the fiscal year. New board members include: Diane Caceres, President and Managing Director of Market Access International, Inc., an international trade and investment services firm based in Atlanta; and Michael Eckhart, President, American Council on Renewable Energy, Washington, D.C.

In October 2006, Solar Household Energy welcomes Marie-Ange Binagwaho as its new Executive Director. Binagwaho is a seasoned NGO professional with a master's degree in international economic and social development and extensive experience in Africa. She served in key staff and consulting capacities for leading international development-oriented NGOs including CARE Inc. and PLAN International. She has concentrated on education, health and finance. Former Executive Director Richard Stolz will continue to serve Solar Household Energy on a part-time basis with responsibility for financial and operational management matters.



Staff: (top row) Melanie Szulczewski, Camille McCarthy
(bottom row) Marie-Ange Binagwaho, Louise Meyer,
Richard Stolz, and Bridget Huttenlocher

Kim Winters joined Solar Household Energy as its first Development Director in January. She previously served as Manager of Institutional Fundraising for Rare, an international conservation organization.

Bridget Huttenlocher joined Solar Household Energy in June as a program assistant to manage Solar Household Energy's web site and support a variety of program and research initiatives. She came to Solar Household Energy from the Academic Alliance Foundation for AIDS Care and Prevention in Africa. Huttenlocher previously served as a Peace Corps small enterprise development volunteer in Mali 2001-2003.

Financial & Legal

In addition to hiring a development director in FY 2006, Solar Household Energy took two additional important steps to assure Solar Household Energy's financial future and diversify its funding sources. One was to have its 2005 financial statements audited. Auditor Steven M. Servidio, CPA, presented the positive results of his audit, along with a set of technical recommendations, to Solar Household Energy's board of directors on January 25.

And in May, Solar Household Energy, via its tax attorney, notified the IRS of its intention to begin operating as a public charity rather than a private operating foundation, effective with its 2007 fiscal year starting June 1, 2006. (This new status reduces certain fiduciary responsibilities that funding organizations might otherwise incur in providing grants to Solar Household Energy.)

Solar Household Energy's financial statements for FY 2006 appear below.

FY 2006 SHE, Inc. Income Statement

June 1, 2005-May 31, 2006 (*unaudited*)

INCOME

Foundation grants	294,241.00
Individual contributions	6,507.36
HotPot sales and misc. income	2,383.50
TOTAL INCOME	303,131.86

EXPENSES

Project operations

Project personnel	126,744.70
Project contractors	22,584.27
Local partner support	16,500.00
Solar ovens	9,533.60
Travel & field expenses	33,241.71
Technical evaluation	10,358.00
Fund development	14,667.75
Professional services	15,055.94
Administration	86,009.42
TOTAL EXPENSES	334,695.39

NET INCOME (31,563.53)

FY 2006 SHE, Inc. Balance Sheet

As of May 31, 2006 (*unaudited*)

ASSETS

Operating funds	148,063.61
Accounts receivable	152.50
Grants receivable	56,139.81
Undeposited funds	121.05
TOTAL ASSETS	204,476.97

LIABILITIES & EQUITY

Accounts payable	9,072.17
Payroll liabilities	4,928.26
TOTAL CURRENT LIABILITIES	14,000.43

EQUITY

Opening Balance	0.02
Unrestricted funds	222,040.05
Net Income	(31,563.53)
TOTAL EQUITY	190,476.54

TOTAL LIABILITIES & EQUITY 204,476.97

Looking ahead

We have made great strides in the past year and in the coming year we will continue to address some challenges such as manufacturing and shipping. It is important that we redouble our efforts to extend our scope of local partners. For example, Fellows of ASHOKA around the world are engaged in many sorts of social projects, some of which could be enhanced by introduction of solar cooking. Because of their social interests and their local eminence, ASHOKA Fellows could also be helpful as advisors in countries where we are initiating projects.

We must seek to engage more actively the advocates of fuel efficient stoves. It is important that we include this complementary technology in our advocacy of solar cooking. Similarly, we must participate in the introduction of retained heat cookers which can insure the maximum utility of solar cookers.

There is evidence that the movements to award carbon credits for non-polluting technology are gaining strength and that solar cooking may qualify for rewards. We are supporting research in this area already, and will continue to stay informed of opportunities.

The continuing ignorance about, and misunderstanding of, solar cooking is balanced now by growing evidence of its cultural acceptance and by the growing need for alternative fuels. The pre-eminent importance of training and follow-up is continuously reconfirmed. There are also suggestions of a significant market at the top of the pyramid. If so, this could serve to insure appropriate rewards for manufacturers and commercial distributors.

Solar Household Energy can now fly. We understand the problem we address and its gravity. We have skilled, experienced and dedicated personnel. We have a cooker of proven validity. Our speed of progress toward universal acceptance of solar cooking technology depends on two things. One is finding effective associates in the field. The other is the degree of financial participation we can earn.

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