A year of transition:
June 2008-May 2009
Annual report for Solar Household Energy

FY 2009 has been a productive year for Solar Household Energy. Among other activities, we added 2,000 families to the roster of solar cookers worldwide, while our partners in Mexico trained over 3,000 new families in the use of solar cooking devices.

We have reached a critical point of transition. Over the past eleven years, we have developed a broad network of solar cooking experts spanning three continents in countries where solar cooking has great potential. We are now shifting our strategic emphasis to take advantage of this resource, as well as our accumulated field experience. Specifically, we are moving away from costly project implementation activities towards full-time advocacy for solar cooking and the comprehensive "integrated cooking" system. We will also continue to stimulate R&D for improvement of these technologies.

As we noted in last year's annual report, integrated cooking leverages solar cooking by supplementing it with fuel-efficient stoves (for cooking when adequate sun is unavailable), and retained-heat cookers, to minimize the use of wood, charcoal and other biomass fuels.

Today, thanks to our efforts and those of many other dedicated solar cooking advocates, ample evidence exists to establish solar cooking's social and technical viability, as well as the effectiveness of fuel-efficient stoves and retained heat cookers. The need for these critical technologies grows daily as traditional domestic cooking fuels (primarily wood and dung) become increasingly scarce, and the environmental and health toll of traditional cooking practices mounts.

There are many highly competent integrated cooking trainers and project implementers living in places where this approach offers great potential. However, in order for integrated cooking to be adopted on a broad scale, significant financial commitments and policy changes from governments and large international organizations are essential.

Going forward, we will devote our resources to influence the policies and priorities of these entities, rather than implement more demonstration projects. Accordingly, we have completed our direct involvement in demonstration projects in West Africa, and are in the process of doing so for our efforts in El Salvador.

This year we continued to strengthen our global networks by participating in workshops, conferences and demonstrations in Asia, Africa and Latin America and the U.S., and by sharing our experience, knowledge and training techniques with entities interested in solar cooking as a tool for poverty alleviation. Our outreach to governments and international agencies such as the World Bank and UNHCR are ongoing. We have succeeded in placing solar cooking on the list of project interventions considered by these international entities in their disaster management and their poverty alleviation activities.

Field activities: spanning the continents

In fiscal 2009, SHE pressed forward with field operations on several fronts. In **El Salvador**, last fall 1,025 HotPot solar ovens were shipped to San Salvador, where they were distributed among eight NGO project implementation partners.[1]

Two NGOs -- Asociación Comunitaria Unida por el Agua y la Agricultura (ACUA) [Community Association for Water and Agriculture] and the Asociación de Lisiados de Guerra de El Salvador [Association of Disabled War Veterans] (ALGES) -- each received 250 solar ovens; the other groups received smaller shipments. ACUA and ALGES had partnered with SHE in the previous year, when only a total of 350 solar ovens had been distributed.

A prelimimary analysis of survey data from a project in an ACUA community from the prior year, offered a promising prospect for future efforts in El Salvador:

- 59% of respondents used their HotPot three times a week or more;
- A very high percentage -- 86% -- of respondents reported using their solar oven at least once a week;
- Nearly as many (83%) reported using "less" or "much less" fuelwood than before they had a HotPot; and
- Of those who ordinarily purchase wood for cooking, 77% have noticed spending "less" or "much less" than they had prior to obtaining a HotPot.

It is noteworthy that many of the women in the surveyed community are absent for work several days a week, impacting their time available to attend to solar cooking.

In FY 2009, thanks to the ACUA's ability to receive humanitarian goods on a duty-free basis, costly import duties were waived on the most recent 1,025-unit shipment. However, the complex procedural requirements associated with duty-free importation

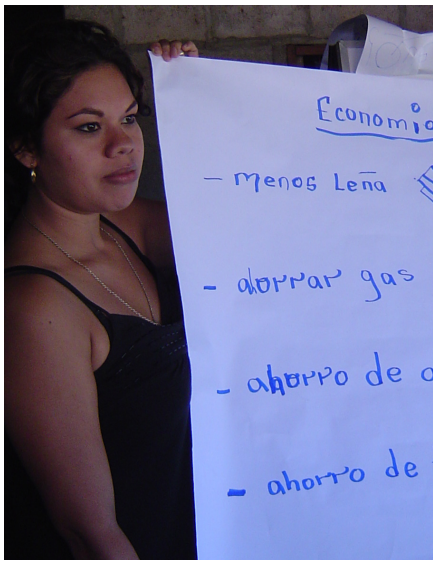
Residents near Santa Ana, El Salvador, receive training in basic solar cooking techniques in a project managed by the NGO CEPRODE

[1]Asociación Comunitaria Unida por el Agua y la Agricultura (ACUA), El Salvador, Unidad Ecológica Salvadoreña (UNES), Asociación de Lisiados de Guerra de El Salvador (ALGES), SHARE Foundation, Asociación para la Organización y Educación Empresarial Femenina de El Salvador (OEF), Fundación Salvadoreña para la Reconstrucción y el Desarrollo (REDES), Hábitat para la Humanidad, Centro de Protección para Desastres (CEPRODE)

resulted in delivery delays and costly storage fees.

Earlier in the year, SHE's Director of Latin America Programs, Camille McCarthy, traveled to El Salvador to lay the groundwork for the year's efforts. Those steps included negotiating partnership agreements with the NGOs, and equipping NGO personnel to become program coordinators and solar cooking instructors. Ms. McCarthy also joined NGO personnel in conducting community solar cooking demonstrations to recruit new trainees.

Under the basic training program, each student learns general principles of solar cooking, how to use the particular cooking device (in this case, the HotPot) and which meals are best suited to it. After the initial training, each trainee attends a monthly follow-up session conducted by the local trainer, to share her solar cooking experiences, challenges and rewards. The basic project duration is six months.



A community member trained by SHE staff uses a simple poster to reinforce basic solar cooking principles.

In most communities, residents are accustomed to purchasing firewood or propane. Solar ovens are sold to program participants for an average price of $30. Some buyers are allowed to finance their solar oven purchases by paying in installments (six $5 payments). In other communities, where residents have little cash and are accustomed to foraging for firewood, the HotPots were "purchased" via work exchange programs organized by the local NGO. In a typical program model, a woman would perform six days worth of community service – such as reforestation – in exchange for a HotPot. In addition, these participants are also required to conduct at least one solar cooking demonstration.

During this year, solar cooking instruction was extended to 10 of El Salvador's 14 geographic departments, forming a large arc around El Salvador's capital of San Salvador.

Engineering students, professors and the environmental ministry officials in El Salvador also learned about solar cooking at a demonstration conducted by one of SHE's program partners (Unidad Ecológica Salvadoreña) at the Universidad Técnica Latinoaméricana.

In **Sénégal**, we conducted the second phase of a two-year project initiated last year. Out local partner is Tostan, an 18-year-old NGO whose mission is to "bring about sustainable development in the respect for human rights." One thousand HotPot solar ovens were shipped to Senegal for this phase of the effort.

In the initial phase of the project, approximately 1,000 women purchased HotPots and were trained to solar cook in 20 small communities in the region of Thies. In the second phase, by the end of the fiscal year, 589 of 1,000 shipped HotPots had been distributed in the regions of Kaolack and Touba. SHE's direct involvement in the project has ended. Tostan was in the process of identifying recipients for the remaining 411 solar ovens.

This solar cook in Merke, Senegal, is able to earn income weaving baskets while solar-cooking a meal in a HotPot solar oven.

The beginning of this year's effort suffered a three-month delay due to importation processing difficulties, a common challenge in Senegal.

This project has been evaluated by a visiting scholar from the University of California's Center for Evaluation of Global Action (CEGA). Definitive evaluation results are anticipated for the Fall of 2009.

Monitoring data collected by project staff in Sénégal suggests that new solar cooks have reduced their consumption of, and expenditures for, traditional cooking fuels. In addition, many program participants indicated a need for solar cooking devices capable of cooking food for the large, extended families typical of rural Senegal. Still, one year after the initial distribution, rates of use in Thies are still high, showing the cookers are an important tool in the kit for project beneficiaries providing food for their families.

In this year's effort, project staff supplemented the HotPot with instruction in the use of fuel-efficient stoves.

SHE has completed its direct involvement in solar projects in Sénégal. However, it will continue to monitor Senegalese government efforts to introduce solar cooking and complementary technologies.

In **Cameroon**, working with our Maroua-based program partner, the Association pour la Protection d'Environnement et la Lutte contre la Désertification [Association for the Protection of the Environment and the Fight against Desertification] (APELD), we facilitated the distribution of 150 HotPot solar ovens in Garoua and Gobo. That effort built upon the base established in Maroua last year. At 10 degrees north latitude, these towns are in the arid Sahel, just south of the Sahara Desert.

In this year's effort, project staff supplemented the HotPot with instruction in the use of fuel-efficient stoves, which are fueled by small amounts of wood. Fuel-efficient stoves represent the second of the three-legged stool of the SHE-endorsed "integrated cooking system."

SHE board member and co-founder Darwin Curtis displays the three components of the "integrated cooking" system: A fuel-efficient stove (requiring only small pieces of wood, as shown), a retained heat device (the large basket) and a solar oven (in this example, a HotPot, sitting on table).

The third component of the system is the retained heat cooker – essentially any heavily insulated vessel, such as a basket or box, into which a pot heated in a solar oven is placed, to extend the cooking power of that sun-generated heat after the sun is too low in the sky to continue to drive the solar cooking process.

Solar Household Energy maintained relationships with solar cooking advocates and prior program partners in **Burkina Faso** and **Mali**, where promotion efforts continue. In Mali, for example, SYST-COM & Énergie, secured financial support from the government to subsidize sale of HotPots throughout the country. SYST-COM has also supplied solar ovens to other NGOs in the region. It has been a partner since our first large-scale effort in Africa, in 2006.

HotPot solar ovens are demonstrated on a large scale under the auspices of the Mexican Fund for the Conservation of Nature in Torreon, Mexico. SHE maintains close contact with solar cooking promoters in Mexico.

Spreading the Word

In the past year, Solar Household Energy staff and board members were active in solar cooking education and advocacy both domestically and abroad. Some highlights of their activities:

- **June-September, 2008**: U.S. Botanical Gardens "one planet" exhibit demonstrations conducted by Pat McArdle, Bridget Huttenlocher, Louise Meyer and Dar Curtis.
- **July, 2008**: SHE co-founder Louise Meyer and Board member Pat McArdle participated in the Rotary Integrated Cooking Workshop in Santiago del Tlautla, Mexico. In addition to demonstrating the use of the Cookit and the Hot Pot, Pat filmed rocket stove expert Larry Winiarski building tin can and brick rocket stoves. Her films of Dr. Winiarski, are on YouTube and have been viewed more than 50,000 times.
- **October, 2008**: SHE co-founder Louise Meyer demonstrated solar cooking for three days at the International Union for the Conservation of Nature conference in Barcelona, Spain, in conjunction with Terra Foundation, a Spanish NGO.
- **November, 2008**: Louise Meyer gave a presentation and demonstrated solar cooking basics to attendees of the Green Festival in Washington, D.C.
- **December, 2008:** SHE board chair Pat McArdle gave a presentation on an integrated solar cooking project for Darfur refugees on behalf of Jewish World Watch at the UN Women's Commission Beyond Firewood Conference in New Delhi, India. Immediately afterwards, she traveled to Nepal on behalf of SHE to conduct Hot Pot training in Langtang National Park near the Tibetan border. She accompanied a Nepalese representative of the World Wildlife Fund, which had purchased 500 HotPots to reduce the use of firewood in the national parks.
- **January, 2009**: Board member Pat McArdle attended the International Solar Food Processing Conference in Indore, India, where she moderated a discussion with

Indian government officials and business executives on the commercialization of solar food processing.

- **January, 2009**: Louise Meyer represented the solar cooking community at a conference of ETHOS (Engineers in Technical and Humanitarian Opportunities of Service) in Seattle, Wash.
- **March, 2009**: Executive Director Marie-Ange Binagwaho presented at the Partnership for Clean Indoor Air forum in Kampala, Uganda. The forum, with 250 attendees, addressed current developments in solar cooking and fuel-efficient stove technology dissemination, as well as the use of carbon credits as a financing tool for clean air cooking projects.
- **March, 2009**: Ms. Binagwaho traveled from Kamala to Rwanda to meet with representatives from the Ministry of Health, the Ministry of Infrastructure and Energy and the Ministry of Gender and Family Promotion to promote the inclusion of integrated cooking in their community level activities.
- **March, 2009**: SHE presented three solar cooking films at the Washington, D.C. Environmental Film Festival.

SHE board chair Pat McArdle, center, flanked by Sharin and Deepak Ghadia, spoke at the UN Women's Commission "Beyond Firewood" conference, highlighting efforts financed by Jewish World Watch to introduce solar cooking to refugees in Chad.

Louise Meyer, left, demonstrates solar cooking at the National Geographic Society with Mark Silver, the National Geographic Society's deputy director for departments, caterer Michaela Borghese and a National Geographic staff member (right).

- **April, 2009:** Board Member Pat McArdle organized an Earth Day solar cooker expo at Google Headquarters with the founder of Google Earth, Mark Aubin.
- **May, 2009**: Louise Meyer advocated for solar cooking at the annual meeting of the American Solar Energy Society conference in Buffalo, N.Y.
- **May 2009**: Pat McArdle made a presentation on solar/integrated cooking to the South Asia Women in Energy Forum at the Ronald Regan Building in Washington D.C. In addition, SHE personnel conducted numerous solar cooking demonstrations at such diverse venues as the National Geographic, military disaster preparedness exhibitions, the Embassy of Chad in Washington, D.C., a Slow Food conference in Torino, Italy, farmers markets, church gatherings and the Black Family Reunion on the National Mall.

Financial Review

Solar Household Energy, Inc.'s Fiscal 2009 income statement and balance sheet appear below

Solar Household Energy, Inc.
Statement of Activities (unaudited)
For the Year Ended May 31, 2009

REVENUE AND SUPPORT	
Grants and Contributions	418,083
Solar oven sales	11,888
Interest	126
other	1,426
Total Revenue and Support	**$431,524**
EXPENSES	
Program services	279,059
Solar Ovens	44,939
Management and general	82,672
Fundraising	35,677
Total Expenses	**$442,347**
Net Income	**$ (10,824)**
Statement of Financial Position	
May 31,2009 (*unaudited)*	
ASSETS	
Cash and cash equivalents	141,441
Grants and contributions receivable	-
Prepaid expenses	-
Loan receivable	-
Total Assets	**$141,441**
LIABILITIES AND EQUITY	
Accounts payable and accrued expenses	680
Payroll liabilities	6,116
IRA Employee Contributions	2,175
Total Current Liabilities	**$8,971**
EQUITY	
Opening Equity Balance	(0)
Retained Earnings	142,869
Net Income	(10,428)
Total Equity	**$132,440**
TOTAL LIABILITIES & EQUITY	**$141,411**

A committed organization

Solar Household Energy gained a new director this year: **Dorothy C. Zbicz, Ph.D.**, an international environmental and marine policy consultant based in Arlington, Va. Dr. Zbicz assists environmental nonprofits and other organizations with international policy analysis, policy and strategy development, trends analysis and other tasks. She has worked with leading international environmental organizations including the World Wildlife Fund, the Nature Conservancy, Conservation International, as well as USAID, the Woodrow Wilson Center and others.

Solar Household Energy, Inc.'s other directors include:

- **Darwin Curtis**, a co-founder of the organization and pioneer in the solar cooking field;
- **Patricia McArdle**, who assumed the role of Board chair this year, is an energy independence advocate, retired senior Foreign Service Officer, and a member of the board of directors of Solar Cookers International; and
- **Mark Starik, Ph.D.** Professor of Strategic Management and Public Policy at The George Washington University School of Business and Public Management and developer of the Environmental and Social Sustainability Initiative at GW.

Long-time director **Neville Williams**, founding chairman of Standard Solar and founder of the Solar Electric Light Fund and the Solar Electric Light Company (SELCO), completed his service on SHE's board this year.

Solar Household Energy, Inc.'s staff is lead by **Marie-Ange Binagwaho**, who has over 20 years of international and domestic experience in management information, monitoring, evaluation, and reporting systems and providing technical support to non-profit, private-for-profit, and community-based organizations as well as micro-finance institutions.

Louise Meyer, a co-founder of Solar Household Energy, Inc., directs our community and U.S. outreach efforts. Louise led our original projects in Mexico, and continues to monitor solar cooking activities there. A long-time advocate of solar cooking, Louise has lived and worked in Africa support ing small enterprise development, as well as solar cooking promotion efforts.

Camille McCarthy is Solar Household Energy, Inc.'s Director of Programs for Latin America and East Africa. She holds an MA in International Development with an emphasis on the intersection of environmental and women's issues. She served in the Peace Corps- in El Salvador, where she gained substantial experience with sustainable development, environmental protection, and women's empowerment.

Bridget Huttenlocher is Solar Household Energy, Inc.'s Program Manager for West Africa. Prior to joining the organization, she raised funds for an HIV/AIDS institute in Uganda, and served as a Small Enterprise Development Peace Corps Volunteer in Mali. She has experience in sustainable development, international business and women's empowerment.

Melanie Szulczewski, Ph.D., is Solar Household Energy, Inc.'s scientific advisor and research director and professor at Mary Washington College. She was an agro-forestry Peace Corps Volunteer in northern Cameroon.

Richard Stolz, Solar Household Energy, Inc.'s Operations Manager, has worked for the organization in different capacities since 2002. He has held a variety of senior positions in the non-profit and for-profit sectors during his professional career, with an emphasis on communications and financial management functions.

Where we've been, where we're going

Solar Household Energy, Inc. was founded in 1998 when our research and field experience convinced its founders of the promise of solar cooking technology to have a significant impact on problems of world health, conservation and the environment. It was evident that at least half of the world's growing population could benefit from alternative energy for cooking. We concluded that only distribution by private enterprise could satisfy so enormous a need in the long run. Our strategy, therefore, was to stimulate commercial interest in solar cooking technology.

Next, we determined that a new solar cooking device was needed to introduce solar cooking which would combine efficiency, durability and consumer appeal with ease of use and the lowest possible cost. Extensive research and development for such a device produced the HotPot.

We assumed that investment by private enterprises in the distribution of solar cooking technology awaited proof of a thriving demand. This could only occur with successful field demonstrations of the technology's viability and also the cultural acceptance of so radical a change in timeless tradition.

As readers of our annual reports will know, in our efforts to obtain the evidence we needed, in recent years we have established partnerships with community-based NGOs in Africa and Latin America. Under our strategic direction, the NGOs managed solar cooking technology transfer pilot projects. We first demonstrated solar cooking, then equipped and trained community members (generally women) expressing interest in learning more. Our project staff then trained local monitors employed by the NGOs to provide continuing guidance and encouragement. We also devised procedures for evaluation of project results.

Today our experience has persuaded us of solar cooking's viability in this new era of urgent need for benign energy. Even so, we have been unable to stimulate robust interest in the private sector primarily because we targeted poor populations. These people embraced the new technology, but couldn't fully pay for it. Even though the HotPot is the least expensive durable device on the market, it was too expensive at our small scale of production. Therefore, we had to subsidize the price to get it distributed. Where there was need for solar cooking devices with greater capacity than the HotPot, the price was even more prohibitive. These realities are impediments to a sustainable commercial distribution model.

Edwige Togueyeni cooks soup in Fada N'Gourma, Burkina Faso.

Now we know that providing alternative energy to those in greatest need will require capital at a level unavailable to date. While compassion alone may not inspire the required investment, it may be spurred for another reason: The prospect of accelerating climate change caused by 400,000,000 or so cooking fires. It is clear now that governments, international organizations and large philanthropies will have to invest in solar cooking before the private sector will engage.

Meanwhile, availability and affordability of traditional domestic fuels is becoming increasingly problematic. Shortages of wood, dung and petroleum products already touch hundreds of millions of people. The sun is the most benign and abundant source of alternative energy. Its increasing use must be encouraged for the health of people and of the planet.

SHE, Inc. is part of a global network of organizations and individuals promoting integrated solar cooking technology. We are prepared to apply our experience and resources to advance the introduction at scale[2] of integrated cooking projects on a worldwide basis.

We have been grateful for your interest and support over the years. Please share your ideas about the effective promotion of solar cooking technology with us at Solar Household Energy. You can do so by emailing us at: info@she-inc.org

[2] At scale" is the term for a relatively new concept in international cooperation. It means providing entire populations with facilities at the scale of need. For example, an electrification project in Bangladesh is providing solar electric lighting for a rural population which is off the grid. See: <http://74.125.95.132/search?q=cache:_6tBJb0w5PUJ:www.mkenvirotechnology.com/file_download/draft.pps+bangladesh+photovoltaic+lighting+project&cd=1&hl=en&ct=clnk&gl=us> A "pilot project" demonstrates a solution to a problem; a project "at scale" solves it. There have been ample "pilot projects" demonstrating the viability of solar cooking. This technology is ready to be applied "at scale."