Solar Household Energy, Inc.

Solar Cooking for Human Development and Environmental Relief

2020 Annual Report

Our mission:

Solar Household Energy (SHE) leverages the power of solar cooking to improve social, economic and environmental conditions in sun-rich areas around the world.

COVER PAGE - Top left: Université de Notre Dame d'Haiti UDERS de Hinche students at solar cooking course practicum. Top right: Solar cooking demo at preschool in Oaxaca, Mexico. Bottom right: Oaxaca family in need receives donated groceries. Bottom middle: Mother in Nairobi, Kenya learns to sprout beans for better nutrition. Bottom right: Nairobi woman showcasing her food stand business with donated LPG stove made possible by your contributions.

A Light on our 2020 Accomplishments

On the Ground: In COVID-19 times, a Focus on Food Supply and Preparation

R&D: Improving Solar Cooker performance; Teaching Theory & Testing

Education and Advocacy for Partnership Development

Oaxaca solar cooking ambassador Bibiana (right), enterprise customer Dona Flora (middle) with her daughter-in-law and granddaughter.

He said, SHE said, You said…

From the President

Dear friends of Solar Household Energy,

Thank you for your interest and support for SHE. Without your contributions we would be unable to offer low-income and remote communities in developing countries comprehensive programs introducing efficient, clean-energy solar cookstoves to prepare wholesome meals. It is these communities which are impacted most heavily by the COVID-19 pandemic. The United Nations Food and Agriculture Organization has warned of a looming food crisis with devastating impact on global hunger and poverty – especially on the poorest and most vulnerable populations. Global poverty is projected to increase for the first time in more than 20 years and more people may die from the economic impact of COVID-19 than from the virus itself.

Like other international development organizations, SHE local community outreach activities have been hampered by global social distancing orders, border closures and disrupted trade - just as this assistance is needed most. Nevertheless, SHE staff – with the ongoing support of our many expert-volunteers – have maintained regular communication with beneficiary communities pivoting to a focus on food supply as well as preparation, and family income generation investments. In both our Kenya 100 Families Project and Mexico Solar Cooking Ambassador Project (Cocineros Solares), we have been supporting participating families with donations to purchase food, and training to engage in income-generating activities.

SHE also has coordinated with solar cookstove manufacturers and the International Organization for Standardization to promote even more efficient solar cookstoves. Based on current user feedback in Oaxaca, Mexico, the Haines Solar Cooker 1 was modified for easier assembly, and its instructions were enhanced by adding solar cooking theory and guidelines, and local Oaxacan recipes. SHE research and development staff created a 20-minute video demonstrating the complete steps for conducting a standard test of a solar cooker.

In the following report you will find more detail about our 2020 activities in this challenging environment. It is clear that your support for SHE is more important – and urgent – than ever before. SHE has a strong foundation and a network of trusted international partners built up over several decades which we will leverage to both address the impact of the current pandemic on vulnerable households, and to continue our relentless pursuit to harness the cleanest source of household energy.

David Grossman
President of the Board
Solar Household Energy

December 2020

On the Ground: In COVID-19 times, a Focus on Food Supply and Preparation

Mexico: Lorena Harp's Haines solar cooker ambassador program

SHE first became engaged in promoting solar cooking in Mexico in 2003 after winning a "Development Marketplace" grant from the World Bank. Eighteen years later, 40,000 HotPot™ solar cookers have been disseminated worldwide, thanks to partnerships instigated by SHE. The HotPot, a "panel" design solar oven, was developed by SHE in collaboration with the Mexican Fund for the Conservation of Nature and the Florida Solar Energy Center in 1998. It is more economical than a parabolic oven, and cooks food in a way similar to a Crock-Pot.™

SHE is currently supporting Mexican solar cooking expert Lorena Harp in her dream to bring solar cooking to the rural women of Oaxaca state through a sustainable social enterprise. Lorena trains and supervises rural women to become "solar cooking ambassadors" in their communities. Ambassadors promote and sell on commission an affordable and durable panel-style solar cooker called the Haines Solar Cooker (HSC), provide follow-up support to maximize adoption of this alternative cooking model, and survey users to report back to SHE.

Solar cooking ambassador Bibiana (left) demonstrating how to use the Haines solar cooker.

The resulting chicken soup (caldito de pollo)

The groundwork for this project was carried out in 2017. With SHE's financial and technical support, Lorena conducted local market research, optimized the HSC design for local consumer preferences, and trained rural women to become ambassadors.

Ambassadors reached their pilot project goal of selling the first 50 HSC between January and May 2018. They surveyed their customers on a monthly basis in 2018 to assess the success not only of the solar cooker, but of the ambassador model for marketing solar cookers, training customers, and ensuring their long-term satisfaction. SHE analyzes such survey data according to UN Foundation Clean Cooking Alliance (CCA) standards.

The 2018 evaluation of solar cooker adoption and impact yielded promising results. Important findings include nearly half of the first 50 customers experiencing a 50% or more reduction in annual household fuel expenditures, despite the 5-month rainy season. Click here to download a pdf version

of SHE's scientific poster summarizing these results, which were presented at a Climate Change Symposium held at the National Academy of Sciences in Washington, DC.

Between 2018 and 2020, over 400 solar cookers were locally manufactured and sold, and five new ambassadors joined the social enterprise team. Thanks to Ambassadors Bibiana, Evangelina, Florenciana, Doña Esther, Lucía and Fidelia Mosqueda, the social enterprise is growing steadily. The HSC's original price was 500 pesos (about $25 USD) with ambassadors earning a commission of 200 pesos (about $10 USD). In 2019, with the introduction of a larger, more durable pot, and reliable demand, the price was increased to 650 pesos (about $32), with an increase in commission. SHE, Lorena, and her ambassadors continue to improve the social enterprise model, providing greater opportunities for ambassadors to thrive, both financially and as environmental leaders in their communities.

Solar cooking workshop in Vicente Guerrero.

Delivery of groceries by ambassadors Bibiana (left) and Elena (right)

Donation and delivery of groceries to over 40 families in need. In the Guerrero town of Zaachila, extreme poverty means women sort through garbage to find means of survival. In previous years, Lorena teamed up with non-profits to donate solar cookers. This year, she and ambassadors Elena and Fidelia gathered donations from friends and families to buy and deliver groceries to those most in need. In Tlacolula, Oaxaca, Ambassador Esther doubled the impact of a solar cooking demo by distributing food to impoverished families, including one woman with seven children and no gas stove.

Ambassador Esther (left) selling solar cookers at her cloth stand.

Lorena and her team have been reaching new audiences and training potential ambassadors. Ambassador Margarita solar cooks hot meals for her husband at a penitentiary where cooking on an open fire is not allowed, explaining the technology to other visitors from communities near and far. New solar cooking enthusiasts and potential ambassadors include a cook from a hotel kitchen staff, a young man who cooks for his large family of textile artisans in Teotitlan del Valle, and a retired schoolteacher in Cuilapam. Empowering those excited about solar

cooking to promote it within their community is key to spreading solar cooking sustainably.

Marina uses her three solar cookers to cook for her mini-restaurant customers and save on gas. She was featured in the promotional video for Oaxacan communities.

In 2020, increased profitable sales helped subsidize programs for the hardest-hit communities. While poor, rural communities were hit especially hard by the pandemic, middle-class people from diverse areas in Mexico, who found out about the HSC through Lorena's intense advocacy efforts, started buying solar cookers at a profitable, unsubsidized price. This type of customer can receive solar cookers via postal service and follow instructions and online resources for assembly, use, and troubleshooting. These profitable sales help Lorena's enterprise achieve financial sustainability and subsidize the ambassador program. Lorena and a local photographer who was inspired by her work are now creating a promotional video to reach even greater audiences.

SHE joined forces with solar panel company SolarVatio as a potential partner for scaled up distribution of the HSC. Solarvatio is a renowned company in the renewable energy field in Mexico, and has installed solar panels in many parts of Mexico under government contract. When Lorena met Solarvatio Director Luis Calderon, he immediately showed interest in solar cooking. He bought 30 HSCs for his employees, with Lorena carrying out training. He offered his support by suggesting that they apply jointly to government contract awards, to provide solar panels and solar cookers together. They further explored this partnership in 2020.

An online customer showcasing the Haines 2 solar cooker.

Kenya, Kithuia Village: Eco-mandate manufactures Haines 2 solar cookers

Click on link to view on YouTube. 500 children in Kakuma camp refugees learn to cook in Haines-Copenhagen solar cookers. Video credit: NTV Kenya

In 2017, a Solar Cooker Festival for 500 school children was held at the vast Kakuma refugee community. Inexpensive, durable solar cookers called Haines-Copenhagen cookers were assembled in Kakuma by refugees from materials donated by Haines Solar Cookers.

A 2016 study by SHE partner and World Food Program (WFP) engineer Godfrey Mawira showed that solar cooking was the second-most preferred method of cooking in Kakuma, even though very few solar cookers were available.

In 2019 and 2020, Eco-mandate Ltd, a solar cookers seller, renewable energy promoter and research firm based in East Africa, in partnership with Tonembee foundation, manufactured 25 Haines 2 solar cookers from the same raw materials that were used to make the 500 Haines Copenhagen solar cookers for the 2017 Festival. Materials for hundreds more solar cookers are in a warehouse in Nairobi. Entrepreneurs Nicholas Kithembe and Agnes Wambua will be able to sell these once social distancing restrictions are lifted.

Eco-mandate entrepreneur training family in use of Haines 2 solar cookers.

SHE is looking for funding to help kick-start Ecomandate's enterprise to sell Haines 2 solar cookers, **and to learn lessons from the Kakuma Festival distribution** of 500 Haines-Copenhagen solar cookers to schoolchildren.

Kenya, Nairobi: The "100 families" project – achieving self-sufficiency

In 2020, SHE joined forces with solar cooking expert Tom Sponheim, embracing his "100 families" project in Nairobi to lift up 100 families that sank into poverty due to Coronavirus pandemic effects. Using a new, radically transparent model, donors' funds are transferred to 100 families in need, and photos of each family's usage of those funds are made public for all to see. Basic needs such as groceries are met first, then, families work with Nairobi-based colleague Samuel Odhiambo to start businesses to achieve self-sufficiency. Some have added solar cooking to their lives for increased savings. Keep on reading for details.

Thousands of families living in the Nairobi slums are locked down due to the coronavirus pandemic. While individuals are free to move about wearing masks and maintaining social distancing, **the odd jobs that they have always found to support themselves have mostly disappeared**, leaving a large number of families without a source of income.

Aware of this immense need, Tom Sponheim and other Seattle residents set out to see what they could do to help at least some of these people. **With the help of Samuel, they chose 100 families to focus on.**

Since the end of April of 2020**, $5 has been sent electronically every two weeks to each family to buy groceries. Each family then sends back a photo** showing themselves with the groceries that they have bought. These photos are uploaded to a cloud drive where they are visible to all (view these photos here under the "transfer" albums).

After running the project for seven months with personal donations and those of friends and family, in November 2020, with the arrival of the sunny season in Nairobi, **Tom contacted Solar Household Energy (SHE) for its expertise on adding solar cooking** to the project for further fuel savings. SHE has now adopted the project and Tom has joined the SHE team.

SHE is hoping to spread this new radically transparent model to new groups of 100 families to allow donors to participate in projects with the assurance that their donations actually make it to the people in need.

This Nairobi family sent a photo of themselves with groceries bought thanks to direct contributions.

Using this model, SHE also gets to know the families so well that they can work with them to design a plan for them to become self-sufficient. **In 2020, with the support of this project, 47 of the families created their own businesses, and 27 of these families reported that they were now self-sufficient and able to live off the profits from their business.**

Donors' contributions have gone towards:

Thermoses allow fuel savings of $5 to $15 per month per family.

- **Groceries:** As families become self-sufficient, their food money allotments are reduced and eventually eliminated. This frees up money to use to help the remaining families start businesses and strive toward self-sufficiency.
- **Sprouting:** 80% of the families are now sprouting mung beans as a nutritious supplement to their starchy diet. They were previously unaware of this technique.
- **Small business creation:** outdoor food stands, small grocery stores, popsicle vending, peanut roasting and selling, second-hand clothing sales, sewing businesses, a for-profit lending library, hair salons, carpentry services, are some of the income-generating activities that have worked.
- **Supported needs:** We fulfilled approximately 30 requests for practical, important daily necessities.
- **Fuel savings:** Although LPG (propane) is less expensive to cook with than charcoal (which costs 50% to 150% of food expenses), charcoal is the typical cooking fuel due to the high cost of LPG stoves. 20 LPG stoves were donated to selected families, those with the greatest need (poverty or health-wise), and those who could make the most use of it (sharing between multiple families, or for food-vending businesses). See photos here.
- **Chess Tournament:** On December 5th, 16 members of the Chess Club for youth held their first chess tournament, and the winners received their own chess sets. See photos here.
- **Thermoses:** All 100 families were given 2-liter thermoses, which allowed fuel savings of $5 to $15 per month per family.
- **Incidental assistance:** bereavement costs for two families, and help for ten special requests for medications or travel costs to medical appointments.

Another goal is to build solidarity among the families. To this end, several initiatives to build community spirit have been undertaken:

- **Neighborhood cleanup:** the Kariobangi Slum, where the families live, is strewn with litter. Four times every month, it has become a popular activity for the families to gather together and do an extensive cleanup of a part of their community. See photos here.
- **Framed photos:** one photo of each family was printed and framed to include the words "The 100 Families project."

Solar cooking

When the weather changed and Nairobi entered the dry season, cooking workshops were begun where the families are taught how to use a solar cooker. Assembly then began on Haines 1 solar cookers and these are being provided first to the families with the greatest need and interest.

The 100 Families clean up their neighborhood together, building solidarity.

Future plans

Hot weather will bring the need for cooling to keep foods from spoiling, especially for the food vendors. We are working with pot-in-pot coolers that act as low-tech refrigerators.

SHE hopes to finish up with this first group of 100 families and adopt a second group where lessons learned can be applied to improve the lives of the second 100 families even faster than with the first group.

Uganda: Palabek refugee camp pilot project

As the region bordering Uganda and South Sudan, the current insurgency in South Sudan has made **northern Uganda home to over 180,000 refugees**, all of whom need a reliable source of energy for preparing their daily meals.

In 2020, 33 Palabek refugee women received Haines 2 solar cookers and were trained in their usage. Three of those women were selected by their peers to conduct periodic surveys to evaluate the long-term use and adoption of the cookers, and the feasibility of establishing a sustainable solar cooker enterprise in the community.

The San Diego Rotary Club funded the project, the Alliance for African Assistance in Gulu manages manufacturing and sales of solar cookers, the African Refugee Education Project funds and manages the refugee aspect of the project, Solar Connect Association based in Gulu provided training, and SHE will carry out the project evaluation.

Haiti: First University-level solar cooking course; promotion by students

Three successful pilot projects proved adoption of, and high demand for, parabolic solar stoves. SHE's efforts in Haiti started in 2011 thanks to a partnership with The Nature Conservancy (TNC) introducing 30 "Sun Oven" and 30 "Stove-Tec" cookers in Tilori, a small town on the Haiti-Dominican Republic border. TNC then introduced 78 parabolic "Sun and Ice" solar stoves, upon SHE's recommendation, to satisfy Tilori residents' desires for fast cooking and frying. With a high demand for more solar stoves, in 2015, SHE distributed 25 SolSource parabolic stoves in partnership with the Solar Electric Light Fund, a successful project whose evaluation showed "very high adoption" and "high impact" of the solar stoves according to UN standards. Read more about our projects in Tilori, and photos on Facebook.

SHE, as part of the consortium, is developing and teaching the first solar cooking course at a Haitian University. This course aims to enable students to disseminate solar cooking practices and technology in nearby communities. The course features many solar cooking expert guest speakers, thanks to video conferencing by representatives of the ten consortium members who developed the course textbook and syllabus, including Solar Cookers International, the Public Private Alliance Foundation, Konbit pou Developman Commune Kotes-de-Fer (KDCK), and SHE. On top of learning the science and history of solar cooking, students at University of Notre Dame of Haiti at Hinche (UNDH-Hinche) will solar cook a variety of dishes on three different types of solar cookers during each class. They will also learn to make their own solar cookers, and create financial self-help groups in nearby communities to lay the ground for future solar cooker manufacturing and sales. See photos of the students in class and assembling the SK14 solar cooker.

Girls from the Haitian Adolescent Girls Network learn to assemble and use Haines 1 solar cookers. Picture credit: Public Private Alliance Foundation/Konbit pou Developman Commune Kotes-de-Fer

In October 2020, Roger Haines sent 30 additional Haines 1 solar cookers to the Haitian University and the Haitian Adolescent Girls Network. In the last few years, Roger Haines, inventor of the Haines solar cooker and SHE Board member, has sent and supported the use of 90 Haines 1 solar cookers to University of Notre Dame of Haiti (UNDH) in Hinche. Some cookers were used in the solar cooking classes at UNDH, and some were used for training demonstrations of solar cooking among leaders and club mentors of the Haitian Adolescent Girls Network, an initiative of Rose Bazile's non-profit Konbit pou Developman Commune Kote-de-Fer.

R&D: Improving Solar Cooker performance; Teaching Theory & Testing

SHE's ongoing R&D efforts represent a fundamental element of our strategy to disseminate solar cooking technology to those who need it the most. Long-time board member Paul Arveson, a retired engineer, leads SHE's R&D efforts, including conducting his own research, contributing to others' research projects, and participating in setting international standards.

Making solar cooker testing accessible to all

Paul created a 20-minute video **showing the complete steps for conducting a standard test** using the equipment documented in SHE's 2018 Technical Report 09.1 "A system for standard power measurements of solar cookers based on commercial off-the-shelf instruments."

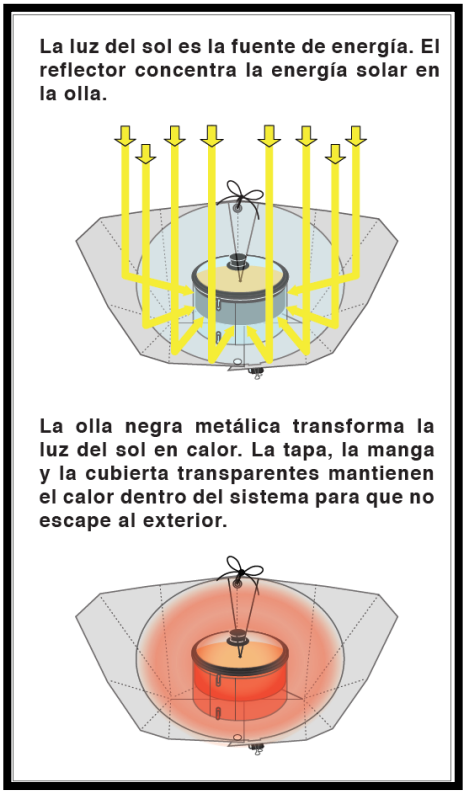
Testing the power of Cookits using a Stevenson box, two pyranometers and an anemometer, powered by a solar panel.

Paul wrote a simplified method for doing a standard solar cooker testing using an Excel spreadsheet. This method is not as accurate as the full procedure (using Python software that is available on the SHE website). The accuracy of this method should be compared with the standard method using the Python software.

SHE partnered with Messiah College's "Collaboratory" team in Pennsylvania to develop a solar thermal device for rendering tallow, as requested by Rwanda villagers. Paul provided the students with all the hardware to make a solar simulator for testing performance, and visited them to provide guidance for this engineering project. The students' final report can be found here.

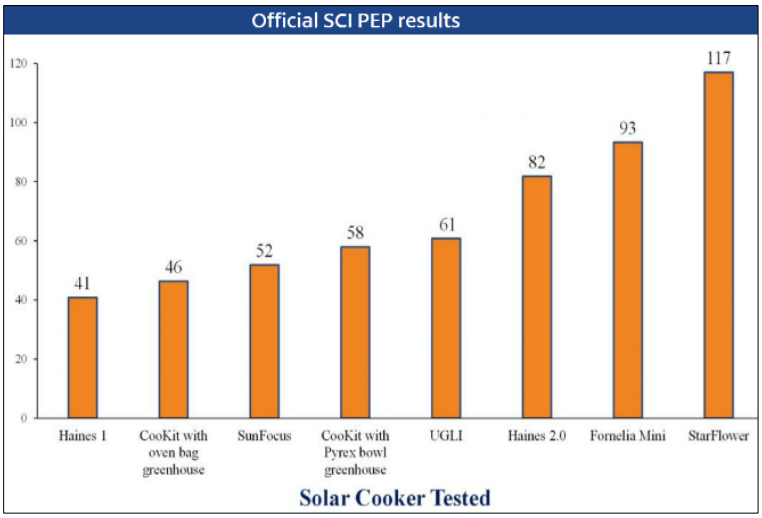
Teaching solar cooker theory to rural customers

Using feedback from Oaxacan "ambassadors" and their customers (see Mexico section), SHE's multi-disciplinary team created a booklet to be included with Haines Solar Cookers for Oaxaca rural communities, with colorful, simple, graphic design images explaining HSC assembly, usage, and how solar cookers work, along with solar cooking tips and local Oaxacan recipes.



An excerpt from the HSC booklet

The Haines 2: developing the best-performing panel cooker



The Haines 2 is the most powerful panel cooker available, with nearly double the power of most other panel cookers.

Board member Roger Haines has been designing and field-testing solar cookers since 2012. He strives to create a panel solar cooker that is as powerful as a parabolic, yet affordable to those who need it the most. Incorporating feedback from users of his solar cookers in villages and refugee camps in Kenya and Mexico over the years, his latest solar cooker, called the Haines 2, is the most powerful panel solar cooker available. It has been rated at 82 Watts by Solar Cookers International's Performance Evaluation Process. As references, the Cookit solar cooker with its plastic bag is rated at 46 watts, and the UGLI box cooker is rated at 61 W.

The Haines 2 has seen great success around the world. Over 2,000 have been sold on Amazon. It has two settings for high and low sun for cooking in low and high latitudes. It comes with a 5-liter black pot for cooking for large families. It is powerful enough to pasteurize a 5-gallon jerrican (painted black) in under four hours. Jerricans are commonly used in developing countries to carry water from sources such as rivers or wells back to their houses.

The Haines 2 comes with a 5-liter black pot for family-size cooking.

The Haines 2 can pasteurize a 5-gallon jerrican of water in under four hours.

Education and Advocacy for Partnership Development

This year, our education and advocacy efforts in Washington, DC were limited due to COVID-19 restrictions. However, our associate Lorena Harp in Mexico forged ahead, virtually and in-person when possible.

International and regional education

Lorena continued her participation in the international project "Techamos una mano" virtually. In 2019, students from Canada (through the GIE Oaxaca program) and Anahuac University of Oaxaca helped displaced households with limited resources in Teotitlán del Valle by building them houses from PET and Tetrapac, under the supervision of the local civil association Techamos una mano ("lend a hand"). Students paid for building materials and eight solar cookers, one for each family. Lorena and ambassador Bibiana Hernandez provided solar cooking training and follow-up. This year, with social distancing making travel impossible, Lorena trained students virtually in preparation for next year's visit.

Lorena taught staff at Etno-FoodLab, an enterprise teaching traditional Oaxacan cooking for international tourists, how to solar cook. They bought a solar cooker which they now use in their cooking lessons. Pictured here are Etno-FoodLab staff and Lorena.

Thanks to Lorena, Etno-FoodLab cooking classes have gone solar. Etno-FoodLab, an Oaxacan organization, teaches traditional Oaxacan cooking, mainly to international tourists. After Lorena demonstrated use of the HSC to the FoodLab team, they bought one for use in their cooking classes.

Lorena became a Vital Voices mentor for young professional women. She was invited by the Director of Universidad Tecnologica de los Valles Centrales de Oaxaca (UTVCO) to take part in the Global Mentoring Walk, which is an international initiative seeking to create a network of women leaders to coach younger women entering the professional world.

Lorena collaborated virtually with a non-profit to distribute 16 HSCs to those in need in Torreon. Since Lorena could not travel due to social distancing measures, she trained the non-profit

leader and engineer Octavia Sanchez, who had bought the HSCs, to carry out the solar cooking training workshop for 16 solar cooker beneficiaries.

Karina Weinstein, a representative of FXB, an international non-profit, visited solar cooker enterprise customers to learn about solar cooking for economic empowerment and climate change mitigation.

FXB visit to Oaxaca with Lorena Harp: FXB, an international organization focusing on economic empowerment of very poor communities around the world, visited social enterprise customers in rural communities over three days to find out more about solar cooking as a tool for climate change mitigation.

Partnership development for post-pandemic 2021

Although many field events had to be cancelled due to COVID-19 restrictions, Lorena continued to build partnerships virtually, planning some projects with social distancing in mind, and planning others for post-pandemic life. Details below:

- Reconnecting with Tierra del Sol to promote solar cooking together. Years ago, Lorena worked with Pablo Ruiz of the non-profit Tierra del Sol to promote solar cooking in Tlacochahuaya. In 2020, she and several ambassadors visited his project so they could design farmers' markets workshops on making medicinal tinctures and lotions using solar cooking.. Lorena and Pablo also visited a permaculture farm in Tlacolula to explore using this open-air, COVID-19-safe space for joint solar cooking workshops.

- Assisting "Abuelas Solares" to add solar cooking to their solar electrification activities. Abuelas Solares, or solar grandmothers, are graduates of "Barefoot College," a 6-month solar electrification training program in India. Norma, a solar grandma from Cachimbo who has been installing solar panels in the poor communities of Cachimbo, and who received a solar cooker from Lorena three years ago, hopes to introduce solar cooking in communities on the isthmus of Tehuantepecto ravaged by recent hurricanes and earthquakes.

- Participating in "Cocina Colaboratorio" (Cooking Collaboratory): A planning meeting was held regarding this project's first event, a "Traditional Food Fair," a community-based event

featuring environmental education and cultural activities, including local cooks reviving traditional recipes. Exhibits would tackle issues in ecology, agriculture, water, etc. This project is headed by the Doctor of Science Patricia Balvanera from UNAM Morelia.

- Partnering with Espiral por la Vida to promote solar cookers in Ixtlán de Juárez in Oaxaca's North Sierra after the pandemic. This organization has been supporting women from indigenous communities for years on issues of gender, violence, human rights, labor, etc.

- Invitation to teach solar cooking at a traditional cooking event held by the Oaxaca Secretariat of Culture. Over 100 traditional cooks from at least ten communities would have convened to share cooking knowledge. This annual event was cancelled due to the pandemic but Lorena hopes to participate next year.

Oaxaca events

- Solar cookers for dyeing wool: Lorena introduced parabolic solar cookers for dyeing wool to a family of wool-dyers. Their adoption of solar cookers in their community which already boasts a few solar cooks would increase Lorena's chances of finding an ambassador for that community.

Lorena trained the Casona de Tita hotel kitchen staff, solar cooking orange bread.

- Solar cooking training for Casona de Tita hotel kitchen staff: Lorena trained the kitchen staff in HotPot) and HSC usage. One of the cooks bought an HSC to promote it in her community.

- Solar cooker demonstration at the "Espacio Creativo" elementary school. Lorena solar baked cakes with a HotPot and HSC, teaching 60 students and their teachers.

- Workshop attended by non-profits and academics: A workshop organized and hosted by one of Lorena's friends was attended by friends, neighbors, colleagues, academics, and representatives of non-profits. Connections made here led to her involvement in the "Cocina Collaboratorio" (see above).

What lies ahead for SHE

Since 1998, Solar Household Energy has been working with non-governmental organizations, entrepreneurs and public sector entities in sun-rich, fuel-scarce regions of the world to make solar cookers available to those who need them the most. **Our role is to light the spark of solar cooking and build the capacity of local actors to continue the diffusion of solar cookers long after our involvement has ended.**

We have achieved this in many of our projects. Our 2003-2005 project in Mexico led to our partner FMCN (Mexican Fund for the Conversation of Nature) distributing over 20,000 HotPots in Mexico. Our 2012 project in Tilori, Haiti, led The Nature Conservancy to distribute parabolic solar cookers, with 98 installed and more on the way. Our 50-HotPot pilot project in a Chad refugee camp in Chad led UNHCR to purchase 200 more HotPots, and to recommend the distribution of 80,000 HotPots in their 2014-2018 strategy report for Chad. We hope to achieve the same level of success for our current solar cooker social enterprise project in Oaxaca.

We adapted to a world devastated by COVID-19 by providing basic necessities and strengthening our virtual relationships with beneficiaries. Throughout the years, we have transitioned from a traditional model of technology transfer relying on US-based SHE staff traveling abroad to perform solar cooker training and follow-up, to a more cost-effective model that focuses on building a long-term virtual relationship with local leaders and beneficiaries, made possible thanks to increased cell phone and internet connectivity, more advanced photo and video capabilities, and the ubiquity of social media, among other factors. This became the norm during the COVID-19 pandemic. The 100 families project was born out of volunteer Tom Sponheim sending his COVID-19 stimulus money directly to low-income families in Kenya, collaborating virtually with local leader Samuel Odhiambo to manage the project transparently with meticulous photographic documentation made public. In Mexico, social ambassador program manager Lorena Harp trained an NGO leader in Torreon virtually rather than traveling to perform the training herself, deepening the local leader's emotional investment in her project and her ability to solve local issues.

Having embraced this cost-effective virtual model, we are ready to embark on new projects around the world. We adopted the "100 families" project this year, supporting not only solar cooking efforts but small business endeavors. We are seeking other partners wishing to collaborate with us virtually. For $2000, SHE can provide four different types of solar cookers (two panel cookers, a box oven, and a parabolic) anywhere in the world and train four community members virtually over three months, selecting the most appropriate solar cooker for local conditions and laying the groundwork for a pilot project. Successful partnerships can then progress to pilot projects, which can scale up with time.

If you live in a sun-rich, fuel-scarce region, we hope you will contact us regarding partnering to enjoy the benefits of solar cooking – cleaner, healthier air, household financial and fuel savings, reduced deforestation, and climate change mitigation.

Our People

SHE is a small but productive organization with far-reaching impact, thanks to the combined experience, knowledge and passion of its team members and dedicated volunteers.

This year, SHE acquired two new Board members:

Arline J. Lederman, Ph. D, has been engaged with solar cooking for more than twenty years. Previously, AJ served as a Board Member with Solar Cookers International, advocating for solar cooking as a UN representative.

Richard Stolz began his association with Solar Household Energy in 2002. He served SHE in the roles of consultant, Executive Director, and Chief Operating Officer.

Also joining our team this year as a volunteer is **Tom Sponheim**, who initiated and manages the "100 families project" (see above). Tom Sponheim, who lives in Seattle, Washington, is the founder and an administrator of the Solar Cooking Wiki. Tom also spent a decade at Microsoft where he received numerous patents.

We were joined this summer by two volunteer interns from The Fund for American Studies: **Fernando Garcia-Morales** and **Charles Bluestein**. Both were very helpful in supporting Mexico project activities and in reaching out to new potential partners, among other SHE tasks.

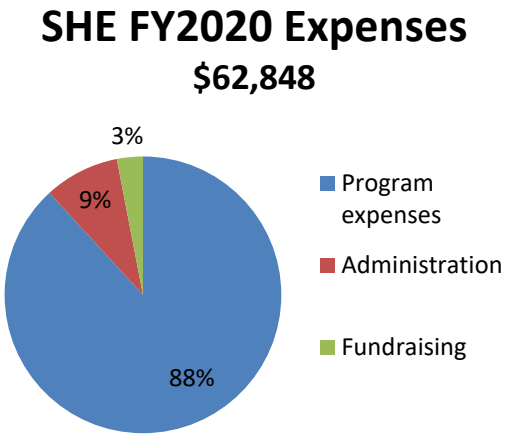
SHE has seven other Board members. **Odile Brock,** who joined the Board in 2019, brings her expertise in cooking, nutrition, and women's issues from three decades of living overseas with the U.S. Department of State and her certificate in nutritional therapy. SHE Co-founder, Board member, and volunteer Director of Education **Louise Meyer** has been carrying out solar cooking education in Washington, DC for decades, and carried out field training for projects in Mexico and Haiti as well. SHE's Board member and volunteer Director of Research **Paul Arveson** has been advancing solar cooking standards through his participation in International Standards Organization forums and carrying out research to optimize solar cookers and their testing. Board member **Roger Haines**, in addition to inventing promising new solar cookers, has been investing his own time and funds to bring solar cooking to refugees and low-income villagers in Kenya and Uganda. Board member **Margarita Battle**, a Mexico native, has been invaluable in SHE's project to launch a social enterprise in Oaxaca, Mexico. **Janet Murphy**, a long-time volunteer of SHE who joined the Board in 2018, brings a wide network of environmentalists, and helps with promotional and administrative matters. **David Grossman**, after a career with the U.S. Agency for International Development, served as Director of Global Programs for the International City/County Management Association, and now leads Solar Household Energy's Board of Directors.

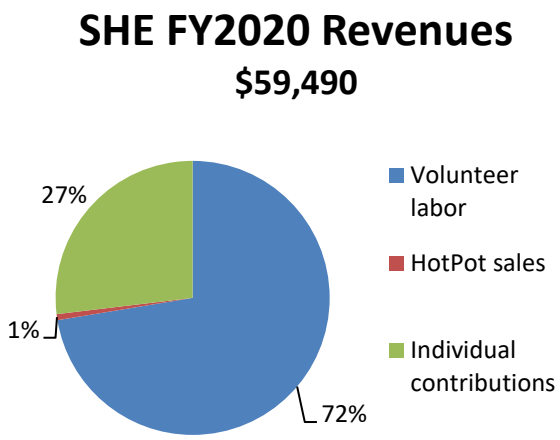
SHE's ongoing operations are carried out by a small team. As SHE's Executive Director, **Sophie Brock Lyman**'s responsibilities include strategic development, project design and analysis, and partnership development. **John Nash** provides SHE IT support and guidance. **Lynn Patton** is SHE's bookkeeper. Volunteer **Esperanza Sanz** keeps the organization active on social media, particularly Facebook. Please find more information on the SHE team on our website.

All of SHE's Board members and its other volunteers have been paramount to fulfilling SHE's mission, dedicating time, efforts and personal funds to ensure the highest standards and results, for human development and environmental relief. We are deeply grateful for their service.

Committed to accountability and transparency.

Solar Household Energy is a 501(c)(3) non-profit corporation and public charity. We are committed to accountability and transparency, and are GuideStar Platinum certified. We will be happy to send you our 990 tax return upon request.





Although volunteers play a vital role in our ongoing ability to carry out our mission, we also require funds to conduct projects and manage operations. We welcome and encourage all financial support, large and small. Please consider making a tax-deductible contribution to SHE via PayPal or credit card, or write a check to "Solar Household Energy" and send by mail to: 5 Lochness Ct., Rockville, MD 20850-2950, attn: Richard Stolz. We also encourage inquiries about our finances and operations. All our board members and staff can be reached via email to: inquiries@she-inc.org

Thank you for your interest and support for Solar Household Energy.

Solar Household Energy is a 501(c)3 non-profit. Please like us on Facebook, watch us YouTube, and check out our website: www.solarhouseholdenergy.org