Solar Household Energy in 2014: Bringing solar cooking to the clean cooking arena



Our Mission:

Solar Household Energy strives to unleash the potential of solar cooking to improve social, economic and environmental conditions in sun-rich areas around the world.

From the President

Welcome to Solar Household Energy.

Much has happened since our founding in 1998. Back then solar cooking promotion was primarily the obscure domain of several dozen dedicated selftaught pioneers scattered around the world, except in China and India where the government had already jumped in with both feet.

Today the breadth and sophistication of the solar cooking movement is remarkable. Hundreds of membership organizations and scores of solar cooking device manufacturers are promoting solar cooking globally. At least a dozen Ph.D. dissertations have been devoted to various aspects of solar cooking.

Solar cooking is considered, alongside clean cookstoves and other technological innovations, as a means of advancing international development, environmental protection and remediation. A telling indication of the prominence of solar cooking was its inclusion in a speech by Hillary Clinton at the Global Alliance Cookstoves Future Summit.

Solar Household Energy remains squarely in the middle of the action. As you will read, we are active in educating policymakers, encouraging the development of uniform technical standards and advancing the adoption of solar cooking in poor, climateappropriate communities.

This year we promoted our Senior Program Manager Sophie Brock to the role of Executive Director, and added three new board members with extensive experience in the international development, energy and environmental arenas.

One noteworthy event is the formal recognition of the extraordinary contributions that Darwin Curtis, one of our founders and a Director Emeritus of the organization, has made to the advancement of solar cooking. Dar was awarded the "International Order of Excellence" by Solar Cookers International based on his sustained efforts to improve lives through solar cooking.

If you are new to the world of solar cooking, we welcome you. If you are a veteran, thank you for your ongoing interest and support.

May

Cora Shaw President of the Board Solar Household Energy www.she-inc.org

What's new in a nutshell...

As clean cooking emerges as one of the foremost environmental, health and gender issues of our time, the importance of adopting international standards and policies to evaluate clean cook stoves and their impacts has become increasingly clear. To this end, Solar Household Energy has been spearheading advocacy efforts and building relationships with prime actors in the field, including the Global Alliance for Clean Cookstoves¹ and the International Standards Organizations. Our goal is to ensure that solar cooking is taken into account alongside other clean cooking solutions in the development and dissemination of these gamechanging tools.

Solar Household Energy is also applying these principles to its field initiatives, ensuring that **previous projects in Mexico and Chad continue to yield objective and statistically valid data on long-term adoption and impacts,** and to inform future efforts. In Chad's Gaga refugee camp, Solar Household Energy is planning to work with the Lutheran World Federation, the NGO on the ground succeeding Solar Household Energy's original partner, Africare. Our goal is to evaluate usage of hundreds of HotPot solar cookers² over four years post-distribution, and to establish a training and program structure for eventual project expansion.

In Mexico, Solar Household Energy is revitalizing relationships with previous partners such as the Mexican Fund for the Conservation of Nature (Fondo Mexicano para la Conservación de la Naturaleza, or FMCN). We collaborated with FMCN over a decade ago to design, manufacture and distribute the HotPot in Mexico. We are gearing up to assess and document long-term project outcomes in Mexico. Since Solar Household Energy planted the seed for this project in 2004 with grants won from the World Bank and U.S. **Environmental Protection Agency,** FMCN has distributed over 25,000 HotPots in Mexico.

We are exploring microfinance and carbon funding possibilities with FMCN to increase the HotPot's commercial viability for those who need it the most, and achieve even larger scale distribution. Solar Household Energy board of directors member Margarita Battle, a Mexican native, is on the ground working with the University of Queretaro (Solar Household Energy's original HotPot project region) to rigorously assess the impact of 400 of the pollution-free cooking devices distributed in 2010 as part a project managed by Peace Corps volunteer Sonya Greegor.

Solar Household Energy is maintaining its efforts to introduce solar cooking in

¹ The Global Alliance, managed by the United Nations Foundation, is a publicprivate partnership organization that seeks to foster the adoption of 100 million clean cookstoves by 2020.

² The HotPot is a panel-style slow-cooking solar cooker designed at the instigation of Solar Household Energy and manufactured in conjunction with the

Mexican Fund for the Conservation of Nature to fill a void between barebones, non-durable designs and others of significantly greater expense and complexity. Here is the link to the HotPot page: http://www.sheinc.org/?page_id=833

some of the world's most vulnerable and fuel-starved populations, particularly in eastern Chad.

In partnership with Solar Cookers International (SCI) and two other solar cooking organizations, **Solar Household Energy this year reached out to the worldwide solar cooking community** to better represent the diversity of solar cooking technologies, projects and organizations to the Global Alliance.

We also sought to promote Global Alliance resources within the solar cooking community. Solar Household Energy presented on opportunities for collaboration and sharing of resources both at the Global Alliance headquarters and at the Solar Cookers International Convention, and continues to act as an intermediary between the Global Alliance and the solar cooking community.

> Solar Household Energy recognizes the need for empirical, peerreviewed, third-party data on solar cooking technologies and field project impact.

Solar Household Energy recognizes the need for empirical, peer-reviewed, third-party data on solar cooking technologies and field project impact evaluations to bring scientific backing, credibility, and ultimately funding, to scale up solar cooking projects worldwide. Accordingly, **Solar Household Energy and SCI supported Paul Funk, Ph.D., developer of internationally recognized solar cooking standards,** to participate in the International Standards Organization (ISO) clean cooking conference in Nairobi, Kenya.

Solar Household Energy and SCI also supported Deepak Gadhia, renowned for his large-scale community kitchens in India, to present his findings at the University of California Berkeley's International Symposium on "Discovering Untapped Resources."

Solar Household Energy volunteers continue to provide solar cooking demonstrations and talks at Washington, D.C. area events on international development, environmental issues, disaster relief, and renewable energy. We also make presentations at local schools and fairs, to educate the public and form new connections to bring solar cooking to the international arena.

2015 promises to bring new opportunities and challenges to Solar Household Energy as we continue to pursue our mission to foster solar cooking for human development and environmental relief.

Our 2014 report summarizes some key activities in each of our three principal organizational strategies:

- Making solar cooking available to those who can benefit from it most, through partnerships with local and international organizations,
- **Educating** the public and policy leaders on the multiple benefits of solar cooking, and
- Investigation and research aiming to improve solar cooking technologies and dissemination.

A Closer look at our past... and our future

Solar Household Energy and Lutheran World Federation collaborate towards expanding the HotPot project in Gaga refugee camp in Chad

Three years ago, the United Nations High Commissioner for Refugees (UNHCR) contracted with Solar Household Energy to conduct a "Promotion of Renewable Energy and Energy Efficiencies" project in the Farchana region of eastern Chad. The promotion introduced HotPot solar cookers to families in a camp for refugees from the Darfur region in neighboring Sudan. The Gaga camp is home to about 15,000 refugees.

To implement the project, Solar Household Energy engaged the Africa program director of a French solar cooking promotion NGO, Bolivia Inti Sud Soleil (BISS) to undertake two missions to the Gaga refugee camp to establish the project and carry out an assessment. Patrick Fourrier worked with Africare, a U.S. non-profit working in the Gaga camp as UNHCR's implementation partner for environmental projects.

His first tasks were to distribute 50 solar ovens, provide training and followup visits to new solar cooks, then interview new solar cook on their experiences, monitor their progress, and evaluate preliminary project results on a follow-up visit after two months. In July 2012, based on the pilot project's promising results, Africare delivered 200 additional HotPots to refugee families. Solar Household Energy again retained BISS to work with Africare in Gaga to assess:

- HotPot usage and fuel use impact,
- The adequacy of alternative solar cookers, and
- The feasibility of "gold standard" carbon certification for a potential upscaling of this project.



Project results overall were positive (an 85% solar oven usage rate was determined), but seeking Gold Standard certification was not recommended due to complexity of attribution given the presence of efficient stoves in the camp.

In 2013, the Lutheran World Federation (LWF), continued the HotPot training program put in place by Solar Household Energy and Africare. We are now working with LWF to measure results and apply the lessons to a new project, which would sustain and build on the success so far. LWF's proposal states:

"The best solution to address the energy poverty challenges for refugees in Gaga camp is to increase the availability of sustainable energy technologies (such as the HotPot solar cookers) given the high levels of solar radiation, as the HotPot distinguishes itself through its performance, durability, and efficacy."

The LWF proposal outlines a project with a training structure and budget to expand the HotPot project with 2,500 more HotPots, enough to cover 80% of households. Solar Household Energy will collaborate with LWF to secure funding towards this goal, while ensuring proper training, follow-up, and monitoring and evaluation for long-term adoption and user satisfaction.

Solar Household Energy to assess lasting impacts of Mexico efforts with local university support

Solar Household Energy began its journey with the HotPot over a decade ago in the Mexican state of Queretaro in partnership with the Fondo Mexicano para la Conservación de la Naturaleza (FMCN). Prototype HotPot solar cookers were tested there. The design was finetuned and an industrial HotPot production cycle began thanks to social entrepreneur Oscar Guajardo.

Larger scale projects were undertaken by Solar Household Energy and FMCN through grants from the World Bank's "Development Marketplace" program and the U.S. Environmental Protection Agency.

Since then, FMCN has distributed over 20,000 HotPots in 16 states in Mexico as part of the "Sustainable Rural Life" program, implemented by four civil society organizations working closely with dozens of small communities. Louise Meyer, Solar Household Energy's project manager and trainer for the original 2004 project, is preparing to collaborate with FMCN to review their successes and disappointments, and explore microfinance and carbon funding options to make the HotPot even more accessible to rural populations.

We are also returning to Queretaro to evaluate the impact of a 2009 Peace Corps project in which 400 HotPots were distributed. Margarita Battle, a Queretaro native involved in this 2009 Peace Corps project and a Solar Household Energy board member since 2012, is leading that evaluation effort with assistance from the University of Queretaro and the original 2009 Peace Corps volunteer Sonya Greegor.



Queretaro native solar cooking with the HotPot distributed in 2009 Peace Corps project

"My son, daughter and I use it to cook beans, bake cakes and other dishes daily, always and whenever there is sun, except for cloudy days." (A. S. Sofía, personal communication, June 14, 2013)

- Excerpt of Martha Robles' University of Queretaro 2013 Master's thesis.

The University of Queretaro has been studying the impact of solar cookers and several other green technologies disseminated as part of the "Vivienda Rural Sustentable" program in Queretaro. In particular, Martha Robles' 2013 Masters degree thesis, "Entre la Vivienda Rural Sustentable y la Microcuenca Chitejé de Garabato: la invisibilidad de la gestión colectiva de las mujeres," (Relationship between sustainable rural homes and the environment of the Chiteié de Garabato microwatershed : the invisibility of women's collective management) contains quotes and feedback from users of 74 HotPots in three towns. Commonly cooked items are desserts, eggs, rice and vegetables. Benefits mentioned by survey respondents include: the HotPot is portable and easy to set up, it reduces food preparation time, and that they could leave the HotPot at home while doing outside errands, reducing accidents and fire hazards.

The seed that Solar Household Energy planted a decade ago in Mexico has flourished, as demonstrated by FMCN's success in large-scale dissemination, and the University of Queretaro study on HotPot acceptance. Solar Household Energy is just starting to more fully assess the lasting impacts of its HotPot project in Mexico, and is looking to collaborate with local partners to quantify these impacts, gather and share lessons learned, and explore options such as microfinance, carbon funding, and increased marketing to create thriving, self-sustaining local HotPot distribution.

French NGO BISS present solar cooking success to the Global Alliance for Clean Cookstoves

The Global Alliance for Clean Cookstoves, hosted by the United Nations Foundation in Washington D.C., is "a public-private partnership that seeks to save lives, improve livelihoods, empower women, and protect the environment by creating a thriving global market for clean and efficient household cooking solutions."

With over 1,000 partners, including Solar Household Energy, its goal is "to foster the adoption of clean cookstoves and fuels in 100 million households by 2020." The Global Alliance collaborates with its partners to develop global strategies to enhance clean cookstove markets, to mobilize investments and resources to fund cookstove projects, to maintain knowledge-sharing platforms, and to play many other crucial roles in spreading clean cooking solutions around the world.

Solar Household Energy and Bolivia Inti-Sud Soleil (BISS), a French solar cooking NGO, obtained funding from the French Embassy in Washington to form a trans-Atlantic partnership to promote greater collaboration between the solar cooking community and the Global Alliance for Clean Cookstoves. Solar Cookers International (SCI) supported



Solar Household Energy and

Solar Household Energy and Bolivia Inti-Sud Soleil (BISS) partnered to promote solar cooking to the Global Alliance for Clean Cookstoves at the Washington, D.C. UN Foundation Headquarters. Seen here with Global Alliance staff and regional market managers: Vincent Dulong of BISS on the far left, and Solar Household Energy's Sophie Brock and Louise Meyer in front of screen.

this project by reaching out to the SCI

Network to gather ideas, information and feedback, such that Solar Household Energy and BISS could speak as one voice on behalf of the solar cooking community.

The project, which commenced in 2013, culminated in June 2014 with a presentation on solar cooking followed by a discussion session at the Global Alliance headquarters in Washington.

Global Alliance representatives included key staff from the technical, knowledge management, fuels, partnerships, and other departments, as well as regional market managers. Representatives of Solar Household Energy, BISS and One Earth Designs (developer of the SolSource parabolic solar cooker), reviewed the vast spectrum of solar cooker technologies and significant projects, followed by a case study from One Earth Designs.

The Global Alliance welcomed these efforts to work towards greater collaboration, and invited Solar Household Energy and SCI representatives to participate in monthly conference calls bringing together diverse cooking fuel experts as a first step towards achieving these common goals.

Building on this collaborative effort, Solar Household Energy Executive Director Sophie Brock presented insights to the wider solar community at the 2014 SCI Network Solar Cooking Convention in Sacramento, California. The event drew more than 100 delegates from 16 countries. The convention, also attended by Solar Household Energy co-founder Louise Meyer, brought leaders from around the world closer together on solar cooking sector priorities, technology standards and certification schemes.



Dr. Paul Funk, solar cooking standards expert, and SHE's Sophie Brock at Solar Cooking Convention Festival in Sacramento, CA.

Solar Household Energy supports solar cooking inclusion for ISO clean cookstove standard-setting

The lack of widely accepted standards for solar cooking technology has been an impediment to the adoption of solar cooking, and the broad availability of high-quality devices. In an effort to address this challenge, Solar Household Energy is actively supporting ongoing efforts to ensure solar cookers are taken into account in the development of ISO (International Standards Organization) benchmarks for clean cooking solutions. Solar Household Energy board member Paul Arveson secured seats for himself and two other solar cooking experts on the new U.S. Technical Advisory Group to the ISO Technical Committee (number 285) established to tackle the matter. The group's initial mission is to establish performance evaluation criteria for clean cook stoves.

To maintain this important representation of the solar community, Solar Household Energy and Solar Cookers International (SCI) funded travel enabling Paul Funk, Ph.D., a research engineer for the U.S. Department of Agriculture, to attend the first plenary meeting of the ISO Technical Committee 285 in Nairobi.

Dr. Funk, an expert and author of the American Society of Agricultural and Biological engineers (ASABE) solar cooking testing standards S580, explained their importance:

"People making decisions about regulation to protect their citizens from indoor air pollution, and people making decisions about where to spend relief and development funds, will be influenced by test results. A design or technology that scores high when tested by an accepted international standard will be favored."



Bysanivaripalle village, a smoke-free village in India thanks to solar cookers introduced by Deepak Gadhia, and biogas.

Support for solar cooking presentation at University of California rural energy innovation conference

Solar Household Energy provided a travel scholarship for India-based solar cooking advocate and engineer Deepak Gadhia, to attend an international symposium at the University of California, Berkeley. This event "Innovating Energy Access for Remote Areas: Discovering Untapped Potential" provided the ideal venue for a presentation on Gadhia's efforts in promoting solar cooking technology in rural India. His presentation, "Case Study of Decentralized Energy Project: *Smoke-free Village,"* attracted significant attention. Gadhia's invitation to attend marks an important milestone in broader interest in and acceptance of solar cooking in the total energy mix.



Deepak Gadhia with SHE Board President Cora Shaw during his visit from India to make a presentation on solar cooking and smoke-free villages at UC Berkeley

Solar Household Energy Co-Founder Darwin Curtis Awarded "International Order of Excellence"

The annual Solar Cookers International Order of Excellence, which recognizes individuals whose sustained efforts have contributed most to empowering people to cook food and pasteurize water with solar energy, was awarded to our co-founder Darwin Curtis in 2013. We are delighted that his sustained dedication to developing and demonstrating the effectiveness and practicality of solar cooking technology, as well as training thousands of solar cooks, has been given this well-deserved recognition. Darwin is a board member emeritus of Solar Household Energy.



Solar Household Energy co-founder and Emeritus Board member Darwin Curtis (center), flanked by fellow solar cooking advocates

Supporting Knowledge Sharing and Networking

This year we completed the re-launch of our website, www.she-inc.org, with support from a team of MBA students from the University of Southern California's Marshall School of Business. The new site design has contributed to increased site traffic. Monthly visits rose from about 10,000 to nearly 40,000 immediately following the re-launch.

In 2014, as in years past, Solar Household Energy responded to hundreds of inquiries sent via our website, providing knowledge and resources on solar cooking, project management, and connecting people to form new partnerships.

Extending the reach and adoption of solar cooking

In an effort to raise awareness, encourage use of solar cookers and increase support for our work, Solar Household Energy's volunteers have been active this year participating, presenting and demonstrating at various events, reaching over 1,200 people in 2014. In addition to the activities reported on separately in this report, the following are a selection of such events.

- Environmental Protection Agency National Sustainable Design Expo, alongside the nation's top research universities competing for the EPA Student Design award, attracting thousands of people from around the nation.
- Global Alliance for Clean Cookstoves events, including the GACC third anniversary in New York.



SHE board member David Grossman and executive director Sophie Brock standing in front of the HotPot on display at the Global Alliance for Clean Cookstoves headquarters in Washington, D.C. following a meeting with key officials of the organization.

- **D.C. Environmental Film Festival** "Our Cities, Our Planet" and "Extinction in progress" about deforestation in Haiti and the Dominican Republic, where SHE's solar cooker project in Tilori, Haiti (on the DR border) was highlighted.
- **Presentations and workshops at schools** in Washington, including Wilson High School and E.L. Haynes Public Charter School pictured below.



- Demonstrations at the National Presbyterian Church, which adopted Solar Household Energy as one of its "featured missions," resulting in individual donations from church members.
- **Green TV network** Television appearances, including one by Executive Director Sophie Brock.
- National Parks event entitled "Healthy Parks, Healthy People and National Get Outdoor Day."
- **Urban gardens** such as Fort Totten Urban Farm and Wangari Gardens. Wangari gardens is now



demonstrating solar cookers on their own in exchange for borrowing solar cookers from Solar Household Energy.

Left to right: Vincent Dulong (BISS), Amory Lovins (Rocky Mountain Institute & SHE Board of Advisors), Sophie Brock and Louise Meyer (SHE) at a Washington D.C. Green Business Forum presentation by Amory Lovins on "Reinventing fire."

Wangari Gardens founders solar cook food for their volunteers every Sunday thanks to a partnership with Solar Household Energy



 STAR-TIDES (Sharing To Accelerate Research -Transformative Innovation for Development and Emergency Support) an exposition for disaster relief equipment suppliers showcasing products for federal agencies, including the Department of Defense, the Federal Emergency Management Agency, U.S. Agency for International Development, among others. Sophie Brock was

Illustration by Lunda Vicente, Congolese refugee in a Zimbabwe refugee camp.



Solar Household Energy and Solar Cookers International partnered to promote solar cooking at the four-day STAR-TIDES event at Ft. McNair in Washington. (Acronym translation: Sharing Technology to Accelerate Research – Transformative Innovation for Development and Emergency Support)

invited to speak on a panel regarding technology adoption. As one result of networking, SHE was invited to submit solar cooking technology papers to the Army Research Laboratories.

Fostering solar cooking awareness through art

We have maintained our efforts to use art as a medium for raising awareness of solar cooking and its benefits. Board member Louise Meyer organized an exhibit which traveled to three high schools in the Washington metropolitan area. The exhibit, featuring works by Congo native Vincente Lunda now living in a refugee camp in Zimbabwe, aims to stimulate discussion in crosscutting areas: climate change, deforestation, health, gender, and social justice by listening to the "voice" of an otherwise silenced environmental refugee. All three schools integrated the exhibit into environment-related activities they had planned for the academic year.



Organizational developments and some new faces

Our board of directors, technical advisors, staff and volunteers have continued the work of effectively leading development and supporting implementation of Solar Household Energy's mission this year.

Sophie Brock, who had been a key player on Solar Household Energy's small staff as our Senior Program Manager, was named Executive Director in October. Sophie has extensive international experience with environmental and development agencies. The Board elected Cora Shaw as President for the second year, Louise Meyer as vice president and Secretary, and Paul Averson as treasurer. Other Board members include Dorothy Zbicz, Margarita Battle and Scott Hajost. Three new members joined the board this vear, each bringing their unique skills and experience:



Development are among the organizations he has served.

Andrea Crooms is an attorney, economist, and scientist. As a regulatory consultant to the U.S. Department of Energy, Andrea knows how energy can empower citizens. She serves as a faculty member with the International Law Institute and International Judicial Academy, building legal and practical capacity worldwide.



David Grossman, Director of International Programs for the International City / County Management Association with over 30 years of experience in international development. The United Nations Development Program and the United States Agency for International



Kristen Panerali is an experienced energy sector professional with a strong track-record of leading multidisciplinary teams through the development, financing and operations of utility-scale renewable energy projects. Kristen is currently Director of Global Business Development with Silver Ridge Power, a global solar energy company, and previously held director positions with AES Solar in France and Spain.

Our former executive director, Richard **Stolz**, continues to serve the organization on a part-time basis focusing on financial management matters. Senior program manager Trish **Sheehan** is involved in various aspects of Solar Household Energy's work, including fund-raising, volunteer coordination, proposal and project development, and communications. Our Website Developer, John Nash was instrumental in designing and ensuring a seamless transition to our new website. Lyssa Houser, urban gardening and culinary education expert, has joined SHE's team as Community Development Associate.

Solar Household Energy could not survive without a dedicated team of volunteers who carry out a number of vital activities, including research, participation at fairs and cooking demonstrations. Two volunteers who devote a significant proportion of their time are **Sherry Pettie Fizdale**, who responds to the high volume of inquiries we receive, and **Esperanza Sanz Escudero**, who administers our Facebook page. Here is the 2014 volunteer roster:

- Afzal Syed
- Andrea Gesumaria
- Cecily Kohler
- Bernard Veuthey
- Esperanza Sanz Escudero
- Gunjan Gautam
- Jitendra Joshi
- Lauren Rachel Labovitz
- Lousanna Cai
- Michaela Borghese
- Mythri Kumar
- Sahil Patni
- Sandy Tarp
- Peg Barratt

- Will Hayes
- Sherry Pettie Fizdale
- Sophie Makepeace

We also want to thank the Georgetown Day School Environmental Club, particularly Melisse, Club President, for designing, making and donating Solar Household Energy T-shirts with funds raised through their bake sale. SHE staff and volunteers have been proudly wearing them at events around Washington DC.



Sophie Brock (right) and volunteer Peg Barratt wearing T-shirts created and donated by Georgetown Day School Environmental Club

Looking to the future

Since Solar Household Energy's founding in 1998, our aspiration has been to see solar thermal energy recognized for its enormous potential as a free, environmentally friendly fuel for cooking. To those already aware of its potential, it is readily apparent that as a clean, free and safe energy, solar power deserves to be included in the cooking fuel mix. For others, coming to that realization takes creative and persistent education, backed by evidence. Fortunately, evidence is stacking up. Also, increasingly urgent concerns about the impact of climate change is bringing the benefits of solar fuel into sharp focus.

We at Solar Household Energy are optimistic and motivated by the growing role for solar energy as a cooking fuel source, and proud of our achievements in facilitating its uptake. Our success can only come through synergistic collaboration with our allies in the solar cooking advocacy community.

Our goals for 2015 include:

- In Gaga refugee camp, Chad: expanding the project with at least 1000 HotPots.
- In Burkina Faso refugee camps: Implementing a pilot project with 50 solar cookers.
- In Mexico: documenting 10 years of success with FMCN distributing over 20,000 HotPots, including a quantitative evaluation of a 2009 Peace Corps project.
- Developing solar cooking monitoring and evaluation and standardization tools in collaboration with Solar Cookers International, the Global Alliance for Clean Cookstoves, and the International Standards Organization.

Plans for field project expansion are underway, as are improvements in the sophistication of project and technology research and performance analysis. Achieving our ultimate goal, improving the health, livelihoods and quality of life of those who can benefit from solar cooking, demands no less. **We are grateful to our supporters, without whom our efforts would not be possible.**



Volunteer Afzal Syed (right) receiving the Verizon Environmental Excellence Award for his dedication to the promotion of solar cooking.