



PARTNERSHIP FOR CLEAN INDOOR AIR

October 2006 Issue 9

PCIA Bulletin

This quarterly newsletter provides updates on the activities of the Partnership for Clean Indoor Air (PCIA) and its Partners to improve health, livelihood and quality of life by reducing exposure to indoor air pollution, primarily among women and children, from household energy use. More than 110 governments, public and private organizations, multilateral institutions, and others are working together to increase the use of affordable, reliable, clean, efficient, and safe home cooking and heating practices. Visit www.pciaonline.org to join!

Building Markets for Long-term Success

Recent years have witnessed a dramatic increase in access to a number of cooking technologies through market channels, as commercial approaches are proving to be effective in reaching larger numbers of people. In addition, unlike subsidy models, market approaches can be successful on an ongoing and sustainable basis. Moreover, when families invest their hard-earned resources to obtain a product they believe will improve their lives, they are more likely to care for it over the years than something they are given.

As program and project implementers shift to more market-based approaches, they are challenged in many ways, including: how to ensure the quality of each stove produced; how to manage materials acquisition and product inventory; and how to commercialize their businesses to reach ever larger segments of their markets.

As you will read in this issue, PCIA Partners are among the pioneers building successful models for harnessing market forces to get clean-burning stoves into kitchens throughout the world. Key to

these initiatives is understanding customer needs and preferences, and developing products that meet those needs affordably while achieving IAP reduction expectations. Partners have established mass production operations to make stoves more affordable and innovative finance and credit mechanisms to make stoves more attainable, and are demonstrating that partnership with retail outlets can boost visibility and confidence in their products. To raise awareness among target markets, Partners are employing creative information and marketing campaigns that engage cultural traditions and popular media.

We hope you enjoy this exciting issue, and that you will come away with some ideas to integrate into your own projects. As always, we welcome your feedback, and urge you to share your own experiences through future issues.

SAVE the DATE!

The Partnership for Clean Indoor Air Meeting will be held in New Delhi, India, from March 20-23, 2007.

The meeting agenda, registration form, and logistics information will be posted on the PCIA website (www.PCIAonline.org) shortly.

Please check the website for further updates on the meeting!

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PARTNER SPOTLIGHT Grameen Shakti

Each quarter, the *PCIA Bulletin* highlights one or more Partners who are reducing women and children's exposure to indoor air pollution. This issue highlights the activities undertaken by Grameen Shakti.

Grameen Shakti's Market Based Approach to Promoting Renewable Energy Technologies in Rural Bangladesh

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Grameen Shakti: a successful social entrepreneur

Bangladesh has one of the lowest rates of energy consumption and 85% of the population does not have access to grid electricity. People largely depend on biomass fuels such as wood, crop, and animal residues for household energy related activities, primarily cooking.

In recent years, Grameen Shakti (GS) has emerged as a key player in promoting renewable energy technologies in remote, rural and off-grid areas of Bangladesh. A member of the Grameen family, the organization started its activities in 1996 as a not for profit company, to provide renewable energy services including, solar, biogas, wind technologies.

The main element of Grameen Shakti's approach includes an innovative financial system based on installments. This system is based on experiences from Grameen Bank's micro-credit program. Other key factors include linking renewable energy technologies with income generating activities, and providing efficient services at the local level through renewable energy entrepreneurs. Simultaneously, communities are motivated through awareness raising campaigns to establish new renewable energy businesses and create employment opportunities.

Rural electrification through solar photovoltaic technology

One of Grameen Shakti's most successful programs is its Solar Photovoltaic (PV) Program. The organization has installed nearly 70,000 Solar Home Systems (SHSs) in rural areas. This has made GS one of the largest and fastest growing rural based renewable energy companies in the world. These systems have positively impacted the lives of the rural population, especially women and children. Introduction of SHSs has enabled



Women working at night with solar powered light

women to engage in income generating activities such as poultry farming. Children can study at night by solar light and have access to information through television, radio and other media outlets. Indoor environments are also improved due to the replacement of kerosene as a source of lighting. Use of SHSs has increased business hours and created new businesses, including TV, radio, mobile phone repair shops, community TV centers, solar powered mobile phones and computer training centers, and has generated employment opportunities. About 30% of homes with SHSs are involved in small businesses. The average size of the systems is 50 Watt costing Tk. 25,900 (US\$ 377). The initial down payment is about 15% to 25% of the total cost.

GS plans to install 1,000,000 SHSs by 2015 and has set up 20 Grameen Technology Centers (GTCs) for this purpose. These centers will decentralize the marketing, production, repair, and maintenance services at the local level. GS plans to establish more than 100 GTCs and use these centers to develop renewable energy entrepreneurs who will manufacture, promote, install, and provide after sales services for SHSs at the local level.

A market based, integrated approach to meet the energy needs of the rural people

Only 3% of Bangladesh's population has access to piped gas. Biogas is a cost effective alternative with multiple benefits including reductions in indoor air pollution, as well as reduced time and

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PARTNER SPOTLIGHT ◀ CONTINUED...

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cost savings for those collecting or purchasing biomass fuels. Most rural households own 2 to 3 cows and poultry business is an emerging sector. The cost of biogas plant maintenance is about US\$1 per month with a maximum payback period of 2 years.

If the health costs of fuel collection and exposure to indoor air pollution are taken into account, the rate of return becomes even higher. Biogas is a viable energy source for approximately 10 million households who spend more than Tk. 500 (US\$7.2) on kerosene.

In 2004, GS started a pilot project to develop a market based, subsidy free biogas program in Bangladesh. During the pilot phase the focus was on domestic level biogas plants. More than 450 biogas plants were constructed in the first year. In the next phase, GS is also promoting medium to large sized biogas plants, which have the potential to supply biogas to multiple households. Sixty medium and large scale biogas plants have been constructed to date. Among these, two are producing electricity to power a bakery and poultry farm. The GS installed plants are benefiting approximately 2,000 women and children with improved indoor environments, cost and time savings. The household level biogas plants cost about Tk. 18,000 (US\$262) to Tk. 32,000 (US\$466) and are 2 to 6 m³ in size. The down payment is 25% of the total cost and the remainder is paid back in installments within 1 to 2 years.

GS follows the approach of a facilitator, providing soft loans, without subsidies. A market driven approach is utilized because it gives the players a stake in the outcomes and creates a sense of ownership. GS develops customized financial and technical packages for each client. Certified engineers pay monthly visits to households over a period of 2 to 3 years for quality control and are available on call to provide any on-site technical assistance. GS also provides free training to its clients so they can maintain their plants. Local masons are trained to ensure that households have access to standard repair and maintenance services. With increasing demand for biogas, these skilled masons will train others, creating a pool of skilled service providers offering services at market price. Grameen Shakti is promoting bio-



Rural woman cooking with biogas

gas technology to local entrepreneurs, including poultry farmers, for managing the poultry waste and earning profits by selling biogas and slurry. There are more than 100,000 poultry farms in Bangladesh, out of which 90% are at the household level. GS is also reaching lower income households through community based biogas plants and innovative schemes such as payment through the sale of slurry. GS plans to construct about 200,000 biogas plants by 2012, including 100,000 large to medium sized plants. It is expected that more than 1,000,000 households and businesses will benefit from the use of biogas plants.

Improved cooking technology for rural women

In rural Bangladesh, energy consumption for cooking outstrips the demand for all other uses of energy. Grameen Shakti has launched a program to promote improved cook stoves in Bangladesh to address both the high demand for biomass fuels and the indoor air pollution caused by cooking on polluting, traditional stoves. In the first year, GS will train 200 women technicians who will in turn train other women and help to market and construct improved cook stoves for households and businesses. Potential trainees will be selected with the help of Grameen Shakti's 100 field offices. Two such trainings have already been conducted with 20 participants in each session. GS is following an innovative training approach, which focuses on practical demonstration and community participation. After the end of each session, improved cook stoves are installed in 20 households and 1 commercial institution. These stoves

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are constructed by the trainees and 50 community representatives are invited to taste the food cooked on these stoves. It is expected that the invited guests and participants will promote improved cooked stoves at the community level.

After the training phase, Grameen Shakti plans to undertake large-scale manufacturing of chimneys and metal grates and sell these on credit via the entrepreneurs to households and businesses. It is expected that there will be substantial demand for improved cook stoves among households and businesses due to reduced fuel costs, ease of cooking and cleaner kitchen environments. GS plans to construct 10,000 commercial and domestic improved cook stoves over the next 3 years. Initially the two-mouth improved cook stove model with chimney will be promoted. The estimated market price of such a domestic sized improved cooked stove will be about Tk. 600 (US\$8.74) and the price of a commercial size stove will be Tk. 8000 (US\$117). Payment for the commercial stoves will be made in installments.

Grameen Shakti envisions a future wherein rural communities are able to meet their energy needs through cost effective, environment friendly, decentralized systems which have a positive impact on their quality of life. GS's contribution to the popularization of renewable energy technologies through a market-based approach has been recognized nationally and internationally, particularly the organization's role in promoting solar PV technology. Grameen Shakti has won several awards including, the "Best Organization Award, 2005" from the Prime Minister of Bangladesh and the "Ashden Awards 2006", from the United Kingdom. For more information on Grameen Shakti, please visit <http://www.gshakti.org>.

Mohammad Yunus and the Grameen Bank Honored with the 2006 Nobel Peace Prize

The Norwegian Nobel Committee has awarded the Nobel Peace Prize for 2006, divided into two equal parts, to Muhammad Yunus and Grameen Bank for their efforts to create economic and social development from below. The Grameen Bank is one of the pioneers of micro-credit lending schemes for the poor, especially women, in Bangladesh. Mr Yunus set up the bank in 1976. Thirty years on, the bank has 6.6 million borrowers, of which 97% are women, according to the Grameen website.

The Peace Prize citation notes that Muhammad Yunus has shown himself to be a leader who has managed to translate visions into practical action for the benefit of millions of people, not only in Bangladesh, but also in many other countries. Loans to poor people without any financial security had appeared to be an impossible idea. From modest beginnings three decades ago, Yunus has, first and foremost through Grameen Bank, developed micro-credit into an ever more important instrument in the struggle against poverty. Micro-credit has proved to be an important liberating force in societies where women in particular have to struggle against repressive social and economic conditions. The Peace Prize citation goes on to note that economic growth and political democracy can not achieve their full potential unless the female half of humanity participates on an equal footing with the male.

For more information, please visit: www.grameen-info.org; http://nobelpeaceprize.org/eng_lau_announce2006.html.

☀ FEATURE ARTICLES

Commercialization of Household Products for Energy Conservation and Fuel Efficiency

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For several years now, HELPS International has taken the development and distribution of the improved ONIL stove throughout rural Guatemala to great heights. Excited about the growing demand, positive feedback and change in lifestyles that the ONIL stove has had in each of the 22 departments (provinces) in Guatemala, HELPS has expanded on this success. More than 20,000 stoves have been distributed directly through HELPS programs or through a network of more than 100 NGOs and associations working in rural communities. A "client base" of 20,000 satisfied customers is one element of the formula for successful commercialization of additional ONIL household products.

A recently-arranged partnership with the largest house ware/hardware/home-improvement retailer in Guatemala is the other essential element for the success of this commercialization effort. CEMACO, S.A. has been an innovator in the Guatemalan private sector for over 35 years. CEMACO is known as THE store for "everything under one roof" and is a market leader for high quality and huge variety. As the ACE Hardware distributor in Guatemala, CEMACO's expertise in marketing, product selection and distribution is second only to its consistent investment in social responsibility and community development. Its stockholders and leadership have always been among the first individuals and organizations to rally public support during natural disasters such as earthquakes, floods, hurricanes and drought. In line with this philosophy is a continued participation, both publicly and privately, in many of the country's most significant development organizations and associations.

CEMACO has put all this positive "energy" and experience into the challenge of commercializing ONIL Retained Heat Cookers and ONIL Water Purification Systems. As a first step in the process they're channeling significant resources into raising awareness among Guatemalans on the plight of the rural population and the level of poverty, as well as on the solutions available through HELPS programs and ONIL products.

In order to launch this public awareness campaign, CEMACO will showcase HELPS as an organization, HELPS's integrated approach to reducing poverty, and ONIL products. September 15th is Guatemala's Independence Day. For many years now, CEMACO has showcased Guatemalan artisans and crafts during a month-long exhibit and sales event known as "Guatemala Nuestra" (Our Guatemala). Not content to remain simply a retail effort, CEMACO will use this year's month-long celebration to set up information booths in three of their major stores. The information booths will showcase HELPS International and its integrated development approach and will use banners, fact sheets, video loops, photographs and spokespersons to raise awareness among its many thousands of customers.

Not only will these booths capture customers' attention, but CEMACO is facilitating the distribution of the two household energy-efficient products in every store and through its wholesale network. The distribution and commercialization will require training components, fact sheets, and a pricing structure that covers shipping and handling costs but remains a socially-responsible non-profit distribution strategy.



ONIL products on display in CEMACO

As of the date of this writing in early September 2006, public interest remains high and exceeded expectations at each of the three information booths. Product distribution and costing is being prepared and the Retained Heat Cooker and Water Purification System are expected to be available in the stores before the end of the month. The wholesale distribution will be phased in as soon as the remaining structures are in place. This one-of-a-kind partnership between the for-profit and the non-profit world will go a long way toward getting unique household products out to the marketplace and ensure the awareness of the

the marketplace and ensure the awareness of the multitude of benefits of energy-efficient, healthy, positive lifestyle and high quality products like the ONIL Retained Heat Cooker and Water Purification System.

Green Village Credit: *Micro finance for alternative energy in remote rural communities*
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It is one of the most biologically diverse regions in the world, but the mountainous northwest part of China's Yunnan province is also a region that lacks diversity in modern energy services, which are essential to economic development. Most of the region's rural households rely on open fires for cooking and heating, resulting in deteriorating local forest resources and severe indoor air pollution.

Since 2000, The Nature Conservancy (TNC) has implemented the Alternative Energy Program in Yunnan Province, providing technical and financial support that covers partial installation costs of various technologies, some of which reduce demand for wood, including biogas digesters, solar water heaters and fuel-efficient stoves and fire-places.

Green Village Credit is part of the China Rural Energy Enterprises Development Project, supported by United Nations Foundation, and which works in coordination with the TNC Alternative Energy Program. The Green Village Credit Project explores a new financing approach to promote economic development and environmental protection in remote mountainous communities of the Yunnan Province. The project is designed



Solar Water Heater on Tibetan Roof

PCIA Website Update!

Please visit the website (www.PCIAonline.org) for information on PCIA activities!

New features on the website include:

- **Interactive Map.** The map provides information on household energy and indoor air pollution reduction activities of PCIA partners. In addition, partners can submit "profiles" for relevant projects which will be displayed on the map. **The first 50 partners to submit project profiles will receive a free PCIA ruler, bookmark and pencil!**
- **Partner log-in system.** This feature will allow partners to update their profile directly and submit project related information.
- **New articles in Media Coverage**

We encourage you to visit the website and give us feedback on these new features. For any website related questions please contact Winrock International at PCIAModerator@yahoo.com

to help local communities generate income that can then be used by families to purchase better energy services by their own means, instead of simply waiting for grants and subsidies.

The Green Village Credit project provides local villagers with household credit to purchase higher quality energy efficient or renewable energy systems, and additionally, a loan for activities that can generate income using the new and improved energy services. The approach improves the capacity of local communities to capture opportunities to generate income and thus improve the affordability of cleaner and renewable energy services.

Based on the larger multi-year Alternative Energy Program, The Nature Conservancy works in partnership with local government agencies, rural financial institutions such as rural credit cooperatives (RCC), rural energy enterprises, and local NGOs. The project is also implemented in close cooperation with the community-based Green Village Credit Associations registered at the local Civil Affairs Bureaus. The loan capital is entrusted to local RCCs that serve as a platform for financial operations. Green Village Credit provides financial and technical support to member households of the local As-

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sociation, which will install new energy systems and conduct income generation activities. The TNC team and the community Associations take primary responsibility for loan disbursement and collection.

As of the end of 2005, the project has supported 286 households at four action sites – namely Haixi, Liguang, Xidang, and Renhe, with total loan disbursement of roughly \$200,000 through local RCCs, supporting the installation of systems including biogas digesters, solar water heaters, micro hydropower generators, and fuel-efficient stoves. Income generation activities include animal raising, cash crop plantation, tourist service, and local trade.

A preliminary survey shows that alternative energy installations reduced firewood consumption by 45-80%, with numbers varying by household. Indoor air monitoring results at several sample

households indicate CO concentration reductions of 71%, and particulate matter concentration reductions of 67% after alternative energy installation. For further information, please visit: <http://www.c-reed.org/>.



Haixi Village Association Members Visiting Pig-Raising Demonstration Site

Honduras Micro-Enterprise Stove Project: A Market-Based Pilot Project for Increasing the Use of Safer Cook Stoves

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Trees, Water, & People (TWP), the Honduran Association for Development (AHDESA), and the Aprovecho Research Center are undertaking the "Micro-Enterprise Stove Project" to introduce safer and more environmentally friendly cook stoves for the people of Honduras. Our team came together after Hurricane Mitch devastated Honduras in 1998 to adapt the Rocket stove technology to cooking conditions in Honduras. Working along with local Honduran women, Aprovecho stove technicians came up with the *Justa* stove design in 1999. Our *Justa* stoves save an average of 70% on firewood compared to traditional stoves. The *Justa* also removes toxic smoke from the kitchen, reducing health risks for women and small children, who spend the most time in the kitchen.

In 2004, with a grant from the United States Environmental Protection Agency (USEPA), and with technical assistance from Aprovecho, TWP and AHDESA began developing commercial models based on the existing Rocket and EcoStove designs. Our original goal was to produce three models at different price points to give Honduran

consumers more choices when purchasing a stove. We surpassed that goal and now have six stoves for sale.

Stove Production

The team selected and trained four stove producer micro-entrepreneurs in Tegucigalpa and the surrounding area, including three metal shop owners who produce the metal EcoStoves and one potter who produces the ceramic and metal Rocket stoves. Another larger scale commercial brick maker near *Valle de Los Angeles* produces all the combustion chambers for the stoves.

Marketing

AHDESA, the local non-profit organization implementing the project on the ground, has employed a variety of marketing strategies. The sales of our improved stoves really took off in October and November of 2005 with the purchase of newspaper advertisements to highlight TWP and AHDESA's winning of a first place prize from the Ashden Award for Sustainable Energy earlier in the year. The newspaper advertisements resulted in free publicity on four nationally broadcast television programs, as well as radio interviews with AHDESA's executive director, Ignacio Osorto, and other AHDESA staff. These programs allowed us to promote our new commercial stove models all over the country, reaching an audience of more than one million homes.

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<u>Stove</u>	<u># Pro-duced</u>	<u># Sold</u>	<u>Retail Price</u>
Ecostove	102	97	\$111
EcoHorno (EcoOven)	127	120	\$140
EcoTortillero	62	56	\$126
EcoLenca (ceramic Rocket)	160	106	\$10.60
EcoTina (metal Rocket)	56	36	\$10.60
Justa	<u>509</u>	<u>287</u>	\$63.50
TOTAL	1016	924	

In addition, with the help of an advertising consultant, AHDESA developed a logo, a catchy tagline, and attractive printed materials, including informative posters and flyers that have aided the marketing of the stoves. AHDESA also recorded radio advertisements and educational programs that play periodically on national radio.

Another project strategy has been to train 26 stove vendors to sell the stoves in public markets, bus stations, and fairs. This strategy was only partially successful, so AHDESA personnel currently perform most of the promotion at public plazas, fairs, and farmer markets.

The final piece of our marketing strategy is offering micro-credit so that consumers can buy the stoves and pay back with more affordable monthly payments over 3-4 months. AHDESA is teaming with CARE International to offer the micro-credit with funds provided by Climate Care/Ashden Trust.



Stove production

Lessons Learned

One of the biggest surprises so far has been the fact that our most expensive stove, the *EcoHorno* (EcoOven) has been the biggest seller of the portable stoves so far; we expected the less expensive EcoStove to be the best seller. Metal prices have risen dramatically over the last year (14% since January, 2005) and our stove production and retail prices have risen along with them. TWP and AHDESA decided to add the *Justa* stove to the mix of commercial stoves as its price has not risen as much as the metal stoves, given the fact that the body is made of bricks or adobe.



Marketing demonstration

We also discovered that the biggest demand for our stoves comes when most workers are paid an extra month's wage, which occurs twice a year, in June and December. Consequently, we are targeting our marketing efforts for those times when people have more disposable income to buy a stove.

Commercialization Training and Sustainability – Looking towards the future

In August of 2006, following the success of the first Partnership for Clean Indoor Air Regional Commercialization Training Workshop in Patzcuaro, Mexico, the USEPA supported a 5-week consultancy aimed at developing the project's commercialization efforts. The consultancy involved two full-time business consultants from Accenture Development Partnerships (ADP), a not-for-profit unit within Accenture, the global management consultancy, which provides field-based business and technology consultancy services to organizations in the international development sector. During the five weeks, the consultants worked directly with AHDESA to implement a "Commercialization Toolkit", a business strategy framework previously developed and field tested

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for the Shell Foundation that enables organizations to effectively evaluate their strategy towards stove commercialization. Early in the project, the consultants analyzed and interpreted macro-economic, customer and supply chain data to answer key business questions such as: "What is the local environment in which we are operating?"; "Who is our customer, how can we best serve them and what is the anticipated demand?"; and "What is the best way to get the right product to the right place at the right price at the right time?"

Site visits to the local entrepreneurs were also a critical part of the project. By working with AHDESA and these local small businesses, the consultants were able to assess the end-to-end process of producing various stove models and make clear recommendations to eliminate bottlenecks

HotPot Commercialization in Mexico

Louise Meyer, Project Director, Mexican Solar Cooking Initiative; louise@she-inc.org

Solar Household Energy's (SHE) current U.S.EPA pilot grantee project promoting HotPot solar ovens in Mexico was designed as a market-based initiative. Mexico is an ideal country for solar ovens, and has the highest per-capita energy consumption rate in Latin America. According to the World Energy Council (WEC), firewood supplies 69% of the energy consumption in rural Mexico. WEC also estimates that 95% of energy use in rural areas is for cooking.

Prior to receiving funding from the U.S. EPA for the current Mexico HotPot project, we received a grant from the World Bank (2004-05), awarded partly on the basis of our goal to follow a business model, harnessing financial incentives of the free market. We originally sought to identify small scale merchants who could earn a profit from the sale of HotPot solar ovens. In July, 2004, however, we began working through NGOs in targeted regions where the need for free solar energy had been identified in a market study conducted six months earlier. Our goal is to establish a bridge between the mainstream business sector, and isolated rural customers.

SHE works together with two Mexican partners on this project: Mexican Conservation Fund (FMCN), a nonprofit, and International Logistics Solutions (ILS), a private enterprise based in Monterrey.

and improve efficiencies. The project concluded with an evaluation of the local stove manufacturer's business model and a set of options for AHDESA to consider for a self-sustaining delivery system which is in place to support program scale-up.

The consultancy's key outcome was to help AHDESA's management create clear tasks which they can undertake in the short term to improve their operations as well as a long-term understanding of strategic considerations to help them scale up and fully commercialize their stove programs. After considering two models (a high volume/hi-tech approach and an organic growth model), AHDESA decided on the organic growth model of consolidating current efforts in Tegucigalpa and central Honduras, and looking to expand into the San Pedro Sula area of northern Honduras over the next two years.

FMCN identified NGOs suitable for solar cooking promotion projects, to whom SHE is providing training, follow-up and program evaluations.

HotPots are manufactured through contractual arrangements with ILS and are generally sold to users by the NGOs, after the NGOs either purchase them from the manufacturer or receive them without charge through a grant arranged by SHE. Trained users are given the opportunity to purchase HotPots by payment in kind, or in installments, known as 'tandas'.

Although HotPot manufacturing costs are low – approximately \$28 per unit for a basic model, added transportation costs can raise the cost of the HotPot to prices above the affordability threshold in some communities. As such, the retail purchase price of the HotPot is sometimes subsidized, depending upon the economic environment of the particular community. To date 2,500 HotPots have been sold in Mexico. In addition, Zacateca's state-run Institute of Ecology purchased 300 at a wholesale price and donated them in 18 communities in exchange for environmental clean-up work.

Five Mexican HotPot team members participated in the EPA-sponsored Regional Commercialization Training Workshop held in June 2006 in Patzcuaro, Mexico. The workshop came at an appropriate time for SHE-- we had two years of operational experience under our belts; a greater un-

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derstanding of consumer awareness and market development; and a need to evaluate our project and to learn how to increase distribution (e.g., how to scale up), as well as lower production and transportation costs.

Through the interactive workshop, three Accenture business trainers helped us better understand business cycles. We practiced using their "Commercialization Toolkit," worked through four modules, and drafted an action plan, which will be the focus of our team's upcoming October 2006 meeting.



Mariana Diaz, Louise Meyer, Lorena Harp, Mike Rattinger, and Heliodoro Cayetano, with SHE HotPot

Stove Commercialization Strategies in Kampala, Uganda

Conducting Focus Groups to Help Develop a Market for the Rocket Stove

Excerpted from September 2005 Report by: Namusisi K & Owor J.; ucodea@yahoo.co.uk

Background:

In Uganda, over 95% of the population uses charcoal and wood for cooking, with most of the solid fuel being burned in devices with simple, incomplete combustion, causing indoor air pollution in households. Current trends in the environment suggest an increase in demand in coal and wood resources in addition to barriers to produce a supply of high quality stoves that meet customer expectations at an affordable price. In response to this issue, the Urban Community Development Association (UCODEA) in partnership with the Center for Entrepreneurship in International Health and Development (CEIHD) developed a program to design, produce and market a modified wood-burning stove to low-income families in Kampala, Uganda, and later examine possibilities of expanding this market to cover other parts of

Key elements of the action plan include learning about, analyzing and evaluating other models of solar cookers; increasing versatility, including through making the HotPot part of a cooking system in conjunction with a portable Rocket Stove and a Heat Retention Basket; and responding better to users' needs, adapting our product accordingly. The action plan also includes attention to the distribution scheme and customer base segmentation, as well as how to improve the supply chain. Key supply chain elements include a focus on quality control during the entire process, especially during assembly, which can be achieved through hiring a quality control specialist and carrying out random quality assurance sampling of merchandise ready to ship.

The action plan also includes provisions for measuring project sustainability through evaluation of meeting customer demands; of the sales and marketing strategy; and of the supply chain, including evaluating full costs of production, distribution, training and follow-up. Key service plans include the training of trainers and of community-based promoters. For more information please visit www.she-inc.org.

the country. The Rocket Stove was chosen for this market since it is known to reduce fuel consumption by as much as 50%. In addition, it is affordable, has low maintenance requirements, is easily reproducible, safe, portable, and is able to meet cooking needs. This report was commissioned by UCODEA and CEIHD to provide an in-depth understanding of the cooking characteristics, problems and perceptions of households on energy and energy solutions, consumer preferences and pricing of the Rocket stove for their marketing strategy and scale-up campaigns.

Methods:

Twenty-four focus groups, consisting of 8-12 participants, were conducted in three in low-income urban neighborhoods of Kampala, including the Makindye, Kawempe, and Nakawa Districts. Community members who mainly use charcoal and firewood were asked to participate. Focus groups were selected on socio-economic characteristics, including age, gender, business size, and employment status. The focus groups discussions generated participants' opinions on the cooking prob-

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lems faced, their perceptions on energy and energy solutions, cooking preferences, and pricing of the stoves.

Findings:

The focus groups found that mostly women do the household cooking, which is done outside on the veranda or somewhere on the compound. However, it was also found that on occasion, cooking is done inside the house when it is raining or late at night. One member of the focus group explained why it is preferred to cook outdoors: "Cooking on the veranda is convenient, because when you cook from inside, there is a lot of heat and smoke, you can even suffocate. It is very unhealthy". The majority of the participants were well aware of the dangers of smoke to health.

The traditional metal charcoal stove was found to be the most widely used cooking device in households, because it is affordable and readily available, followed by the three-firestone stove. The major factors that influenced purchase decisions were family size, size of cooking utensils, cost and durability of the cooking device. Participants expressed interest in the Rocket Stove and were willing to shift from charcoal to firewood under the condition that its barriers were addressed. The availability of firewood, affordability and portability of the stove and the jacket to fit different sizes of pots were found to be the major concerns that needed to be addressed. Moreover, the Rocket Stove was found to be heavy and less

portable when compared to other cooking devices. Wood was also said to be scarce in the market compared to charcoal. One response to this issue, suggested in the focus groups, was to design a stove that can use both charcoal and wood.

Participants expressed that the most preferred outlet for buying the Rocket Stove was through ordinary markets. Retail shops, hardware shops and agents appointed by UCODEA were the next level of preference. Participants recommended using the placement method, where the stove is given to selected homes in the community from where others can learn about it. In addition, electronic and print media, promotions through schools, women's groups, agents and partner organizations were ways where the target audience could be reached.

Conclusions:

Through a demonstration on how to use the Rocket Stove, focus group participants were convinced that the stove emits less smoke and only uses a few pieces of wood to boil water in a short time. Participants were willing to adopt the Rocket Stove provided that it saved fuel costs and emitted less smoke, thus minimizing health problems associated with smoke. This report discovered that availability of fire wood, affordability, portability, and a flexible jacket design to accommodate different sizes of pots were areas in the Rocket Stove development that needed to be addressed before it can become fully commercialized.

Opening New Doors for Renewable Energy Development and Financing: Nepal's First Clean Energy Bank

Binod Prasad Shrestha, Winrock International-Nepal, binod@winrock.org.np

Clean Energy Financial Institution Limited (CEFI) began commercial operation in September 2006 as Nepal's first specialized bank dedicated to clean energy financing. CEFI will provide support to efforts at expanding access to clean energy by strengthening partnerships with the private sector and local communities. Winrock International works to support and promote the private sector towards the commercialization of clean energy by lowering risks and barriers, and has played a pivotal role in envisaging and establishing the Bank as a partner in this effort.

CEFI is a privately owned and managed financial institution with the primary objective of mobilizing

and supplying long-term capital for clean energy and infrastructure projects executed by the private sector. The Bank was conceived in response to emerging market opportunities, and the realization that lack of a specialized financial institution has constrained the development of private sector-led infrastructure development in the country. CEFI has already received tremendous response from the market, and is set to invest in clean energy through collaboration with other stakeholders in the near future, and is expected to play a major role in scaling up the commercialization of various forms and means of access to clean energy. The availability of clean and renewable energy technologies (RETs) is projected to catalyze many multiplied effects on society. A smoke-free indoor environment, for example, is a benefit of switching to biogas and other RETs; this benefit in turn results in improvement in health conditions. Other benefits include exposure to the world

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through electronic media, as well as an environment favorable to better education. In the current scenario, CEFI can play a vital role for commercialization of clean energy financing by supporting the private sector to overcome the lack of sufficient debt financing, as well as inadequate maturity, and the high interest rates of the financing schemes currently available.

Winrock International, with support from USAID, will continue to support this endeavor by providing technical advisory services to CEFI for the first two years of implementation. This support will enable the Bank to acquire the technical capabilities needed to identify, structure, and process loan transactions; conduct due diligence; and build CEFI's in-house capacities to carry out these activities by itself. The aim is to establish CEFI as a specialized financial institution to take the lead in energy financing, and work as a catalyst to attract more investment for further development of this sector. Winrock has also facilitated CEFI's collaboration with a robust network of organization within and outside Nepal including Alternative Energy Promotion Center (AEPCC), Biogas Support Program-Nepal (BSP-Nepal), MFIs, other energy companies and international donor agencies and consultants to leverage commercialization of clean energy. Through this support from Winrock, CEFI will scale up the installation of biogas, solar home systems, solar tukis (lamps), micro hydro and other forms of clean energy. Investment in clean energies such as biogas and solar home systems will directly replace extensive use of biomass and expensive kerosene, the primary sources of indoor air pollution.

Prospective avenues that stand to benefit from investment include systems and infrastructure related to small hydropower, on-grid and off-grid micro hydro, biogas, solar PV systems and hybrid schemes, clean energy-based infrastructure projects, renewable energy enterprises, rural electrification, clean transport, other infrastructure and social infrastructures. Other potential ventures include infrastructure development in telecommunications, IT Industry and tourism.

In addition to the portfolio above, CEFI will soon launch rural banking with micro financing of renewable energy technologies as an entry point. Winrock has engaged a consultant to prepare the policy, strategy and procedure for micro-financing energy in low income communities through micro finance institutions (MFI). As its core activity in

support of rural development with the support from Winrock, CEFI will foster small and micro scale investment in clean energy by making wholesale credit available from its own resources under management arrangements and capacity building to MFIs serving communities beyond the reach of mainstream MFIs for the promotion of biogas and solar home systems at the household level, as well as off-grid community-based micro-hydro. CEFI will promote financing packages that encourage local ownership of RET construction and installation, and sustainable management of the energy created.



The energy sector in Nepal is hindered by a series of institutional barriers which constrain its efficient development and the mobilization of resources for investments. CEFI will fill the current vacuum as an effective financing institution that understands and supports environmentally responsible and financially sustainable "clean" projects. The Bank will mobilize long-term capital for clean industry and infrastructure projects which will help to meet Nepal's social and developmental goals. The bank presently has an initial equity capital of around US \$ 4.1 million, of which 51 percent has already been subscribed by a promoter group which comprises of individual, financial and other institutional Nepali investors. Of the remainder, 30 percent will be offered to the general public; 19 percent may be offered to either Nepali or foreign institutional investors. Such a substantial investment in clean energies including biogas and solar home systems promises to have a major impact on health, as these technologies will directly replace extensive use of biomass and expensive kerosene, the primary sources of indoor air pollution.

HAPPENINGS

Recent Partner Activity...

First PCIA Grants Achieve Striking Results

*Brenda Doroski, Partnership for Clean Indoor Air/
USEPA, Doroski.Brenda@epa.gov*

The first PCIA pilot project grants awarded by the U.S. Environmental Protection Agency in 2004 to implement innovative, community-based programs to reduce indoor air pollution from household energy use are demonstrating remarkable results. The ten two-year grants (two in China, two in India, one each in Mauritania, Nigeria, Uganda, Guatemala, Honduras, and Mexico), which are scheduled to wrap up between November 2006 and June 2007, are increasing the use of clean, reliable, affordable, efficient, and safe home cooking and heating practices that reduce people's exposure to indoor air pollution. Results achieved to date, include:

- 1.2 million people educated about the harmful effects of indoor air pollution and the benefits of available improved technologies;
- 278,000 people with reduced exposure to indoor air pollution from home cooking/heating practices; and
- 71,000 homes have adopted improved cooking/heating technologies.

Case studies on each of the projects with detailed project descriptions and lessons learned will be available in 2007.

World Habitat Award for Pakistani Organization

The Aga Khan Planning and Building Services (AKPBS) has won the World Habitat Award-2006 for its efforts to improve housing conditions. The AKPBS has developed over 60 low-cost, seismic-resistant, energy- and resource-efficient housing construction methods and standards. Over 15,000 fuel-efficient, low-cost products have been installed in 7,000 households to date, benefiting more than 50,000 people. They range from smoke-free stoves and screened kitchen cabinets for storing food to water-heaters and ventilation systems. For more information, please visit: <http://www.akdn.org/agency/akpbs.html>.

Upcoming Events...

Household Energy Commercialization Training November 7-11, 2006, Addis Ababa, Ethiopia

The USEPA will hold a household energy commercialization training in Addis Ababa, Ethiopia from November 7-11, 2006. The workshop is aimed at organizations that are managing operational stove programs, and producing and selling proven cooking/heating technologies to customers, and those that have an initial understanding of consumer awareness and market development. During the first three days of the workshop, participants will be introduced to basic business and marketing strategies through interactive breakout sessions structured according to the following themes: macro environment, customer demand, supply, and sustainability and scale up. The training will be facilitated by Accenture Development Partnerships (ADP), a not-for-profit unit within Accenture. On the fourth day, workshop participants will visit the Project Gaia household energy program. While the workshop is free, participants are responsible for their own travel costs and other expenses. For more information, visit <http://www.pciaonline.org/events.cfm?v=e>.

Development Marketplace 2007 Call for Proposals: due November 17, 2006

This year, the World Bank seeks to recognize and support initiatives that improve health, nutrition and population outcomes for poor people in developing countries. A total of US\$4 million in awards is available, with a maximum award size of US\$200,000. Sub-themes include innovative mechanisms to reach vulnerable groups; Public-private partnerships to improve delivery of health goods and services; Innovative inter-sectoral linkages, such as improving water supply, sanitation services, indoor air pollution, roads, etc., for illness/disease/injury prevention; and Cost-effective approaches/methods/technologies to improve local capacity to gather, analyze and apply health, nutrition and population data. For more information please visit www.developmentmarketplace.org.

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Ashden Awards for Sustainable Energy 2007 Call for Entries: due November 14, 2006

The Ashden Awards for Sustainable Energy highlight and reward exemplary and successful examples of sustainable energy use both in the UK and the developing world. The 2007 International Awards will be offering five first prizes of £30,000 each and second prizes of £10,000 each for projects that are using renewable energy to address one or more of the following areas: Food Security; Health and Welfare; Light; Education and Enterprise. The closing date for entries is **November 14, 2006**. For more information, visit <http://www.ashdenawards.org> or contact: Danielle Jones at +44 20 7410 0330 or info@ashdenawards.org.

Indoor Air Pollution and Cookstoves Conference November 16-18, 2006, Lineville, Alabama

SIFAT (Servants in Faith And Technology) is partnering with the [University of Alabama at Birmingham Sparkman Center for Global Health](#) in a seminar/workshop series focusing on appropriate technologies for international health; "The Killer in the Kitchen" Indoor Air Pollution in the Developing World Conference on Appropriate Technology Cookstoves. For more information please visit www.sifat.org or contact Kathy Bryson at brysonk@sifat.org.

IAP and Healthy Kitchens Seminar December 13-14, 2006, Lima, Peru

The Pan American Health Organization (PAHO) will host a national seminar on evidence of IAP and health impacts in Peru, and project models being implemented around the country to introduce improved cooking technologies and practices. Participants will share lessons and successful approaches, with emphasis on scale-up. Winrock International is jointly developing this seminar with PAHO. For more information, contact Rogério Miranda, rmiranda@winrock.org.

ETHOS 2007 Conference January 26-28, 2007, Seattle, Washington

The ETHOS 2007 Conference will build on its previous annual meetings and encourages all parties interested in international household energy, cookstoves, indoor air pollution to participate. Conference themes will focus on lab research, monitoring and

field experience, technology design and standards, and policy issues. For more information, please contact Dr. Mark Bryden at kmbryden@iastate.edu.

15th European Biomass Conference and Exhibition May 7-11, 2007, Berlin, Germany

The 15th European Biomass Conference & Exhibition - From Research to Market Deployment - Biomass for Energy, Industry and Climate Protection will take place in Germany. Over 1,200 participants from more than 70 countries are expected to attend and learn about the latest breakthroughs in the field. The Exhibition, taking place in parallel with the Conference, will feature the foremost companies and state-of-the-art products in the Biomass industry. The deadline for abstract submission is **October 20, 2006**. For more information please visit www.conference-biomass.com.

WHAT'S NEW?

...in Research?

Prof. Kirk Smith's Presentations from Guatemala Air Pollution Intervention Trial (RESPIRE)

Prof. Kirk Smith and the Randomized Exposure Study of Pollution Indoors and Respiratory Effects (RESPIRE) team's presentations at the International Conference on Environmental Epidemiology, held in Paris from 2-6 September 2006 are now available at: <http://ehs.sph.berkeley.edu/krsmith/page.asp?id=19>.

Indoor Air Pollution and Women's Health in the Informal Sector

This post-doctoral project paper by Dr. Siddhartha Sarkar focuses on indoor air pollution and women's health in rural North Bengal, India. The study examines how inadequate estimation of women's participation in the information sector leads to the overall under representation of women's role and the importance of energy as an input to women's economic development. The complete report can be found at: http://www.hedon.info/docs/UGC_IndoorAirPollutionWomenHealthPR-FINAL-SSarkar.pdf.

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Chapter on Indoor Air Pollution in "Disease Control Priorities in Developing Countries" (2nd Edition)

The book focuses on global initiatives to improve the health of all peoples by providing a multidisciplinary understanding of these fundamental issues and challenges, as well as effective interventions for the range of communicable and non-communicable diseases and conditions and risk factors. The chapter on Indoor Air Pollution was co-authored by Eva Rehfuess, Nigel Bruce, Sumi Mehta, Guy Hutton and Kirk Smith. More information, including electronic copies of the chapters are available at: <http://www.dcp2.org/pubs/DCP>.

Biomass solid fuel and acute respiratory infections: The ventilation factor

Anayo F. Akunne et al., *International Journal of Hygiene and Environmental Health*, August 2006

Biomass solid fuel smoke is linked to acute respiratory infections (ARI). The authors aimed to study the extent to which improvement in ventilation-related factors reduces the fraction of ARI attributable to exposure to biomass smoke in children under 5 years old in Burkina Faso. The study found that improving cooking devices and indoor ventilation reduces the fraction of ARI in children under 5 years attributable to exposure to biomass smoke, but a higher reduction is achieved by cooking outdoors. For more information, please contact Anayo Akunne at Anayo.Akunne@urz.uni-heidelberg.de.

Relationship of pulmonary function among women and children to indoor air pollution from biomass use in rural Ecuador

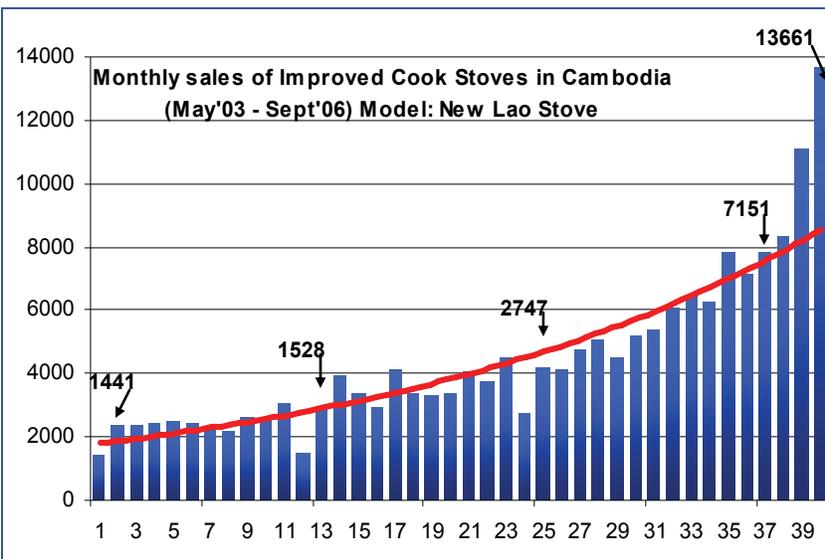
Seppo T. Rinne; et al. and Larry T. Glickman, *Respiratory Medicine*, July 2006

Approximately half the world uses biomass fuel for domestic energy, resulting in widespread exposure to indoor air pollution (IAP) from biomass smoke. IAP has been associated with many respiratory diseases, though it is not clear what relationship exists between biomass use and pulmonary function. The study, based in Santa Ana, Ecuador compared the pulmonary functions of both children and women between cooking fuel categories. Results of this study demonstrate the harmful effects of IAP from biomass smoke on the lung function of children and emphasize the need for public health efforts to decrease exposure to biomass smoke. For more information, contact Larry Glickman at: ltg@purdue.edu.

Your comments are welcome!

This newsletter is published by Winrock International on behalf of the Partnership for Clean Indoor Air. To share comments, suggestions, news, and article contributions please email PCIAonline@yahoo.com. The deadline for contributions to next quarter's Bulletin, the topic of which will be **Technology**, is **November 15, 2006**.

DISCLAIMER: Unless otherwise stated, information contained in this Bulletin is not necessarily the opinion of and/or endorsed by all Partners.



FACT BOX

The **Cambodia Fuelwood Saving Project (CFSP)** in collaboration with GERES Cambodia has achieved commercial success with the sale of the New Lao Stove, a portable stove targeting urban users who burn charcoal at home or in small enterprises. The stove has become a popular consumer item, well identified by housewives and professional cooks. Sales slump slightly every May, during the week-long Khmer New Year festivities. For more information, please visit: www.cfsp.org.kh and www.geres.eu.