



PARTNERSHIP FOR CLEAN INDOOR AIR

PCIA Bulletin

January 2008 Issue 14

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 **160** 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!

We hope the New Year finds you healthy, refreshed, and ready to renew your efforts to provide more and more families with a healthier living space.

Reflecting on the tremendous accomplishments of PCIA Partners around the world, we have decided to dedicate a series of PCIA Bulletin issues to reporting on some of those efforts. This first issue presents just a few of the many important activities and achievements underway by PCIA Partners in Africa. Future issues this year and next will focus on significant developments in Latin America and Asia.

In this issue you will find seven spotlight and feature articles on Partner results throughout Africa, two recent Partner activity updates from Senegal and Nigeria, Africa-focused Resources under "What's New" and our fact box highlighting PCIA Partners and events in Africa.

Partners in Africa are building their skills and programs through participation in workshops and trainings; producing, testing, and selling or otherwise disseminating stoves, solar cookers and retained heat cookers; publishing papers and manuals; exchanging information; scaling-up activities; and raising awareness on issues of indoor air pollution and health.

As always, we welcome your feedback, including suggestions for future Bulletin themes, and urge you to share your own experiences through future issues.

We wish you peace and prosperity in 2008!

New PCIA website!

Same address and appearance, more functionality and features!

Continued unrestricted access to all information

As before, some actions will require Partner login; instructions for creating a new login and password have now been sent to all Partners

Please check it out!

www.pciaonline.org

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PARTNER SPOTLIGHT WODSTA

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 WODSTA.

Anna Oursler, Women Development for Science and Technology Association, aoursler@gmail.com

Women Development for Science and Technology Association (WODSTA) is a women's membership not-for-profit organization based in Arusha, Tanzania. WODSTA's philosophy and activities are focused on enhancing the status and position of women in Tanzanian society. The members are drawn from various fields, including education, environment, agriculture, and gender development, providing a large pool of knowledge from which to draw in dealing with the complexities of women's development issues.

One of the projects currently being implemented by WODSTA is the Community Energy Initiative. This project began in 2003 as collaborative research guided by members of WODSTA, together with professors and students from the Community Development Training Institute Tengeru in Northern Tanzania and the Development Planning Unit at the University College of London. WODSTA members wanted to better understand the challenges that women faced in relation to domestic energy use at the ordinary household level. Through this understanding, WODSTA could then begin to provide alternative solutions which help women reduce their daily workload and household energy-use expenditures. Ultimately this research highlighted the need for increased accessibility to alternative fuels and technologies. There was a



Sokoni One Chairperson learning to build cement-brick stoves

great demand for alternative fuels by poor urban households, and there existed a large variety of alternative appliances and fuel technologies in East Africa. The weak link was making this information and these technologies accessible to low income women who had neither the money nor the time

to seek them out. The research culminated in the suggestion of a central community space located in poor neighbourhoods which would bring knowledge of alternative fuels and appliances to the community.

With this idea WODSTA began to secure capital funding for the proposed Community Energy Focal Point Centres, while conducting baseline surveys that assessed individual fuel use and preferences in four different low income suburban neighbourhoods. Funding was secured from the Global Village Energy Partnership (GVEP) GAPFund in 2006, and in early 2007 the Sasakawa Foundation approved co-financing of the project.



WODSTA group members preparing waste papers to serve as binding agent in handpressed briquettes

Over the past year, three community energy centres have been successfully established with the hopes of initiating two more centres in 2008. Although each centre is unique to the immediate community, they share the common goal of providing a local edifice to purchase, construct, or learn about alternative technologies and fuels. The energy centres also provide numerous opportunities for motivated and skilled local women to earn extra income through constructing and selling these appliances. Fuels such as biomass briquettes from waste materials, plant oil for cooking and lighting, sawdust fire logs, passive and active solar energy, and molasses (which can be burned directly) are among some of the alternatives promoted. Local women also construct and sell energy saving mud-brick and

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cement stoves, fuel-less cooking baskets, cement stoves with water heaters, PV solar systems, biofuel lamps and candles, chimney installations, biogas, solar food dryers, and improved charcoal stoves.

Over the past ten months, the three centres have achieved the following results:

- Held 13 hands-on workshops for community members to construct energy saving appliances
- Organized 10 public demonstrations to display various alternative technologies and fuels
- Facilitated 3 formal discussion seminars on gender-energy relations and social norms
- Distributed (either through community construction or sales at the energy centre)
 - 235 improved stoves
 - 250 bio fuel candle-lights
 - 8,500 Sawdust briquette pieces
 - 800 charcoal-dust briquette pieces



WODSTA group members pulping raw materials to be used for sawdust briquettes

Using guidance provided during the PCIA Indoor Air Pollution and Household Energy Monitoring Africa Regional Workshop held in Pretoria, South Africa, WODSTA has begun to conduct an efficacy study to establish exact savings in fuel and time, and to evaluate users' general satisfaction with the improved stoves and fuels. During December 2007 and January 2008, WODSTA, together with students from the Community Development Training Institute, will interview a sample of 63 users of energy efficient stoves and briquettes regarding the efficiencies of their improved technologies. We will measure the consumption and cooking time of the technologies as they are used under normal daily circumstances in households. We can then compare this data to our baseline survey data done in 2006 before

inception of the centres to determine the savings in time and money that the stoves provide. We will also administer a questionnaire to allow users to express their level of satisfaction with the technology. We believe this data will help the centres improve their marketing strategies and technology sales, as well as provide measured project impacts for donors and carbon credit agencies alike.

In looking for a way to address the impacts that pollution from indoor cooking has on the health of women and children, WODSTA called on a long term member Dr. Aiwerasia Vera Ngowi to help design a seminar to familiarize local mothers and children with the issue of health and emissions from biomass combustion. Mama Vera is a biologist specializing in eco-toxicology with a strong interest in pesticide and pollutants. Using literature and references from PCIA workshops and data from local medical institutions, we developed a syllabus for a community seminar to be led by Mama Vera at each of the Energy Centres in late December. The seminar is meant to present scientific data on the health impacts of indoor smoke inhalation in very simple and relative terms, focusing on visual signs and symptoms as well as related case studies. It is our hope that in the next few years WODSTA can acquire the resources and personnel to measure this impact in a more precise way. In the meantime, WODSTA will continue to support community-based awareness-raising.

PCIA Website Update

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

New features on the website include:

- **Interactive Map**
- **Events Calendar**
- **Message Board**
- **IAP Monitoring Workshop Proceedings Pages**
- **New Articles in Media Coverage**
- **Information on New Partners**

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.

☀️ FEATURE ARTICLES

New Funding Awarded for Scale-up Projects in Africa Brenda Doroski, U.S. Environmental Protection Agency, Doroski.Brenda@epa.gov

The U.S. Environmental Protection Agency (USEPA) recently competed and awarded cooperative agreements totaling approximately \$1 million to five highly capable household energy and health programs in Africa, Asia and South America that have successfully produced commercially viable cooking and/or heating technologies. These projects will significantly increase the availability and use of affordable, reliable, clean, efficient and safe home cooking practices through the scaling up of already sustainable manufacturing and delivery systems.

All awardees successfully met program requirements by demonstrating that their proposed technology to be scaled up 1) reduces people's exposure to particulate matter and carbon monoxide by a minimum of 50%, and reduces fuel use by a minimum of 30% over current local practices; 2) meets the needs of the target population (e.g., is affordable, reliable, clean, efficient, and safe); 3) provides a social benefit (e.g., has a positive impact on health, local employment and income generation, environment, and/or family finances); and 4) utilizes a financially sustainable business model.

Two of the scale-up projects are located in Africa and are described below. Look for descriptions of the Asia and Latin America projects in future editions of the PCIA Bulletin.

Sustainable Market Development for Ethanol-fueled CleanCook Stove in Ethiopia

With U.S. EPA funding, Gaia Association will expand a household market for ethanol-based cooking stoves in Ethiopia, displacing traditional, inefficient, and environmentally damaging solid biofuels, such as wood, charcoal and kerosene. Gaia Association will introduce Clean Cook ethanol stoves into condominium developments over a two year project period, for low to middle income families previously living in some of the poorest and most run down, slum neighborhoods of Addis Ababa.

According to World Health Organization country statistics, more than 95% of the population in Ethiopia uses solid fuels, resulting in 4.9% of the

national burden of disease attributable to solid fuel use.

As part of this project, Gaia Association will support the establishment of a sustainable production of ethanol in Ethiopia at both the large (sugar factory) and small scale (microdistillery). Clean Cook ethanol stoves will be sold both in the private, retail, urban market in Addis Ababa as well as to institutional users, including the UNHCR for use in its refugee camps in Ethiopia. This program will be run in partnership with Makobu Enterprises PLC, Dometic AB, Finchaa Sugar Company, Addis Ababa City Government and the Municipal Environmental Protection Agency. Furthermore, Resource Efficient Agricultural Production-Canada (REAP-Canada), a Carbon Development

Mechanism consultation expert, the Gaia Association and Eco Ltd, a financial planner and packager, will develop carbon credit financing mechanisms that will aid in the establishment of long-term sustainability and profitability. Gaia Association intends to sell 17,000 Clean Cook Stoves over the two-year project period.



Low income households are

"We are hoping to benefit from the unique expertise of USEPA while also having access to their network of successful stove scale up projects with which we can share experiences. The endorsement of USEPA lends much credibility to our work and will ensure a speedy scale up of our program in Ethiopia," reports Mr. Milkyas Debebe, Managing Director, Gaia Association.

"Our mission is to provide clean-burning alcohol stoves and fuel to as many Ethiopian homes as possible. The cooperative agreement with USEPA will bring us nearer to achieving this goal by providing us the support needed to scale up the commercial stove business in Ethiopia. By providing households with a clean stove and fuel, we can measurably improve indoor air quality and minimize or eradicate the biggest killer of children under the age of five in the developing world: indoor air pollution associated with wood

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smoke from cooking. For our team, the most exciting aspect of this work is knowing that we are contributing to a global mission and that our goals are achievable.”

For more information about Gaia Association and Project Gaia, please see their Partner Profile on the PCIA website or [click here](#).

Reducing Indoor Air Pollution in Ghana through Fuel Efficient Cook Stoves

Since 2002, EnterpriseWorks/VITA (EWV) has been implementing a stove program in Ghana that has successfully assisted in indoor air pollution reduction through the establishment of a profitable manufacturing and supply chain for a range of affordable, cleaner burning cooking stoves. EWV has trained and worked with 51 stove manufacturers, 5 ceramists and 80 retailers. With USEPA funding, EWV will build on their program’s successes, expanding the availability of 98,000 cleaner burning wood and charcoal Gyapa stoves to 686,000 people living in major urban centers in the Brong Ahafo, Western and Central Regions of Ghana.



Gyapa stove distributor in Ghana

The Gyapa wood stove has documented fuel savings of 60% and Gyapa charcoal stove has savings of 40%. This scale-up program will result

in increased sustainability, further IAP reductions, as well as increased fuel savings, considerable financial savings to household consumers of wood and charcoal, a decreased rate of deforestation and a reduction in carbon dioxide emissions.

As in other developing countries, indoor air pollution (IAP) is a sizeable problem in Ghana, where a significant amount of IAP is associated with cooking smoke from biomass fuels that are burned in inefficient stoves or open fires. According to World Health Organization country statistics, 87% of the Ghanaian population uses solid fuels, resulting in 2.2% of the national burden of disease attributable to solid fuel use. IAP is linked to respiratory diseases, cataracts, tuberculosis, asthma, low birth weight and heart disease, and takes a greater toll on poor households since they are the ones that rely on lower-grade fuels and have less access to clean technologies for cooking. Within a household, the ones most exposed to IAP are the women preparing meals and the young children that they are caring for while performing these household chores.

Don Feil, President of EWV states that this scale-up grant provides “the opportunity to not only seriously reduce indoor air pollution by reducing the amount of smoke and air borne contaminants through the introduction of significantly more efficient cookstoves, but will also provide a large economic benefit, as these stoves also require much less fuel.”

The interventions designed by EnterpriseWorks/VITA and supported with EPA funding will help an estimated 686,000 Ghanaians adopt cleaner technologies that improve their health while protecting the environment and increasing their savings.

For more information about EWV, please see their Partner Profile on the PCIA website or [click here](#).

Ten Thousand Solar Cookers Bloom in the Desert Patricia McArdle, Solar Cookers International, solarwind1@mac.com

[Iridimi refugee camp](#) is the home of more than 17,000 Darfur refugees who have, for reasons of safety, crossed the border from Sudan into Chad. The desert around Iridimi is devoid of vegetation. The current UNHCR fuel ration (300 grams per

person per day) is not sufficient for a family’s monthly cooking needs. The women of the camp have been compelled to either sell a portion of their food ration to local wood and charcoal vendors or walk for miles into the territory of more settled communities to harvest wood from their forests and face attacks by villagers trying to protect their own meager fuel supply.

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In early 2005, Solar Cookers International, Jewish World Watch and the Dutch Kozon Foundation agreed to fund and conduct a pilot project to provide the women of this camp the means to cook with their most abundant and free resource—the sun!



Several thousand women brought their Cookits and pots of food, which they prepared and served at a farewell celebration for the Dutch trainers who were moving on to Toulon camp to replicate this project.

Over the past two years this project, led by Kozon member Derk Rijks, has constructed work sheds and trained teams of women in the camp to make and use a simple solar cooker known as a Cookit. Stocks of cardboard and aluminum foil needed to make the Cookits have been shipped into the camp from Europe. To date this project has provided at least two Cookits for every family in the camp—a total of 10,000 solar cookers for 4,700 families. One Cookit is generally used for preparing maize meal and the other is used for cooking sauce or pasteurizing water. The chief of the nearby Chadian village of Iridimi has asked that the women in his village also be trained to make and use the Cookit.

The Cookit is the least expensive, lightest and smallest type of solar cooker. It folds into a thin square and can be taken inside at night for safekeeping. It works like a crock pot and can reach temperatures of up to 275 F (135 C). It can cook a pot of pre-soaked beans or a chicken stew in two to three hours.

More than three million people have been displaced because of the conflict in Darfur. They are living in the middle of a vast desert with the sun beating down on their camps more than 300 days per year. They are consuming thousands of tons of firewood and charcoal and frequently do not have enough fuel to make their water safe to

drink. Two solar cookers can save up to one ton of wood per year.

Some women in Iridimi are being taught to combine the use of solar cookers with retained heat cookers (hay baskets) resulting in even greater fuel savings. Project organizers have provided them with reeds for weaving and grasses to insulate their hay baskets. By using the baskets along with their solar cookers, they are able to keep food that is solar cooked in the afternoon piping hot until they serve it to their families in the evening. Retained heat cookers are also being used in combination with the limited number of efficient cook stoves (known as "Save-80s") being provided by UNHCR. Chadian metalworkers have recently begun to produce an efficient cook stove (the "Save-75") using locally available materials.

The women of Iridimi camp now have their own organization, Tchadsolaire. They have taken ownership of the solar cooker project in their camp including an After Sales Service that helps maintain the cookers in good condition, provides heat resistant plastic bags for water pasteurization, and gives advice on the efficient practice of integrated cooking. Training of new teams of women for the next project in Touloum camp began in July 2007.



Women Making Cookits in Iridimi Camp,

During a recent evaluation of the Iridimi project, men in that camp praised the solar cookers as a new technology which their wives could "take home with them to Sudan someday." Women said the Cookits were so easy to use that even younger children could cook the food without the danger of being burned or setting anything on fire. Women said they looked after each other's Cookits if one of them had to leave their compound for a few hours, by reorienting the

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Cookit to face the sun about once an hour. There were no reports of Cookits or food being stolen. The women did report considerable savings in wood with some saying they no longer had to leave the camp. A detailed evaluation will be available on the [Solar Cooker Archive](http://www.solarcooking.org) at www.solarcooking.org very soon.

While transportation and security issues continue to pose challenges to projects of this magnitude, organizer Rijks is currently in discussion with UNHCR about the possibility of extending the introduction of solar and integrated cooking techniques into other camps in the region pending the availability of additional funding and trainers.



Women in Iridimi weaving their own retained heat cookers

To view a video on this project, please visit the Christian Science Monitor at www.csmonitor.com/slideshows/2007/chadsolar/.

Programme for Basic Energy Conservation

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The Programme for Biomass Energy Conservation, now renamed the Programme for Basic Energy Conservation (ProBEC) is an official SADC (Southern African Development Community) energy programme and the only one dealing with traditional energy. ProBEC is implemented by GTZ and started in 1997 with a focus on information exchange between SADC countries and on implementation of pilot projects. Since 2004 the Dutch Government through DGIS made available support for large-scale implementation. ProBEC is active in 7 SADC countries: Malawi, Tanzania, Zambia, Lesotho, Mozambique, Zimbabwe and South Africa. ProBEC aims to transform the market for energy efficient cooking appliances using a commercial approach through public-private partnerships, and to stimulate the permanent adoption of efficient stoves in households, small businesses, and institutions.

ProBEC promotes integrated approaches to biomass energy conservation, for example: the use of more energy efficient technologies (improved stoves); use of alternative renewable energy sources: e.g. solar, gel fuel, plant oils; more efficient firewood management (drying wood, splitting wood, etc); improved kitchen management (e.g. reducing time for cooking process, better ventilation at the cooking place)

The following provides a brief overview of some activities, achievements and plans for ProBEC and partners in some of the participating countries.

In Lesotho, ProBEC and local partner TED (Technology for Economic Development) focus on the installation of 500 energy efficient woodfuel stoves at schools in Lesotho participating in the World Food Programme (WFP) feeding scheme. They will purchase 500 energy efficient stoves to cut down on wood fuel consumption and improve nutrition at schools that sometimes have to serve half-cooked food when the fuel runs out. The stove saves 60% of wood fuel consumption. Trained builders will construct the stoves at selected schools, and the carbon savings achieved with the improved stoves have been purchased by



Loin (or Tau) stove which will be installed at schools. This stove was built by trainees at an orphanage in Maseru during their training.

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PioneerCarbon from TED. Income from the sale of the carbon offsets will be used to increase the number of stoves at schools.

In Malawi, ProBEC and their commercial partners supply households, schools, bakeries, tea estates' worker houses and canteens, prisons, and the tobacco industry with improved cook stoves and tobacco curing barns. To date the programme has sold more than 18,000 improved cook stoves, providing more than 93,000 people with sustainable energy for cooking.

In Mozambique, ProBEC and its commercial partner CeramicArte, a ceramics manufacturing company in Maputo, are marketing the Maputo Ceramic Stove. Glazed and unglazed versions of the stove sell for 140 meticais and 120 meticais respectively (around \$6 and \$7.50 respectively). The stove provides a 60% charcoal savings and has been very well accepted in household field trials.

ProBEC recently launched its South African programme with the appointment of Ms. Teri Kruger as South African National Coordinator. ProBEC's local partner is CEF (Central Energy Fund), and part of the scope of work of the National Coordinator is to support CEF in their

activities with a special focus on paraffin appliance issues. Increased pressure on the electricity supply sector is currently further highlighting the need for efficient appliances and ProBEC is elaborating a programme of work to capitalize on the situation.

Given that in the foreseeable future biomass will remain the primary source of basic energy for families and small businesses in most southern African countries, it is of paramount importance that the available energy is being used in an environmentally sound and socially responsible way. In keeping with international efforts to harmonise donor activities and maximize development impact as directed by the Paris Declaration, ProBEC will move away from a fuel-driven focus towards a broader integrated approach that would consider the spectrum of low-income household energy requirements. This change in approach will allow the programme to investigate non-thermal household energy requirements as well as the traditional core focus on thermal requirements. ProBEC expects to implement its expanded mandate starting in May 2008 when a new programme phase will commence.

African Partners Strengthen Their Programs in Three Key Areas

Brenda Doroski and John Mitchell, U.S. Environmental Protection Agency;
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Over the last four years, nearly 150 African Partners have participated in PCIA regional workshops to learn new skills in monitoring and evaluation, stove design and performance, and commercialization of their stove programs. These workshops have resulted in more data available on the performance of innovative technologies and the impact of interventions throughout the world; an increased number of new improved technologies being promoted; robust business strategies with which to evaluate, roll out and monitor household energy programs; and commercially viable markets for improved technologies.

Ultimately, the combined effects of these capacity

building efforts will lead to improved health, family economics and quality of life; reduced poverty and impact on environment; and increased job opportunities throughout countries in Africa.

Monitoring and Evaluation

Most recently, 15 Partners from 9 African countries developed monitoring plans during a Partnership for Clean Indoor Air regional workshop "*Measuring Change: Indoor Air Pollution and Household Energy Monitoring*" workshop in Pretoria, South Africa October 29 – November 2, 2007. During interactive and hands-on sessions, household energy and health experts learned how to select study design, calculate sample size, administer socioeconomic impact surveys, and collect and analyze carbon monoxide (CO) and particulate matter (PM) samples to assess the exposure, socioeconomic and environmental impact of their household energy interventions. One participated stated, "I found

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the way the material was presented, makes it easy to understand and remember the content.”

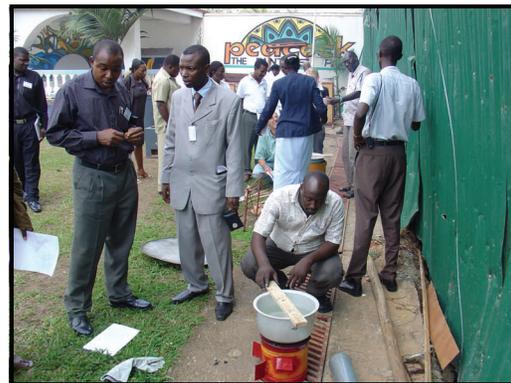
Technical trainers from the Center for Entrepreneurship in International Health and Development (CEIHD) led the training. In addition, three guest speakers presented case studies on various monitoring and evaluation initiatives in Africa. Mr. Emmanuel Appoh of the Ghana Environmental Protection Agency informed the group about his government’s preliminary results from a “snap-shot” study of indoor air pollution in homes in Accra. Dr. Brendon Barnes of the South African Research Council educated the group about the Hawthorne Effect (behavior change resulting from participating in a project) found in indoor air pollution studies conducted in Tibet, China, Guatemala and South Africa. Mr. David Mukisa of Uganda Stove Manufacturers Ltd. (formerly UCODEA) shared the experience of UCASoves with monitoring greenhouse gas reductions in order to qualify for voluntary carbon credits. To view these presentations, along with the training modules and participant monitoring plans, visit www.PCIAonline.org/proceedings.



Launching Equipment at the South Africa monitoring workshop

A similar workshop was conducted by the World Health Organization, CEIHD and USEPA in Uganda in June 2005 with 35 participants from 13 African countries. The workshop was opened by the Ugandan Minister of Health, the German and United States Ambassadors to Uganda, and the WHO country representative. Following five days of interactive training, including placing CO and PM monitors in the field, the participants presented their short and long term monitoring plans to their colleagues. A limited number of hard copies of the workshop resources “*Indoor Air Pollution and Household Energy Monitoring*” are

available, and can be requested by e-mail to PCIAonline@yahoo.com.



Participants at the Uganda Monitoring Workshop

Stove Design and Performance

Three PCIA workshops have been conducted in Africa to increase the capacity of local organizations to design, evaluate and produce clean burning, efficient, safe and affordable cooking technologies.

The first stove design and performance workshop was held in September 2005 in Rosso, Mauritania. During this two-day workshop, Aprovecho technical trainer Mouhsine Serrar taught 24 local women cooks, metal workers, potters, stove project implementers, and Peace Corps Volunteers to design, construct and test clean and efficient stoves. The training was conducted in French. The workshop was followed by a ten-day consultancy with the local stove committee (three metal workers, a potter, and two stove project managers) during which they built and tested four types of improved stoves (a rocket stove with insulative bricks, a rocket stove with a metal rocket and ash insulation, a metal VITA stove, and a molded cement-sand-clay VITA). The prototypes were tested by seven local cooks who preferred the rocket stoves due to the removable skirts which accommodated different size pots on the same stove.

In February 2006, USEPA and the German Development Cooperation (GTZ) co-sponsored a 5-day regional French-speaking workshop in Burkina Faso with local partner Research Institute for Applied Techniques and Technologies to build local capacity of 22 artisans and entrepreneurs to design and produce clean burning and fuel efficient cook stoves. GTZ sponsored project implementers, stove manufacturers, metal workers and potters from Burkina, Benin, Mali and

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Senegal to attend. Aprovecho Research Center technical trainers presented classroom instruction, discussion and "hands-on" laboratory activities on such things as combustion and heat transfer theory, stove design principles, fuel preparation, insulative ceramics for combustion chambers, and stove performance testing.



Artisans learn about a Rocket stove at the Burkina Faso stove workshop

As part of its goal to improve stove design and performance, in the summer of 2006, PCIA sponsored Professor Manny Hernandez of Northern Illinois University to teach two NGOs in Uganda and Mauritania to construct fuel efficient kilns to produce lightweight insulative combustion chambers for the improved wood stoves. In early 2008, PCIA will be publishing the "Guide to Building Fuel-Efficient Kilns for Enhanced Cookstove Performance" and DVD that were developed during these workshops.



Kiln-building in Uganda

Commercialization

Finally, November 7-9, 2006, approximately 30 Partners representing 19 different organizations participated in a regional Commercialization Workshop in Addis Ababa, Ethiopia to develop commercially viable household energy projects in Ethiopia, Kenya, Uganda, and Nigeria. Accenture Development Partnerships conducted the workshop based on the fundamentals of the Commercialization Toolkit that they developed and field tested for the Shell Foundation. The workshop resulted in an increased understanding of commercial considerations and tools available to strengthen the commercial aspects of stove programs. One workshop participant reported that, "Although we were familiar with many of the concepts, we gained a deeper knowledge of these. We have learned to adopt a more business-minded view of our work as an NGO." More information on this workshop is presented in PCIA Bulletin #10, available at www.PCIAonline.org/Bulletin.



Participants at the Addis Ababa, Ethiopia Commercialization Workshop

Conclusion

Participant feedback from these workshops indicated that participants appreciated the hands-on, participatory workshop format, and found the interaction and networking with other regional experts essential in identifying solutions and effective approaches for their individual stove programs. The Partnership for Clean Indoor Air will continue to provide Partners with regional training opportunities to strengthen vital components of their stove programs. If you would like to co-sponsor a regional workshop, please contact us at PCIAonline@yahoo.com. Visit the PCIA website for information on upcoming regional workshops.

Biogas for Better Life, An African Initiative

Dr. Chudi Ukpabi, Biogas for Better Life, an African Initiative,
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The vision of Biogas for Better Life, an African Initiative is to succeed as a market oriented partnership with governments, private sectors, civil society agents and international development partners. By 2020 the Initiative aims to provide 2 million households with biogas digesters, which will benefit 10 million Africans; offer income generating opportunities by creating 100,000 new jobs; improve household health and livelihoods by reducing death of 5,000 women and children each year; and save 2 to 3 hours per day for household fuel collection, and cooking activities. The Initiative offers households opportunity to own, control and operate sustainable energy services for their own kitchens at affordable costs.

Benefits of Biogas

Many households in Africa are facing increasing problems with household energy supply. The burden of fuel collection falls disproportionately on women and children, who are also those most exposed to indoor air pollution from cooking smoke. Households also have poor access to hygiene and sanitation, and women and also suffer from water borne diseases. There is an urgent need in Africa for alternative, more sustainable energy sources and improved sanitation. Domestic biogas can address both sanitation and household energy needs by utilizing manure and human excreta to produce clean cooking fuel.

Investment costs of biogas plants vary between EUR 200 – 900 (roughly US\$300 to \$1300). The biogas technology has been proven and established in many parts of the globe, especially Asia. Unlike Asia, no large-scale programmes have been established so far in Africa.

Biogas for Better Life Initiative

Since 2006, more than 20 organizations, mainly from Africa, have come together to share knowledge and experiences and discuss the first outline of a biogas programme in Africa. The Initiative was officially launched in May 2007, when 140 participants congregated to share knowledge and experiences of introducing biogas in African countries and other parts of the world. The Biogas Initiative Business Plan was presented at the May conference; the final version of this

document is available at <https://www.biogasafrica.org/Documents/Biogas-for-Better-Life-Business-Plan-2006-2020.pdf>.

The National biogas programme is implemented in structured phases. The **Desk study/Pre-feasibility Study** is a short analysis of economic/market potential for a national biogas programme. The **Feasibility Study & National Stakeholders Mobilisation Processes** include an in-depth analysis of financial, market, social/cultural issues, community & household commitment/participation. The final stage is **National Negotiation and Implementation/Promotion**. The Initiative supports the phases described above through discussions with key local actors/agencies, and with support from external experts where required. Over the past year a number of Partners have undertaken biogas-related activities in several African countries. The Initiative is now identifying support for long-term national programmes and resource mobilization. Partners consulted for funds mobilization include Netherlands Ministry of Foreign Affairs/Development Cooperation, German Ministry of Economic Affairs, African Development Bank, the Danish International Development Agency, and the Finish Ministry of Development Cooperation. The total financial requirement has been estimated at US\$227 million over a five-year period. For detailed information, please refer to the Business Plan.



Biogas plant under construction in Africa

Feasibility of domestic biogas in Africa

In Africa, efforts undertaken on domestic biogas have been rather modest so far. A long-term market-based approach that focuses on the customer has been lacking. This has resulted in inappropriate customer selection, limited

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involvement of the private sector, high installation costs, and poor after-sales service. As a result, many of the installed biogas plants have become non-functional.

A first assessment of the technical potential of biogas in Africa by SNV indicated that 18.5 million households have sufficient dung and water to operate biogas plants. Lessons learned from biogas experiences in Africa suggest that key factors for successful biogas implementation in Africa include having a realistic and modest initial introductory phase for biogas intervention; taking into account the convenience factors in terms of plant operation and functionality;

identifying the optimum plant size and subsidy level; and having provision for design adaptation.

How the Initiative is working

Mr. Cheick Diarra (Mali) and Ms. Hauwa Ibrahim (Nigeria) have been appointed as Ambassadors to promote the Initiative. Mr. Diarra is Microsoft's Chief Executive for Africa, and Ms. Ibrahim is a prominent lawyer and Islamic legal expert. The Initiative has an active interactive website (www.biogasafrica.net), and a bi-monthly newsletter. The Initiative is currently developing special programmes on Research & Development and Communication Strategies to brand the Initiative successfully in Africa, and build commitment of key stakeholders.

World LP Gas Association hosts "LP Gas for African Development" conference in Cape Town, South Africa.

Michael Kelly, World LP Gas Association, mkelly@worldlpgas.com

The World LP Gas Association (WLPGA) acts as the global voice for LP Gas, promoting the use of LP Gas worldwide to foster a cleaner, healthier and more prosperous world. This October in Cape Town, the association added an extra day to their annual conference, the World LP Gas Forum, to focus on how LP Gas can help improve the lives of people in developing countries. Under the theme "LP Gas for African Development", speakers from organizations such as United Nations and World Bank as well as Ms. Buyelwa Sonjica, the South African Minister of Minerals and Energy, spoke about the positive difference LP Gas can make in the developing world. Ms. Sonjica called on the LP Gas industry to partner with African governments to ensure a secure, reliable and affordable supply of LP Gas.

LP Gas for African Development

In a session entitled "LP Gas – fueling life in Africa", Brenda Doroski of the U.S. Environmental Protection Agency joined panelists from Totalgaz, the South African body Gender and Energy Research & Training, as well as Dr. Philip Lloyd from the University of Cape Town. Ms. Doroski presented on the health problems associated with indoor air pollution from the use of traditional fuels that disproportionately impact the poorest communities in Africa and how switching to LP Gas where possible is one solution to fighting this age old problem. Ms. Doroski also addressed

some of the barriers to more LP Gas use in these communities, such as relatively high cost, especially where biomass fuels are gathered, and the need for a reliable supply and distribution system; and several possible solutions, including access to micro-credit for stove and cylinder purchase, smaller cylinders with lower up-front costs, targeting fuel subsidies in peri-urban and urban areas where biomass fuel is purchased, and linking with the delivery of other household products. Ms. Doroski encouraged participants to join the efforts of the Partnership for Clean Indoor Air to increase the use of clean and efficient cooking and heating fuels and practices. To download the presentation please visit the World LP Gas Forum 2007 calendar event at www.PCIAonline.org/pciacalendar or [click here](#).



World LP Gas Forum Panelists Barry and Doroski

Other speakers throughout the day presented on a variety of topics, ranging from "Public private partnerships – an African experience" and "LP Gas: Improving the lives of African women" to a roundtable on how to unleash the power of LP

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Gas in the developing world. Some presentations highlighted particularly creative initiatives to ensure LP Gas becomes available to more and more people in Africa, as described below.

Microfinance – creating grassroots growth

Mr Rachid Idrissi of Afriquiagaz explained how microfinance is being used to loan money to small agri-businesses in Morocco. The businesses use the funding to purchase stoves for food preparation, jewelry making, or other uses. LP Gas helps business productivity and also eases pressure on deforestation, as firewood was the traditional fuel used in rural areas.

Fueling health facilities in Mozambique

Mr. Eric Charras shared the story of how he created VidaGas, an LP Gas distribution company, to provide clean, modern energy to remote health clinics in Mozambique. LP Gas now powers refrigerators, which keep vaccines cool, lighting, and hospital kitchens.

New UNDP LP Gas investment facility

Ms. Scholastica Kimaryo, the Resident Representative of UNDP activities in South Africa wrapped up proceedings by announcing the preliminary steps towards establishing a new LP Gas investment facility in Africa. The initiative aims to focus on market development; remove obstacles to market investment; and encourage

investment for local development.

The facility should reduce risk to investors and provide seed capital to encourage local entrepreneurship.

Away from talk, towards action

The day was an outstanding success. WLPGA Managing Director James Rockall was delighted with both the quality of speakers and the progress made on the sidelines. "We wanted to find pragmatic solutions to the issues facing Africa, to move away from talk, towards action. I believe we were successful in that, the presentations were excellent and informative, but equally as important were the meetings we arranged alongside the sessions."

Over and over, the point was made that energy poverty and poverty are inextricably linked, however there was an air of hope throughout the LP Gas for African Development day. Minister Sonjica summed up the mood when she said "The time to invest in Africa is now....It is within our grasp to promote and fuel economic empowerment." She thanked the WLPGA for bringing the World Forum to South Africa and for dedicating a day to discussing issues central to African development.

For more information on the World LPGas Association, please visit www.worldlpgas.com.

⚙️ HAPPENINGS

Recent Partner Activity...

Senegal Solar Cooking Initiative

Solar Household Energy, Inc. (SHE) has partnered with Tostan, a Senegal-based NGO to distribute the HotPot solar oven to 2,000 Senegalese families in 2008 and 2009. The project will raise awareness of solar cooking and fuel-efficient stoves nationwide, and generate employment through local production of a HotPot component. An independent research team from the University of California, Berkeley will evaluate health impacts of the project.

This follows a successful 2006-2007 120-HotPot pilot project. In 2006, SHE's Senegalese training manager, Abdoulaye Toure, conducted solar cooking demonstrations and training sessions in



Senegalese woman weaving haybaskets

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six communities outside of Dakar. One woman in each community was designated as a trainer. After using the HotPot for four months, she supported 20 other women in their community who purchased a HotPot. Over period seven-month period, the women reported:

- Using the solar oven regularly, on average four times a week;
- Buying, on average, 1/4 less wood for cooking;
- Having up to two more weeks of use of a container of gas for cooking; and
- Using 1/3 less cooking oil. (Cooking in the HotPot requires virtually no oil, a relatively expensive commodity)

International Centre for Energy, Environment & Development (ICEED) in Nigeria hosts Improved Woodfuel Stoves Workshop and Exhibition

Over 70 participants from throughout Nigeria gathered in Abuja, Nigeria, from November 5-9 to generate ideas and build partnership in launching Nigeria's first major efficient wood stove project. In addition to a formal two-day workshop, there was a one-day planning session, and two-days of site visits. During the workshop, Nigerian Government Officials and non-government organizations working in Nigeria on household energy and health were joined by international



Improved Woodfuel Stoves Workshop and Exhibition

representatives from the BBC World Service Trust, the Colorado State University, the Ghana Ministry of Energy, GTZ, the Heinrich Böll Foundation, the Shell Foundation, the University of Nairobi (Kenya), and the USEPA who shared effective approaches on various aspects of successful stove programs to consider incorporating into Nigeria's

stove program. ICEED's goal is to disseminate 1 million stoves in Nigeria by 2015; which will reach half the households in Nigeria that are currently cooking with rudimentary stoves. For more information about the workshop (including the Agenda, background information, and Presentations), and ICEED's initiative, please go to www.ICEEDNigeria.org.

Upcoming Events...

CarbonSIG e-conference - Household Energy and Carbon Finance

To mark the publication of Boiling Point 54 - Climate Change and Household Energy - HEDON CarbonSIG and Eco Ltd are holding this two-week online conference January 9th-23rd 2008. Topics to be covered include carbon finance, project development, monitoring impacts, evaluating community benefits, policy action, and next steps. Opportunities for knowledge sharing and networking will be provided. For more information see www.hedon.info/goto.php/CarbonSIGConferenceJanuary2008

ETHOS Conference 2008

January 25-27, 2008, Kirkland, Washington, USA

The Engineers for Technical and Humanitarian Opportunities for Service (ETHOS) annual conference will covers advances in lab and field experiences with improved cooking technologies, as well as other crucial aspects of sustainable household energy and health interventions. As always, ETHOS encourages participation of southern partners, international stoves experts, and development specialists with field experience in the transfer of cooking technologies. This year a discussion on stove testing standards and testing methods will be held on Friday afternoon, prior to the traditional evening social gathering in anticipation of the weekend's busy agenda. Please visit www.vrac.iastate.edu/ethos/conference.php to learn more about the conference or to register.

Energy and Poverty: Clean Cooking Fuels

June 16-17, 2008; *Abstract deadline January 28, Istanbul, Turkey*

Papers are invited for this two-day workshop, to be held in conjunction with the 31st IAEE

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International Conference. The workshop will focus on barriers to the transition to cleaner, more efficient fuels and technologies for meeting the cooking needs of the poor, and on measures for enhancing access, affordability, and supply. Major themes of the workshop include strategies of suppliers of modern fuels, the role of the private sector, the role of government and public policy, and making energy provisioning for the poor a central component of broader development strategies. For more information or to submit an abstract, please visit www.iaee08ist.org/.

Better Air Quality (BAQ) 2008

November 12-14, 2008; *Abstract deadline March 30*, Bangkok, Thailand

BAQ 2008 is expected to be the largest international workshop on air quality management (AQM) in Asia with an expected participation from 1,000 decision makers and stakeholders from more than 35 countries worldwide. BAQ 2008 will be preceded by a range of pre-events on November 10-11th. The theme of the workshop will be "Air Quality and Climate Change: Scaling up win-win solutions in Asia" For more information, and to view the call for abstracts, see <http://cleanairnet.org/caiasia/1412/article-72204.html>.

International Women Environmental Entrepreneurs Fair

October 5-14 2008; *Application deadline April 30*, Barcelona, Spain

The International Women Environmental Entrepreneur Fair aims to facilitate and strengthen women's productive enterprises that produce or provide services that are environmentally friendly, and showcase women's professional and business activities that go beyond regional borders and contribute to environmental conservation and the alleviation of poverty. The Fair is an innovative and unique global opportunity because it will make visible the economic, social, and environmental inputs that women entrepreneurs bring to their countries and the world. To download an application form containing more detailed information about the fair, please see www.genderandenvironment.org/admin/admin_noticias/documentos_noticias/Form.doc.

Commission on Sustainable Development 16

May 5 - 16, 2008, New York City, USA

The two-year cycle of CSD-16 and CSD-17 will focus on implementation in the areas of agriculture, rural development, land, drought, desertification and Africa. CSD-16 and CSD-17 will again provide various opportunities for major groups to contribute case studies and best practices, provide data and information on projects in the field, identify challenges and obstacles to implementation, and engage in interactive dialogues with government officials and other participants, including with Ministers during the high-level segment. See www.un.org/esa/sustdev/csd/review.htm for more information.

Global Health Council - 35th Annual International Conference

May 27 - 31, 2008, Washington, DC, USA

The Global Health Council is the world's largest membership alliance dedicated to saving lives by improving health throughout the world. The theme of the Council's 35th Annual International Conference is "Community Health: Delivering, Serving, Engaging, Leading." The conference will also address key issues of global health that are at the heart of the Council's work around the world, such as women's and children's health, HIV/AIDS, infectious diseases, and emerging threats. The conference seeks to bring together partners who are committed to improving the lives of the world's poor to share and learn from each other. Please see www.globalhealth.org/conference/ for more information.

☀ WHAT'S NEW?

... In Resources

New Standard on Pressurized Paraffin-Fueled Appliances Published

The South African Bureau of Standards (SABS) has published SANS 1243:2007, a world-class safety standard for Pressurized paraffin-fuelled appliances which applies to all paraffin stoves and heaters that use a pressure based system of operation. According to SABS, the standard is an important step towards ensuring that paraffin can be used safely for home heating, lighting, and cooking. A similar standard for wick-based appliances was made mandatory in January 2007, and the new standard may soon become mandatory as well. For more information, and to download the original press release, please see www.paraffinsafety.org/2007/12/06/sabs-publishes-a-new-standard-on-pressurized-paraffin-fuelled-appliances/.

Solar Cookers International GAPFund Project Completion Report

Solar Cookers International (East Africa) has introduced the CookIt solar cooker in two new areas of Kenya, and has released a report describing the project, which was funded through the GVEP GAPFund. Women were trained to handle and use the cookers, leading to increased sales and access to solar cooking technology. The report emphasizes the importance of post sales follow-up and support to ensure that users are comfortable with the stoves. For more information, and to download the report, please visit www.gvepinternational.org/.

Three Publications on Cost-benefit Analysis of Household Energy and Health Interventions

WHO has published three publications on cost-benefit analysis of household energy and health interventions. *Guidelines for conducting cost-benefit analysis of household energy and health interventions* is intended for economists and professionals working at the national and sub-national levels. *Evaluation of the costs and benefits of household energy and health interventions at global and regional levels* is a technical report intended for professionals working in the field, and describes in detail the methods and data sources that form the basis for cost-benefit analysis of household energy and health

interventions, and presents the results for eight intervention scenarios. The third publication provides a synopsis of key findings for policy-makers at the sub-national, national and international levels. It outlines methods and data sources, and presents the results for three intervention scenarios of particular relevance to household energy and health policy. The publications are available for download at www.who.int/indoorair/interventions/cost_benefit/en/index.html. A shorter article summarizing the findings on the costs and benefits of LPG and improved stove interventions will be published in the December issue of Energy for Sustainable Development (www.ieiglobal.org/esd.html).

New Practical Action Book on Reducing Indoor Air Pollution

Volume 2 of 'Smoke, health and household energy' subtitled 'Researching pathways to scaling up sustainable and effective kitchen smoke alleviation' is now available from Practical Action. Volume 1 looked at participatory methods for design, installation, monitoring and assessment of smoke alleviation technologies. The book is available as a full color CD containing both volumes, with a limited number of black and white printed copies available. Direct requests for books and CDs to liz.bates@virgin.net. For more information, see www.hedon.info/goto.php/1040/news.htm.

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 Partner Progress since the 2007 PCIA Forum is **February 15, 2007**.

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FACT BOX

