PARTNERSHIP FOR CLEAN INDOOR AIR

April 2007 Issue 11

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 130 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*

Improving Health and Security while reducing Fuel Dependence in Refugee and IDP Settings

The first quarter of 2007 has been busy with household energy and health activities! International gatherings took place in many corners of the world, from the annual ETHOS conference in Washington State, USA, in January, to the Intergovernmental Preparatory Meeting for CSD-15 at the United Nations in February, an international household energy seminar in Bolivia and the 3rd Biennial PCIA Forum in India in March, among other important events. A common theme resonating among these events has been "commitments"—by practitioners, private enterprise and policy makers alike, to dedicate resources and political will to bring cleaner fuels and technologies to the millions of people who suffer the consequences of polluted air and unhealthful cooking practices. These commitments provide inspiration and hope that together we can make a significant impact on the lives of millions of people around the world.

In this issue, you will hear from NGOs and international agencies about their commitments to bring cleaner fuels and technologies to people living in the most extreme circumstances—refugees, internally displaced persons (IDPs), and other populations in need of humanitarian assistance. Ensuring that refugees and IDPs not only have food to survive but the means to prepare it has long been a challenge in need of workable solutions. The circumstances of refugee settings are particularly challenging: fuelwood and other biomass resources are scarce to non-existent, gender-based violence is rampant, and the sheer number of families in need is daunting. Solutions for these settings must be large in scale and require strong coordination among aid agencies.

As you will read, the United Nations High Commissioner for Refugees (UNHCR), the Women's Commission for Refugee Women and Children, and other leading agencies recognize the health and environmental impacts associated with traditional biomass cooking, have put a priority on addressing the gender-based violence that accompanies fuelwood gathering, and are taking leadership in seeking solutions that carefully weigh the costs and benefits of a wide range of technologies and fuels. Several PCIA partners are working closely with UNHCR and other agencies to bring clean, affordable and appropriate technologies to these settings. We hear from two such partners in this issue, and look forward to sharing the experiences of others in the future.

Coming Soon…

Presentations and proceedings of the 3rd Biennial PCIA Forum, held in Bangalore, March 20-23, will be posted on www.pciaonline.org, and a future Bulletin will be dedicated to the Forum.

In This Issue

☼ FEATURE ARTICLES

Developing a Coordinated Strategy on Fuel in Humanitarian Settings

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Gender-based violence (GBV) has been a central component of armed conflict throughout history. The Women's Commission for Refugee Women and Children (Women's Commission) is working to mitigate one of the most preventable risks of sexual violence that women and girls in conflict settings face: leaving the relative safety of their camps to collect firewood as cooking fuel for their families. The problems associated with collection and use of fuel in humanitarian settings do not stop with GBV, however; they also include deforestation and environmental degradation, the health consequences of burning organic matter indoors, tensions with local communities, poor nutrition from eating uncooked foods, and risky income generation activities.

The Women's Commission's new Fuel and Firewood Initiative aims to address the problems associated with firewood collection and use in humanitarian settings in two key ways: 1) by advocating for coordination of all fuel-related activities at the highest levels of the humanitarian system; and 2) by soliciting the engagement of a wide array of actors from a variety of sectors, including physical protection, environmental protection, health, technology, food distribution and livelihoods.

The initiative stems from a 2006 Women's Commission's report investigating methods for reducing the vulnerability of displaced women and girls to GBV during firewood collection, *Beyond Firewood: Fuel Alternatives and Protection Strategies for Displaced Women and Girls*, and two accompanying case studies on Darfur, Sudan and the Bhutanese refugee camps of eastern Nepal.

The reports presented a series of key findings on various projects and initiatives underway throughout the world that are aimed at either reducing the threat to displaced women and girls associated with firewood collection and use and/or reducing their vulnerability to attack by reducing their need to leave the camps in search of firewood. The report also investigated alternative fuels and fuel technologies that could be appropriate for use in refugee and internally displaced people (IDP) camp settings, including fuel-efficient stoves, solar cookers, biogas, gel fuels and non-wood-based briquettes.

Honeycomb briquette in mud stove (above) and parabolic solar cooker (below) are among the options evaluated by

Key findings and recommendations on specific fuel-related interventions include:

- The various **factors** that must be taken into consideration in designing an appropriate fuel strategy for particular settings include: climate/ topography; relations with host community; phase of the emergency; location and security of transportation infrastructure; locally available materials/production skills; and cultural concerns.
- **Fuel-efficient rations** (both food and non-food, such as blankets or warm clothing) and **cooking techniques** (pre-soaking beans, for example) are relatively easy and inexpensive interventions that can have significant impact on total fuel needs.
- **Direct provision** of fuel and **physical**

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protection strategies can play an important role in a fuel strategy, particularly in the earliest phases of a crisis.

- **Fuel-efficient stoves** (FES) can be a key component of a fuel intervention. Particularly in arid environments, however, FES can only be considered a stopgap measure while non-wood-based fuels are being developed and promoted.
- There are several different models of **solar cookers** currently available, a few of which have been tested in camp settings and can be a useful addition to more comprehensive fuel interventions, such as FES and/or alternative fuels.
- **Biogas** systems present an interesting and cleaner alternative to biomass fuels, but often require heavy infrastructure investments. Smaller, household-level biodigesters might be more practical in humanitarian settings.
- **Alcohol and gel fuels**, particularly those that can be made from the waste of locally available agricultural products (millet, sorghum, etc.) are not yet widely available for use in humanitarian settings, but should be investigated further.
- It is crucial to recognize the importance of fuel as a main source of **income** for many displaced women. No fuel-related interventions will significantly reduce the frequency and impact of firewood collection unless such interventions are accompanied by alternative income-generation activities.

Qualities of Specific Fuels

	Speed of cooking	Smokeless	Taste	Flexibility of cooking time/temp	Indoor	Outdoor	Fire?	Risk assoc. with collection	Impt. to have good relations with local communi-ty?	Flexibility of cooking style?	Locally available	Potential safe income generation activities?
Firewood	yes	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	no
Charcoal briquettes	yes	no	yes	yes	yes	yes	yes	yes*	yes*	yes	unlikely	unlikely
Bio-briquettes	yes	yes	yes	no	yes	yes	no	yes	yes	no	yes	yes
Kerosene	yes	no	yes	yes	yes	yes	yes	no	no	yes	unlikely	no
Biogas	yes	yes	no	yes	yes	no**	yes	no	yes	yes	yes***	unlikely
Solar-parabolic	yes	yes	no	no	no	yes	no	no	no	no	no	yes
Solar panel	no	yes	no	no	no	yes	no	no	no	no	yes	yes

* if collected locally
** unless specially designed
*** requires infrastructure investment

Figure 1. Matrix developed by WCRWC in evaluating fuel and cooking technology options. *Beyond Firewood* report.

The Women's Commission's reports[1] also put forth recommendations on what displaced women and girls, UN agencies, nongovernmental organizations (NGOs) and donors should do to address the problems associated with fuel in humanitarian settings. Two overarching recommendations centered on the multi-sectoral nature of fuel, and the profound need for coordination of the fuel-related initiatives of these many sectors – including engaging research institutes, technical experts, engineers and other "non-traditional" humanitarian actors in the search for appropriate alternative fuels and fuel-related technologies.

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1. These reports are available at http://www.womenscommission.org/reports/studies.php

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The Fuel and Firewood Initiative arose from these main recommendations. As such, the Initiative's four main objectives are:

1. to pilot the development and coordination of all fuel-related activities in two field settings: Darfur, Sudan and eastern Chad;
2. to promote the findings of the Women's Commission's Beyond Firewood reports and the pilot projects broadly within the humanitarian community for use, education/ awareness raising and field application;
3. to encourage and facilitate the establishment of an Inter-Agency Standing Committee (IASC) Task Force on Fuel; and
4. to promote the institutionalization within the humanitarian system of accountability for developing and coordinating a fuel strategy in all new emergencies.

Although international standards requiring sufficient fuel provision have existed in various forms for more than a decade, the continual violence experienced by displaced women and girls who trek from their camps to collect firewood is a testament to the lack of coordination, enforcement and international progress on this issue. The Women's Commission's Fuel and Firewood Initiative is addressing this lack of international urgency, thereby reducing a needless threat to the safety and health of millions of displaced women and girls.

For more information on the Fuel and Firewood Initiative, please contact Erin Patrick at erinp@womenscommission.org . This article was made possible in part by the generous support of the American people through USAID. The contents are the responsibility of the Women's Commission and do not necessarily reflect the views of USAID.

Addressing the Problems Associated with Household Energy Provision in Refugee Settings: The Experience of the UNHCR

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Undoubtedly, the most pressing problems associated with household energy in refugee settings are related to the Gender Based Violence (GBV) commonly faced by women while gathering fuelwood, and to the negative health impacts associated with exposure to smoke from burning biomass indoors. The use of energy by refugees for cooking is an important issue to consider from several perspectives – not only environmental, but also social, economic and protection related. In recent years, the United Nations High Commission on Refugees (UNHCR) has accumulated considerable experience in the field of domestic energy provision by seeking the most effective means of reducing the social and environmental problems which are often associated with meeting domestic energy demands.

The primary energy source in most refugee communities is biomass – namely wood or charcoal, and the main technique of cooking is by using a three-stone fire, a highly inefficient method of cooking which produces high levels of polluting smoke. The constant demand for energy can lead to or exacerbate deforestation, which may become unsustainable and result in the permanent loss of biodiversity and desertification. As the UNHCR highlights, the impoverishment of surrounding natural resources has an adverse impact on the health of a refugee population which is already a vulnerable group (UNHCR, 1996, p5). For example, a shortage of fuelwood may lead to the risk of undercooking the food and the smoke and chemical emissions released while burning fuelwood increase the incidence of respiratory disease (UNHCR, 1996, p5). In Shimelba refugee camp, northern Ethiopia, refugees often sell part of their food rations on the local market in order to purchase fuelwood for cooking. Refugee women and girls are often forced to walk long distances to gather fuelwood –

Young girl cooking on a three-stone fire, Kebribeyah refugee camp, eastern Ethiopia

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an activity which puts them at risk of injury, attack and rape. Since the end of 2006, tension and conflict have intensified between the refugees at Shimelba camp and the local settled community due to scarcity of fuelwood.

Young woman gathering fuelwood outside Bonga refugee camp, western Ethiopia

The UNHCR recognises that energy supply tends to be the most serious environmental issue associated with refugee camps and that the harvesting of firewood by refugees is generally the most environmentally damaging activity in these communities (UNHCR, 2001, p 47). In addressing this problem, the UNHCR recommends the promotion of energy efficient cooking systems as a part of broader environmental programmes. The provision of fuelwood to refugee camps is costly, unsustainable and not recommended as a solution to the energy crisis facing most refugee communities. This was observed in Dadaab refugee camps, Kenya, in the late 1990s. In order to address the severe deforestation around the camp, as well as the gender-based violence faced by women fuelwood gatherers, a fuelwood ration was provided to the refugees at Dadaab by the UNHCR at the cost of $1.1-1.5 million per year. Even at this cost, the ration provided only 30% of household energy consumption and there was no clear link to any reduction in GBV (IASC, 2005, p 60).

Improved wood burning stoves have long been promoted by the UNHCR in refugee settings. These fuel efficient stoves can achieve efficiencies of up to 25%, reduce smoke emissions in the kitchen and can be produced locally. Mud stoves come in various shapes and sizes and the UNHCR encourages refugee innovation in their design. For example, to suit their cooking needs, refugees in Bangladesh built semi-submerged mud stoves with a fuel entrance underground and the pot resting at floor level (Owen, 2002, p 13). Sudanese refugees in Uganda built mud stoves as part of a broader home improvement package which also included re-surfacing their floors and building pot stands and seats from the same material. Households began to compete over the most imaginative mud stove design and most creative kitchen accessories (Owen, 2002, p 13). Although they do reduce fuelwood consumption to some degree, the use of mud stoves does not significantly reduce fuelwood harvesting by refugee women or remove dangerous biomass smoke from the kitchen.

Women making improved biomass stoves at a refugee camp in Bonga camp, Ethiopia.

Some alternative energy sources such as biogas from bio-latrines and solar energy have been tested in refugee settings with mixed results. In order to provide an alternative to gathered fuelwood for household cooking, the UNHCR supported the installation of biogas units in eastern Afghanistan between 1999 and 2001. The program was well received and by the end of the second year, biogas units had been installed in more than 60 households and firewood savings of 2.5 tonnes per household per annum were reported. The success of the program may be attributed to the fact that it was household-focused - each family paid 30% of the installation cost of their unit – which meant that the biogas units became their property and each household had a sense of ownership and responsibility for the technology (Owen, 2002, p 32). However, such programs were not met with the same success everywhere. Biogas from bio-latrines was found to be culturally unacceptable to certain refugee communities, particularly in east Africa, and somewhat impractical since refugees' diets are often not standard and rations not sufficient to produce the human waste required to ensure the feasibility of bio latrines.

Although solar cooking technologies have not been widely embraced in refugee settings, there are some examples of successful solar cooking projects. In the

Kenyan refugee camps of Dadaab and Kakuma, for example, more than 1,000 parabolic solar cookers have been disseminated and are now used on a daily basis by the beneficiaries. The UNHCR distributed the solar cooking kits to the refugee households and involved the users in their assembly, thus removing the suspicion of the new technology, and increasing the community's acceptance of the intervention.

One alternative energy source which has the potential to reduce environmental degradation and improve health in refugee communities is ethanol. It burns extremely cleanly with no smoke and very little soot. Ethanol can be used either as a gel fuel or a liquid fuel and appropriate stoves designed specifically to burn both are currently being pilot tested in several countries in Africa. An ethanol fuelled stove known as the "CleanCook" stove is currently in use in 800 households at Kebribeyah refugee camp, eastern Ethiopia and, to date has proven to be very successful. Significant reductions in IAP levels have been recorded and dependence on fuelwood as a cooking fuel has been reduced.

Refugee woman using ethanol fuelled CleanCook stove, Kebribeyah refugee camp, eastern Ethiopia.

Refugees often depend on gathered fuelwood as a means of income generation and, despite the introduction of an alternative cooking fuel, may continue to gather fuelwood for this purpose. This fact must be considered throughout the planning stages of any alternative cooking fuel program and it may be appropriate to include Income Generating Activities (IGAs) in household energy programs. The UNHCR is currently considering linking IGAs to the ethanol stove program currently being implemented at Kebribeyah refugee camp in Ethiopia as a means of supplementing the income of former women fuelwood gatherers.

The complexity of planning and implementing improved household energy programs in refugee settings is clear. Consideration must be given to cultural norms, protection issues (related to women and girls, in particular), cost and sustainability of the intervention and the socioeconomic landscape of each refugee community. Giving due consideration to each of these factors will increase the likelihood that the intervention will be successful.

For more information, contact Dr. Amare G/Egziabher, GEGZIABA@unhcr.org.

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Experiences with Solar Cooking: Kakuma Refugee Camp, Kenya

Margaret C.A. Owino – Director, Solar Cookers International (East Africa), sci@iconnect.co.ke

In 1995, at the advice from major players in the field, Solar Cookers International (SCI) came to Kakuma Refugee Camp, armed with a new innovation: the CooKit, the world's simplest, most affordable solar cooker. SCI's mission was to demonstrate the solar CooKit as a new way of cooking food and pasteurizing drinking water for the benefit of the refugees and the environment, using free, available and abundant clean energy from the sun.

Kakuma refugee camp is situated only a hundred kilometers from the border with Southern Sudan. It was funded as a camp for the "lost boys" of Sudan but soon grew to a large camp of more than 80,000 people from nearly nine nations. At the beginning, camp administrators ferried in lorry loads of firewood to distribute alongside the food given to refugees. Soon, however, the demand outgrew supply and the fuel distribution began to stagger. At times, there was nothing available whatsoever.

At such times, the refugees needed an alternative and they resorted to the following coping mechanisms:

- Foraging for fuel, with the danger of molestation,

beatings and even rape from the local population;

- Exchanging part of their food for charcoal or firewood with the local people leaving them with less food to eat; and
- Living in groups, pooling resources so as to cook only once for a number of people.

This is the scenario that SCI met when they arrived at the camp. Refugees were eager to try out a new type of cooking technology. After giving a few demonstrations using the food available, enthusiastic women were trained as trainers in the use of solar cookers. Through this dedicated group of trainers,

A happy user explaining her cooker to others

solar cooking spread among camp residents. In 8 years, SCI had assisted nearly 20,000 people in the camp and touched their lives positively in many different ways as noted by independent evaluators in 2003. The evaluators concluded that:

- Solar cooking is appropriate in the dry, sparsely vegetated, and mostly sunny Kakuma area.
- Households that cooked with solar made considerable savings on firewood and or charcoal compared to those that did not solar-cook. They also made substantial savings of their food, making it last longer. These families enhanced their food security as they did not barter food for fuel, neither did they go hungry for lack of fuel or food to cook.
- Solar cooking devices, and in particular the CooKit, had taken the place of wood fires as important cooking options for refugees at the Kakuma refugee camp. The devices were acknowledged and highly used by the more vulnerable members of the camp.
- When used to pasteurize drinking water during water shortages, solar cookers enhanced household health by reducing incidences of waterborne diseases.
- Solar cooking is slow cooking and this enhances the taste and quality of the meals as the nutrients are not destroyed during cooking,
- Those who had adopted solar cooking had acquired a new attitude to preserving the environment.
- Respondents recognized that solar CooKits filled a critical gap by enabling cooking to go on, thus sustaining lives.
- Solar cooking contributed to changed lifestyles for the better as women had more time to spend in other gainful engagements such as literacy classes and social work, rather than walking long distances regularly in search of firewood.
- Solar cooking contributed to positive changes like breaking stereotype cultures of men not cooking; many respondents were unaccompanied young men who felt very comfortable with solar cooking.
- Solar cooking enhanced household safety, less risks to accidental fires, women not traveling long distances and risking molestations, snake bites and pricks from poisonous thorns.

SCI has confronted a few constraints of the CooKit, including questions of durability of the cooker and occasional theft of food and equipment by local host populations. SCI innovated a method for applying wax to the exterior of the cooker to protect against damp conditions, together with a cloth binding on the edges to seal the cardboard with the reflector to yield a more durable product. To address the theft problem, refugee users grouped together their CooKits in a central place where someone could keep watch over them. SCI has shared reports of the positive impacts of the CooKit in Kakuma with UNHCR, with the hope that the agency would continue supplying CooKits to refugees.

In conclusion, solar cooking has a place in refugee settings, especially when we consider that under normal circumstances, they are usually situated in dry, unproductive areas with minimal natural resources. Camp shelters are often close together and open fires could raze a whole settlement. Further, the cost of running the camps could be reduced significantly if they gave out solar cookers to every household accompanied with training on usage and maintenance.

New initiatives are now on in Darfur region and the easiest solar cooker to use and provide en-mass is the solar CooKit! For more information, please contact **sci@iconnect.co.ke**.

Reference:
Evaluation of Solar Cooking Project, Kakuma Refugee Camp. By CIR and ESDA – Dec- 2003.

Ethanol Stoves as a Humanitarian Tool: The Gaia Association's *Clean Energy-Safe Energy* Program, Kebribeyah Refugee Camp in Eastern Ethiopia

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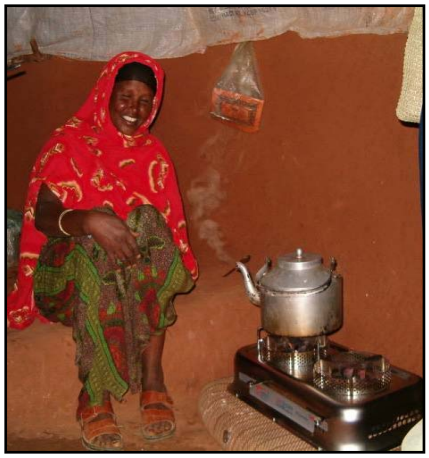
In June, 2005 Project Gaia Ethiopia, a research project funded by the Shell Foundation, launched the pilot testing of 150 ethanol-burning CleanCook (CC) stoves in 150 homes in Kebribeyah refugee camp in the Somali Regional State, eastern Ethiopia. The results of the study were extremely encouraging, with the CC stove displacing fuelwood use in homes by up to 100% in most cases. Indoor air quality and, consequently, household health was improved with the introduction of the new cooking technology, and women were relieved from the task of fuelwood gathering.

Based on the success of the pilot study, the Gaia Association, a registered Ethiopian NGO, was formed to work as an implementing partner to the United Nations High Commissioner for Refugees Regional Liaison Office (UNHCR RLO) in Ethiopia, with the objective of fully supplying Kebribeyah refugee camp with CC stoves and ethanol. This scale up is partially financed by the UNHCR, and partially by donor funding sought by the Gaia Association. On January, 1, 2006, a Sub-Project Agreement was signed between the Gaia Association and the UNHCR-RLO to promote ethanol-fuelled CleanCook stoves as an alternative cooking option to refugee households at Kebribeyah refugee camp. As of December, 2006, the Gaia Association had placed approximately 800 CC stoves in households at the camp. Ethanol is supplied regularly (every 10 days) to each of the participating families.

"I no longer gather fuelwood since I received the CC Stove. When I gathered wood, I was very tired. I had to walk very far. I left in the morning and returned at 3 pm. I gathered wood for 5-6 hours. With the wood stove, I had eye irritation. Now I can sit close to the CC Stove without problems,"

Hali Sheikh Abdulahi
Kebribeyah camp



Kebrebeyah Refugee Camp, established in 1991, holds approximately 17,000 Somali refugees representing various clans. The population of the camp continues to rise steadily due to the recent conflict between Ethiopia and Somalia. Upon arrival at the camp, refugees typically receive a basic ration kit containing food and some basic materials. This kit does not include cooking fuel, so refugees are forced to rely solely on fuelwood gathered from the areas surrounding the camp for their cooking needs.

Basic ration kit. It is the hope of the Gaia Association and the UNHCR that the CleanCook stove will eventually become part of the kit distributed to new arrivals at Kebribeyah refugee camp.

Prolonged exposure to indoor air pollution (IAP) from burning fuelwood indoors has a detrimental impact of the health of refugee women and children. Addressing the problems associated with fuelwood gathering is paramount to improving the lives of refugees in the UNHCR Kebrebeyah Camp.

The introduction of the CleanCook technology has displaced the use of fuelwood for cooking among participating households, a change which has brought far reaching benefits to these families. Prior to receiving the stoves, the average household in Kebribeyah used approximately 2012kg of fire wood for cooking and 1677kg for baking in a year. Currently, 780 households at the camp are using the ethanol-fuelled stove for their cooking and baking needs. Collectively, the CC stoves are saving approximately 2878 tons of firewood per year at the camp.

Since ethanol burns cleanly with no smoke, the introduction of the CC stove and ethanol has

removed the smoke from the cooking shelters associated with refugee households, and has thus improved the health of those who spend the most time in the kitchen—namely, women and children. Careful monitoring of the indoor air quality in refugees' homes was carried out in a sample of homes both before and after the introduction of the CC stoves and ethanol. Results show that the CC stove significantly reduced the levels of CO and PM to within the recommended WHO standards.

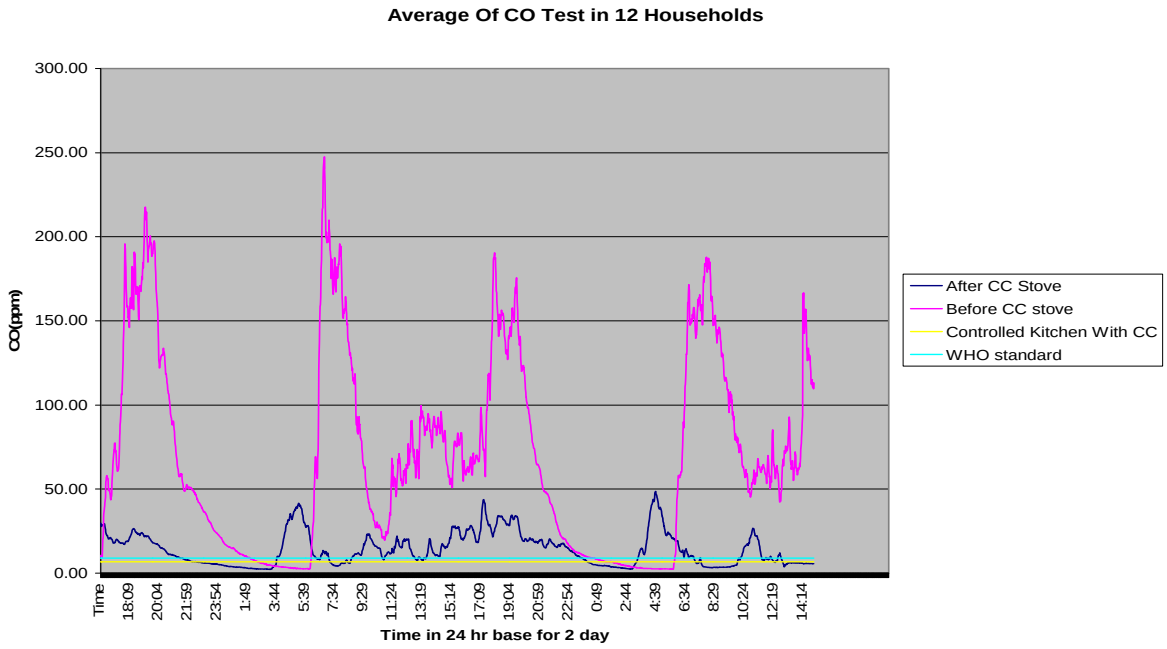
Women using the CC stove and ethanol no longer need to gather fuelwood, a risky activity involving leaving the camp and walking for up to 8 hours over rough terrain to gather fuelwood, with the return trip under a heavy burden. This work isolates the women and leaves them vulnerable to injury, assault and rape. Young girls are expected to assist with this work, and as a result, are often forced to drop out of school. Women and girls using the CC stove report that they feel safer now that they are no longer forced to make the dangerous journey out of camp.

The significant time saved by not having to gather fuelwood is used by many of the women for other, more productive activities such as childcare, education and in some cases income generation.

Plans are in place to continue the close collaboration with the UNHCR-RLO in 2007 in order to continue and to accelerate scale-up of stoves at the camp. Request for support to enlarge the fuel depot at the camp and purchase a tanker truck to bring ethanol efficiently to the camp has been submitted to the World Bank Country Office.

UNHCR and Gaia Association hope to add a tree planting program to the stove intervention in 2007. Recipients of the stove and fuel will be asked to "pay back" the value of the stove and fuel by providing labor for planting trees in a managed program overseen by a forester. Gaia Association will also evaluate the feasibility of starting or collaborating in a handicraft program that would allow women to use time freed up from the elimination of the need to

Profile of CO Gains Achieved in Homes in the Kebribeyah Refugee Camp



BEFORE: This line represents the averaged levels of CO measured with wood as the primary cooking fuel and charcoal as the secondary fuel. This is the baseline.

AFTER: This line represents the averaged results of the substitution of the CleanCook stove for the traditional wood and charcoal stoves. Kerosene lamps and fuelwood remain in use in the homes for lighting. This represents the post-intervention result.

WITH CC: This represents the CO level achieved in a controlled kitchen test with the CleanCook stove, with confounders reduced or eliminated.

WHO: The green line represents the WHO/USEPA ambient standard for recommended not-to-exceed CO exposure for an 8-hour period. This is 9 ppm.

collect firewood for handicraft work for income generation.

The long-term objective is to fully supply Kebribeyah camp (3,000+ families) with CC stoves and ethanol fuel in the coming two years. The Gaia Association will continue to seek assistance to support this work at Kebribeyah and will measure its success by the number of stoves in households, the number of women freed from the burden of gathering fuelwood and the number of individuals, particularly women and children, relieved of the daily and prolonged exposure to fuelwood smoke.

For more information, please contact Firehiwot Mengesha (firehiwotmengesha@gmail.com) or Fiona Lambe (fionalambe@gmail.com)

☼ HAPPENINGS

Recent Partner Activity...

ETHOS 2007

This year's conference of the Engineers in Technical and Humanitarian Opportunities of Service (ETHOS) in Kirkland, Washington, was even more inspiring than the last, with significant increases in implementation and monitoring results presented, and great advances in clean-burning stoves, mass-production methods, and private sector investment. Over 120 people participated January 26-28, bringing the latest developments and experiences with improved fuels and stoves from around the world. The program included presentations and discussion on sustainability and scale-up, technology performance, recent results and insights on IAP and other impact monitoring and evaluation, and awareness building and education. Forthcoming publications were also previewed.

Technology highlights included demonstrations of a number of exceptionally clean-burning stoves, including the new Philips fan stove, alcohol stoves by Project Gaia and the Anderson family, and a selection of Anderson gasifier stoves and the Reed Woodgas stove. Additional stoves displayed included Crispin Pemberton-Pigott's charcoal-burning Maputo Clay Stove, Solar Household Energy's HotPot cooker, and the UCODEA Rocket-based wood stove, carried from Uganda. In addition to the core program, a discussion was held on the possibility of establishing an ETHOS technical committee on standards and methods. Presentations will be available on the ETHOS site: http://www.vrac.iastate.edu/ethos/conference.php. A succinct summary of highlights prepared by Tom Miles is available at www.bioenergylists.org

Intergovernmental Preparatory Meeting for CSD-15

Energy for sustainable development is the main theme of CSD-14 (review session) and CSD-15 (policy session). The Intergovernmental Preparatory Meeting (IPM) took place in February at a technical level, deciding on policy recommendations for negotiations during CSD-15.

WHO, GTZ, Practical Action, the US Environmental Protection Agency and the Partnership for Clean Indoor Air held a side-event, "Healthy and affordable household energy - let's scale up what works!" on February 27 at the German House in New York. The side-event was attended by approximately 40 participants almost all of whom engaged in the subsequent discussions.

During the plenary session on air pollution/ atmosphere several countries, including Pakistan (speaking on behalf of the G77 and China), the United States, Norway, Canada, Germany (speaking on behalf of the European Union), Cape Verde, Iran, Zimbabwe, India and South Africa referred to the health risks associated with indoor air pollution and the need to promote fuel switching and improved cookstoves. WHO, the Women's Major Group, the NGO Major Group and the Business and Industry Major Group included at least one and, in some cases, both of the key messages from the joint position statement on household energy, indoor air pollution and health for CSD-15 (http://www.who.int/indoorair/policy/hhhcsd15/en/index.html)

The main output of the IPM, the Chairman's draft negotiating document on policy options and possible action to expedite implementation, contains several encouraging recommendations relating to indoor air pollution and health, in particular:

- "Integrate reduction of indoor air pollution into national sustainable development plans, poverty reduction strategy papers and other national development plans, emphasizing access of women and the poor to clean cooking and heating technologies.
- Accelerate the switch from traditional biomass to cleaner fuels, including LPG for cooking and heating, and support efforts to disseminate improved cookstoves. (...)

- Improve knowledge on health effects and sources of indoor air pollution, and provide financial resources to prevent adverse health impacts due to indoor air pollution in developing countries. (...)"

The full draft and further information on the IPM is available at http://www.un.org/esa/sustdev/csd/policy.htm.

Bolivia launches national campaign for clean cooking energy

The Bolivian Minister of Public Works and the German and Dutch chancelleries launched a US$7.5 million campaign, "Cocinas para una vida mejor" (Stoves for a better life), which aims for 100,000 households in Bolivia to cook smoke-free within the next three years. More than half of Bolivia's 9.5 million people live in rural areas, 75% of whom rely on wood for cooking, typically in inefficient ways with serious health and environmental consequences. Different technologies such as Rocket stoves, improved Lorena stoves, solar cookers and gas stoves will be promoted to reach a wide range of households.

The national campaign was launched at an international seminar for household energy held in the first week of March in La Paz, Bolivia, attended by about 140 technical experts, implementing agencies and representatives of different NGOs . The campaign will be implemented in cooperation with the German Technical Cooperation (GTZ), within "Access to Energy Sercives", a component under the Agricultural Development Programme PROAGRO, and co-financed by the Dutch Government. To deepen the commitment of all stakeholders, a network will be established to exchange information and experiences on energy for cooking.

The project is pleased to receive the **National Energy Globe Award** (www.energyglobe.info) for Bolivia for its work, to be presented in Brussels on April 11, 2007. For further information please contact: Bernhard.Zymla@gtz.de or Hera@gtz.de.

3rd Biennial Partnership for Clean Indoor Air Forum

Over 100 participants from 26 countries gathered in Bangalore, India, from March 20-23 to report on extraordinary results, celebrate breakthrough achievements, and commit to attaining bold future goals to advance to the next stage of reducing indoor air pollution from cooking and heating practices for 3 billion people in developing countries. The Forum was dynamic and inspirational, as participants gained a view of the collective impacts being achieved by PCIA partners, and the substantial future impacts to which the group committed over the next few years. Dr. Prem Pais, Dean of St. John's Medical College, Mr. John Beale, Deputy Assistant Administrator of the U.S. EPA, and Mr. Kurt Hoffman, Director of the Shell Foundation, challenged participants to "think BIG", which they did. The Forum presentations, video clips and other outcomes will be posted on www.pciaonline.org in April, and a subsequent issue of this Bulletin will be dedicated to the Forum.

Upcoming Events...

Asia Regional Workshop on Solar Cooking and Food Processing

April 16-17, 2007, Kathmandu, Nepal

The main objective of this workshop is to promote solar cooking and food processing in Asia and share best practices from the international, regional and national communities. The workshop will provide a forum for sharing experiences and expertise on various solar cooking and food processing technologies among the participants, experts and business enterprises. There will be paper presentation on various themes as well as exhibition of solar cookers and dryers from this region. The Workshop is being jointly organized by the Centre for Rural Technology, Nepal (CRT/N), Alternative Energy Promotion Centre (AEPC), Foundation for Sustainable Technologies (FoST), and International Solar Cookers Association (ISCA). For more information, contact Workshop Secretariat at asiarwscfp@crtnepal.org; +977-1-4260165, +977-1-4256819.

Commission on Sustainable Development - 15

30 April - 11 May, 2007, New York, USA

The 15th session of the CSD will be held at UN Headquarters in New York. This is the policy year of the second implementation cycle during which the Commission will continue its focus on the following areas: Energy for Sustainable Development; Industrial Development; Air pollution/Atmosphere; and Climate Change. CSD-15 is preceded by an Intergovernmental Preparatory Meeting (IPM) which took place in New York in February. See page 10 for key outcomes of the IPM.

Global Health Council 2007 Conference

May 29th-June 1st, Washington, DC

This year's theme is Partnerships Working Together for Global Health. For more information, visit http://www.globalhealth.org/conference/.

Central America Regional Bioenergy Conference

June (dates TBD), Managua, Nicaragua

Nicaragua's National Energy Commission (CNE) is collaborating with ETHOS to host a 3-day conference to address management of bioenergy resources around Central America, including the development and dissemination of improved woodstoves to address health, economic and environmental impacts associated with inefficient, unhealthy and unsustainable fuelwood consumption for cooking. Participants will include government and non-government entities, private enterprises and academia, and will address both technological as well as policy-based issues critical to the region. An optional field tour will take place following the formal conference agenda.

For more information, contact dendroenergia@cne.gob.ni.

☼ WHAT'S NEW?

...in Resources

Where Energy is Women's Business: National and Regional Reports from Africa, Asia, Latin America and the Pacific

This publication, edited by Gail Karlsson, is a compilation of regional reports and national gender and energy papers, commissioned by ENERGIA in preparation for discussions on access to energy at CSD 14 & 15. By presenting this publication at CSD 15, ENERGIA has provided an opportunity for representatives of different countries to present their views on gender and energy concerns and their recommendations for country-level energy policies and international action. For more information and to download the reports, visit http://www.energia.org/csd_book.html.

Tobacco Smoke, Indoor Air Pollution and Tuberculosis: A Systematic Review and Meta-Analysis, Lin HH, Ezzati M, Murray M

Tobacco smoking, passive smoking, and indoor air pollution from biomass fuels have been implicated as risk factors for tuberculosis (TB) infection, disease, and death. Tobacco smoking and indoor air pollution are persistent or growing exposures in regions where TB poses a major health risk. This study undertakes a systematic review and meta-analysis to quantitatively assess the association between these exposures and the risk of infection, disease, and death from TB.

CONCLUSIONS: There is consistent evidence that tobacco smoking is associated with an increased risk of TB. The finding that passive smoking and biomass fuel combustion also increase TB risk should be substantiated with larger studies in future. TB control programs might benefit from a focus on interventions aimed at reducing tobacco and indoor air pollution exposures, especially among those at high risk for exposure to TB.

Full-text: http://www.pubmedcentral.nih.gov/articlerender.fcgi?tool=pubmed&pubmedid=17227135
PLoS Med. 2007 Jan 16;4(1):e20

Social perceptions about a technological innovation for fuelwood cooking: Case study in rural Mexico, Karin Troncoso, Alicia Castillo, Omar Masera and Leticia Merino, Universidad Nacional Autónoma de México

The widespread use of traditional biomass fuels in open fires in developing countries brings about serious health effects, besides high fuelwood consumption. Improved cookstoves reduce fuel consumption and address the health effects of indoor air pollution. Implementation projects have been conducted worldwide, but have frequently faced very low success rates. Different demographic and socio-economic factors have been analyzed to explain low rates but there are almost no studies that try to understand, from the users' perspective, the factors involved when choosing among different cooking technologies.

Through a qualitative methodological approach we documented the adoption of improved cookstoves through the implementation program of a Mexican NGO. Results showed that although the program raised public awareness, the improved cookstoves did not reach the poorest sector. The socioeconomic level was found positively correlated with the adoption of the improved cookstoves, but neither the age nor the educational levels were. Payment of the stove did not seem to be an adoption factor. Differences among individual users were more significant than differences between communities. Finally, as men are the principal fuelwood harvesters, they should be considered as an important group in diffusion programs.

Energy Policy, Available online 30 January 2007

Economic evaluation of the improved household cooking stove dissemination programme in Uganda

Investments in efficient cooking technologies pay off. This is the result of a cost-benefit analysis carried out in Uganda, where GTZ's Energy Advisory Project is implementing an improved stove programme. Within the last two years 190,000 households have been reached with efficient stoves by the project. "The impact is tremendous: the investment of 1 Euro yields a return of 25 Euro considering all economic benefits over a period of ten years and at a discount rate of 10%" reports Marlis Kees from GTZ's household energy programme HERA.

The study quantified the benefits for the households as well as the benefits derived from national and global impacts caused by the use of the stoves. 200,000 stoves are in use so far. The economic benefits are as follows: At the household level, avoided costs due to firewood savings of about 220,000 tonnes per year amount to 5.4 million Euros, thanks to the use of the efficient and clean stoves. Fewer diseases and accidents lead to a benefit of 630,000 Euros annually for the households which used an improved stove. Furthermore, 141,000 Euros are saved by the public health per year. The annual amount of 220,000 tonnes of firewood saved valued at afforestation costs was 7.8 million Euros. Avoided CO_2 and CH_4 emissions amount 1.7 million Euros at a CER price of 5 Euros per tonne.

The analysis, conducted by economist Helga Habermehl, is available at http://www.gtz.de/en/themen/umwelt-infrastruktur/energie/13652.htm. See also http://www.gtz.de/hera. For further information please contact hera@gtz.de.

FACT BOX The following matrix was developed by the Women's Commission for Refugee Women and Children as part of the *Beyond Firewood* report referenced in the article on page 2. In addition to the various considerations that often influence fuel and technology choices, such as cost, clean cooking, and relative availability, additional considerations need to be factored in to fuel and technology choices for refugee, IDP and other humanitarian aid contexts, in particular the prevalence of gender-based violence (GBV) and the costs and logistics of direct provision of fuel in large quantities.

Source: Beyond Firewood: Fuel Alternatives and Protection Strategies for Displaced Women and Girls, available at http://www.womenscommission.org/reports/studies.php

Factors Affecting Choice of Fuels

	Cost	Environment	Transportation infrastructure	Cooperation of government/ local community	Physical security	Prevalence of GBV outside camps	Land availability/ space constraints	Availability of std. local fuel	Availability of alternative fuel	Weather
Physical protection					*	*				
Direct provision	*		*							
Fuel efficiency		*			*	*				
Firewood		*								
Briquettes		*								
Kerosene	*		*							
Biogas				*			*			
Solar-parabolic							*	*	*	*
Solar panel								*	*	*

Your comments are welcome!

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