PARTNERSHIP FOR CLEAN INDOOR AIR

August 2005 Issue 4

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 105 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!*

USEPA Addresses Partnership Needs in Four Priority Areas

As you'll see when you read through the Bulletin, there has been quite a lot happening with the Partnership for Clean Indoor Air during the last quarter -- regional capacity building workshops, new technical publications, and advocacy events to raise the awareness of indoor air pollution from household energy use.

One important highlight, Mr. Arno Tomowski, Environmental Director of GTZ (the German AID Agency) presented the Partnership for Clean Indoor Air at the fifth Global Forum on Sustainable Energy (GFSE) in Vienna. Mr. Tomowski's presentation represents another milestone in Partnership activities, with leading Partners, in this case GTZ, taking a highly visible leadership role and representing the Partnership at an important international conference.

The USEPA's activities remain focused on four key areas: raising public awareness, developing local markets, improving technology design and performance, and monitoring indoor air pollution. Some recent efforts include:

- The USEPA recently awarded a contract to Aprovecho Research Center to conduct fuel efficiency and emissions testing, training and technical assistance to the PCIA. In collaboration with local Partners, we will be conducting regional and country trainings that include both presentation on such things as stove design theory, improving heat transfer and combustion efficiency, and material selection; and hands-on experience conducting relevant stove tests (e.g., Water Boiling, Controlled Cooking) on indigenous and improved stoves.

- USEPA awarded a PCIA pilot project grant to NEDWA, an NGO in Mauritania, bringing the total number of US Government-funded grants to ten. Descriptions of the projects are posted on the PCIA website at www.pciaonline.org.

Looking ahead to coming months, the USEPA will be initiating the following activities to support the Partnership for Clean Indoor Air:

- Support 13 researchers from less developed countries to present two sessions on indoor air pollution from household energy use at Indoor Air 2005 September 4-9 in Beijing. The purpose of the two sessions is to educate the international scientific community about the environmental health implications of burning traditional biomass fuels and coal and raise the profile of indoor air pollution research by indoor air scientists from developing countries affected by this serious public health issue. *Continued on page 12...*

In This Issue

PARTNER SPOTLIGHT

Shell Foundation's Breathing Space Program: In 2003, the Shell Foundation launched Breathing Space, a multinational program looking for financially viable and replicable solutions to Indoor Air Pollution (IAP). With a budget of $10 million, a dedicated program manager and a growing number of NGO and business partners around the world, the Shell Foundation set a target of removing IAP risks for up to 10 million people between 2003-2008. *Marc Lopatin, marc.lopatin@shell.com*

To date, Breathing Space has piloted a number of responses to IAP that are moving up to 200,000 poor households out of risk. Affordable solutions are central to that approach given that two billion poor people are at risk from IAP.

While achievements will always be modest in the context of those at risk, the rationale is that only successful, market-oriented solutions, such as affordable improved cook stoves, can be scaled up to tackle the problem globally.

Another distinguishing feature of Breathing Space is that it approaches at-risk households from a consumer perspective, deploying a set of problem solving skills routinely used by enterprises – of all sizes – to develop, manufacture, supply and market a product. Breathing Space has approached preventing IAP with a similar mindset to determine what poor communities the world-over are willing to buy and how much they are willing to pay.

Traditionally, business principles have not been applied to the task of tackling IAP. All too often IAP solutions have been technology driven or foisted upon the poor through highly subsidized government programs with little or no choice of cook stove. Issues of choice, affordability and acceptability have often been relegated below the primary goal of removing smoke.

Interestingly, rural women typically play down the health hazard and complain of red eyes, dirty kitchens and the time spent collecting wood. Shell Foundation pilot interventions in India are allowing us to ascertain which kind of interventions might be scalable at the regional and national level.

Later this year, Breathing Space will enter a scale-up phase for successful implementation of its pilot programs. The approach has been summarized in a commercialization toolkit designed to provide a framework for the development of demand driven, financially viable models for delivering improved household energy solutions. It is hoped the toolkit will leverage and compliment existing share programs and the systematic monitoring of the health and social impacts of interventions already introduced.

The toolkit was compiled in India by Accenture Development Partnerships - a charitable organization that brings business, technology and management skills to the developing world. It is hoped the toolkit will help others better understand the IAP market and its size; understand consumer behavior; decide who produces and provides products and services and how they are distributed; and identify potential sources of local financing for businesses.

Commenting on the toolkit, Karen Westley, Shell Foundation program manager, said: "It's part of our overall aim of infusing development thinking with 'business DNA' to ensure solutions are both financially sustainable and scalable. In terms of IAP, our ultimate goal is to export the final methodology to other parts of India as well as Asia and Africa, where IAP remains a major health hazard."

For more information about the Breathing Space toolkit contact Sharna Jarvis at: s.jarvis@shell.com

AFRICA

Kenya: Improving domestic health and living conditions.

About 80% of Kenya's population, mostly in the rural areas, depends on biomass for domestic energy needs. But over the next five years, households in Kenya will benefit from cleaner domestic energy technologies supplied and installed through Breathing Space. The pilot will seek to create an innovative and commercially viable model for provision of finance by banks and microfinance institutions to small energy enterprises and household consumers in Kenya.

Partner: IT Power

Ghana: Promoting clean energy for household cooking.

This Shell Foundation partner is establishing sustainable, commercially-based, production and distribution systems for cleaner burning, more efficient stoves. Both small-scale and mass-producing medium-scale enterprises are being trained to manufacture a range of clean burning stoves and have sold over 20,000 stoves to date. Small-scale manufacturers make low-cost improved charcoal stoves

from recycled materials aimed at sales through market stalls and roadside kiosks.
Partner: Enterprise Works

Ethiopia (1): Marketing support for fuel saving stoves.
Launched in 2004, the programs aims to increase customer access to an improved biomass stove in the Ethiopian state of Tigray in the north of the country. The programs aims to decentralize production of the stoves and accelerate take-up of the stove through a multi-level marketing campaign and the introduction of a subsidy targeting 50,000 end-users.
Partner: GTZ

Ethiopia (2): New stove and fuel system trials.
This program is testing the market for a new stove and fuel combination in Ethiopia. Beginning in January of 2004 with the association of two manufacturing companies, the two partners are piloting the introduction of 850 newly designed and manufactured alcohol stoves of Swedish origin. The stove is powered by ethanol fuel which is being supplied by one of four state-owned sugar companies.
Partner: Dometic AB

ASIA
India (1): Improved biomass stoves in Maharashtra State.
In 2002 the Shell Foundation initiated a pilot program promoting over 100 local micro-enterprises to manufacture and sell improved biomass fuels and cooking devices in the Indian state of Maharashtra. This created a workable model for identifying and commercializing biomass energy technologies. A trained network of entrepreneurs and NGOs will ensure the availability and affordability of these stoves. By the end of 2005 it is hoped over 100 entrepreneurs will be reaching over 100,000 households. And within five years, it is estimated a further 200 entrepreneurs will reach around one million households.
Partner: Appropriate Rural Technology Institute (ARTI)

Stove construction in Maharashtra, India
Photo Credit: Shell Foundation

India (2): Meeting the energy needs of the poor in the Bundelkhand region.
In 2002, the Shell Foundation began a pilot program to address concerns over the health of women and children relating to inefficient, unreliable and polluting energy used in rural households. The primary aim of the project was to design a scalable model that serviced the energy needs of rural households. To scale-up the pilot, a second phase was launched in early 2005 with a target market of around two million households in central India.
Partner: Development Alternatives

LATIN AMERICA
Mexico: Village-level supply chain testing.
The pilot is endeavoring to deliver a fully integrated model for improving the living conditions and sustainability of energy use in rural households and micro-enterprises. Central to this is the dissemination of 1500 clean and efficient cook stoves for household and micro-enterprise use. In addition, extensive health monitoring is being conducted in collaboration with government partners to support a wider scale-up strategy.
Partner: GIRA

Guatemala: Meeting the needs of indigenous women.
In 2002 the Shell Foundation initiated a program to produce a module for stove production and distribution. The model is intended to be delivered either as a commercially viable business or by an NGO as a subsidized program. In the first instance, the cooking techniques of the indigenous women of Guatemala were studied alongside the requirements of mass production and distribution of the improved stove. Many thousands have since been sold with orders for more. Future scale-up plans include distribution in Honduras, Mexico, El Salvador and Nicaragua.
Partner: HELPS International

Brazil: Tapping the potential of ethanol as a household fuel.
Still in its planning stages, this program seeks to pioneer a new stove in Brazil using ethanol. A collection of partners aim to manage a pilot study of 100 ethanol stoves in Jequintinhonha, a very poor area of Brazil where fuel wood is the most common source of cooking fuel.
Partner: Dometic AB

☼ FEATURE ARTICLE

Indoor Smoke from Solid Fuels and the Healthy Housing Initiative

Dr. Marcelo Korc, korcm@ven.ops-oms.org

Health is a fundamental human right that consists of "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". For several years, the household setting has been acknowledged as one of the main social determinants of human health. In particular, high levels of indoor air pollution arising from the burning of solid fuels for cooking or heating probably presents the most serious health impact from air pollution in developing countries[1]. Almost half of the world's population and up to 90% of poor households in developing countries depend on solid fuels, such as firewood, dung, and crop residues that are burnt indoors, in open fires, or inefficient stoves. Indoor air pollutants other than those associated with fuel combustion are also of concern. Low-income populations are exposed to environmental tobacco smoke, harmful consumer products, fungi, molds, house dust, and animal dander. Poverty, culture, poor hygiene habits, and poor housing conditions exacerbate this situation. The high levels of indoor air pollution in housing affect women and children particularly because of the amount of time they spend inside their homes[2].

Acute respiratory infections (ARIs) are one of the main causes of death among children under-five in Latin America and the Caribbean (LAC). Estimates suggest that approximately 60% of the global ARI burden of disease is associated with indoor air pollution (IAP) and other environmental factors[1]. IAP has been identified as a major contributor of the global ARI burden of disease in Andean and Central American countries in particular[3]. In addition, women are at increased risk of contracting chronic obstructive pulmonary disease (COPD), lung cancer, and other afflictions associated with indoor air pollution.

During the next generation, the global urban population will double from 2.5 billion to 5 billion people, primarily in developing countries. The increasing concentration of population and economic activity in large cities in developing countries tends to increase poverty and squatter settlements. In LAC, approximately 30 million people are homeless, 21 million housing units are precarious, and 17 million new units are needed to cover the current deficit[4]. In general, housing in rural settlements and slums lacks access to sanitation and has deficient ventilation systems. These populations resort to using solid fuels extensively for cooking and heating.

The reduction of child mortality and the improvement of poor housing conditions are so important for sustainable development that the United Nations Millennium Declaration, adopted by 189 Member States in September 2000, included the following Millennium Development Goals (MDGs): *By the year 2015, to have reduced ....under-five child mortality by two thirds of the current rates. By 2020, to have achieved a significant improvement in the lives of at least 100 million slum dwellers, as proposed in the "Cities without slums" initiative.*

Many efforts have been made to overcome the indoor air quality problem resulting from solid fuel use in poor housing, including through the promotion of fuel-efficient and environmentally-sound stoves[5] and the promotion of alternative energy sources, as biogas and solar energy[6]. However, these efforts have rarely proven sustainable and have been limited in scope. To protect the most vulnerable populations from health hazards in the housing environment and in particular from indoor air pollution in housing resulting from the use of solid fuels for cooking or heating, it is crucial that institutions tackle the problem using an approach that integrates economic, technical, and housing design factors, disease prevention, environmental sustainability, and cultural requirements.

Vision: healthy housing for all

Healthy housing is the setting that promotes the health of its residents. This setting includes the dwelling (the physical shelter), the home (the group of individuals that live in the same physical shelter), the immediate outdoor environment (the physical environment immediately outside the dwelling), and the community (the group of individuals identified as neighbors). In particular, healthy housing has the following fundamental conditions: Secure tenure; Safe location, adequate structure, and sufficient spaces; Access to safe water, basic sanitation, adequate solid waste disposal, adequate drainage, and cleaner energy; Safe and efficient furnishings and consumer goods; Adequate immediate outdoor environment that promotes communication and collaboration; and Healthy behavior. To improve IAP in housing in a sustainable and efficient manner, all the above conditions should be met.

The Healthy Housing Initiative

The Healthy Housing Initiative (HHI) aims to strengthen the implementation of activities that promote and protect the health of the most vulnerable populations from hazards in the housing environment in the most needed areas of *(See page 11)*

☼ HAPPENINGS

Upcoming Events...

Indoor Air 2005
September, China

The 10th International Conference on Indoor Air Quality and Climate will bring together people representing a wide range of disciplines, who are all working to understand and improve indoor air quality and climate. The Conference will be comprised of plenary sessions, oral presentations, poster sessions, forums and exhibitions. Main topics covered will include: indoor environment, pollutants and pollution sources, pollutant distribution, contaminant control and health effects. For information on the Conference and further details on paper submission please visit http://www.indoorair2005.org.cn

Healthy Housing Regional Symposium
September, Peru

The Inter-American Healthy Housing Network's Regional Symposium on Healthy Housing will take place September 3-7th 2005 in Lima, Peru. The PAHO-led Healthy Housing Initiative (see Feature Article for more information) is increasingly incorporating IAP components into healthy housing activities, and for the first time the Network's regional symposium will incorporate a full-day pre-conference session on IAP, which will be led by Winrock, with contributions from partners in Peru. During the symposium, the HHN will craft a new workplan for 2006-7, and PAHO will be advocating that IAP become a priority area for the HHI. For more information, contact hsilva@per.ops-oms.org.

EEH 2005: First International Conference on Environmental Exposure and Health
October, USA

The Conference will be held October 5-7, 2005 in Atlanta, Georgia, and will bring together health specialists, scientists and engineers in order to evaluate current issues in environmental exposure and health and chart future directions and needs in the field. The purpose of this conference is to provide a forum for communication among scientists and engineers to achieve a better understanding of the problem, define a common ground and find a common language. Relevant themes include exposure specific to the developing world and exposure and epidemiology for child populations. For more information please visit http://www.ce.gatech.edu/research/MESL/EEH2005/

Training on: Poverty Alleviation: Integrating the Gender and Energy Perspective
October 10-14, Netherlands

The course is intended for embassies, donor agencies, multilateral institutions and NGOs who are interested to develop or adjust development policies, programs and projects from a energy-poverty-gender perspective. This five-day course will employ a participatory approach and aims to increase the participants' interest in addressing energy and gender issues in poverty alleviation efforts, to broaden the participants' knowledge and insight into the linkage between energy, poverty and gender and to increase their skills in making poverty reduction policies, programs and projects more energy and gender oriented. For more information visit http://www.mdf.nl/en/training_course_details.php?country_id=nl&&region_id=01&&course_id=PAGEP

14th European Conference and Exhibition on Biomass for Energy
October, France

The 14th European Conference and Technology Exhibition on Biomass for Energy, Industry and Climate Protection will take place in Paris October 17-21, 2005. This event will provide a forum for the presentation of the latest global strategies, technologies, projects and efficient practices for energy and environment. It will also give scientists, policy makers, and practitioners an opportunity to exchange information on the use of biomass for energy, industry and climate protection. Relevant themes in the Conference include biomass and greenhouse gas emissions, sustainable biomass use for poverty alleviation and rural development among others. For more information please visit http://www.conference-biomass.com/Biomass2005/conference_Welcome.asp

Recent Partner Activity...

AFRICA

WHO Uganda Workshop

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The second WHO regional training workshop on indoor air pollution and household energy monitoring was held in Kampala, Uganda June 13-17, 2005. The workshop was opened by the Ugandan Ministry of Health, the German and United States Ambassadors to Uganda and the WHO country representative. Subsequently, journalists had the opportunity to question the organizers - WHO, USEPA, German Technical Cooperation (GTZ), the Center for Entre-

preneurship in International Health and Development (CEIHD) and Aprovecho Research Center - about the state of household energy in Africa and available solutions.

Workshop Participants

There was excellent radio coverage, and stories about the workshop appeared in the local papers. In fact, one enterprising reporter from a leading daily was so interested in the topic, she joined the workshop participants during the field placement of the indoor air pollution monitoring equipment. For further information regarding the African workshop, please contact Eva Rehfuess, Email: rehfuesse@who.int. Presentations of the Guatemala training workshop are now available at http://www.who.int/indoorair/interventions/training/en/index.html

Improved Biomass stoves/ovens in Morocco

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The Micro-Financing Program/Global Environment Fund (SGP/GEF) has initiated several projects in Morocco aimed at reducing usage of biomass as fuel. Following the PCIA meeting in Marrakech, Dean Still and Mouhsine Serrar toured these projects for SGP/GEF, extending PCIA's reach into Morocco. During their visits, Mouhsine and Dean met with several local NGOs to exchange research and gain local knowledge. The sites visited were Ouarzazate and Agdz in the south, Errachidia to the southeast and Imilichil in central Morocco.

Biomass conservation issues in Morocco cover a wide range of applications: bread ovens (both single home and communal ovens), stoves (for stew and steaming couscous), pottery kilns, communal baths, and heating stoves. The next visit to Morocco will be to develop improved stoves/ovens and is planned for the fall of 2005. To prepare for this trip, Mouhsine and Abigail Clarke have been working at Aprovecho's lab in Oregon, experimenting with techniques that appear most promising for Morocco. Under guidance from Dean Still and Peter Scott, the first Moroccan 'rocket' oven was built last month. This oven uses a

Inside view of the first Moroccan 'rocket' oven
Photo Credit: Dean Still

one half 200 liter drum, one 20 liter drum, and rocket combustion chamber made of clay and sawdust. The first tests are promising. Next, we are working on the real challenge in a good bread oven, baking bread with a perfect crust!

Indoor air pollution monitoring for EnterpriseWorks Ghana's improved cooking stove programs

David Pennise, Ph.D., CEIHD, david@ceihd.com

In an effort to address the problem of indoor air pollution (IAP) in Ghana, EnterpriseWorks Ghana (EWG) is implementing "Clean Energy for Household Cooking in Ghana." The project, funded by Shell Foundation as part of its "*Breathing Space Campaign,*" aims at improving health and productivity by reducing IAP in 40,000 urban and 5,000 rural households. Project activities include building local capacity in IAP monitoring with technical support from the University of California, Berkeley. After a workshop and training program, EnterpriseWorks launched an IAP monitoring study to collect data, analyse results, and publish findings. Study results will provide the basis for the design of educational campaigns and the marketing of new stoves to bring about the behavioural and technological changes necessary to reduce exposure to, and generation of, smoke.

Atsu Titiati, Country Director of EnterpriseWorks Ghana organized a workshop on IAP monitoring held on March 21-24 2005 in Accra, Ghana. The workshop was led by David Pennise of the Center for Entrepreneurship in International Health and Development (CEIHD) at the University of California,

Berkeley. The eighteen participants came from the Ghana Environmental Protection Agency, Ministry of Energy, Ministry of Health, the Technology Consultancy Center of the Kwame Nkrumah University of Science and Technology, EnterpriseWorks Ghana, and Shell Ghana. Workshop objectives included building capacity of Ghanaian stakeholders and other key energy/environmental sector players in IAP monitoring and establishing a system for monitoring IAP in Ghana using protocols developed at the University of California, Berkeley. As a part of the dissemination strategy, the press (print, television, and radio stations) were invited and covered day 1 of the workshop.

Participants at Ghana Workshop

Participants were trained on how to organize an IAP study, use the IAP monitoring equipment, and manage and analyze the data, based on hands-on demonstrations of the equipment and a field trip to perform real measurements. Other workshop topics included: biomass pollution basics, indoor air pollution measurement options, the environmental health pathway, considerations in study design, statistics and sample size calculations, IAP sampling instrument training (launching, downloading and processing the data), developing household questionnaires, and study timeline and logistics.

During the week following the workshop, Dr. Pennise worked with EnterpriseWorks Ghana to help them begin their actual IAP sampling study. Since that time, EWG has completed their baseline IAP survey of 44 households. EWG's next steps will be to introduce their improved wood-burning cooking stove into those households and again measure their indoor air pollution levels to determine the effect of the new stoves.

Project Gaia Ethiopia Provides Theme for World Environment Day in UNHCR Shimelba Camp

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The new ethanol "CleanCook" stove, recently introduced by Project Gaia Ethiopia to the UNHCR Shimelba Refugee Camp in northern Ethiopia, served as the centerpiece for World Environment Day at the camp, celebrated by staff and residents in June. Project Gaia Country Director Ms. Melat Esayas addressed the camp's residents and staff about the dangers to health of indoor air pollution from smoky fires and spoke of the efforts of Project Gaia and PCIA to promote cleaner fuels and cleaner burning fires.

"I have visited many homes in the camp and have observed cooking habits and stoves," reported Ms. Esayas, noting that stoves are wood-fueled in homes measuring 3x4 or 4x4 meters, usually with no windows, resulting in exposure to high smoke concentrations. Fuelwood availability is very limited. (for more information see video at http://www.unhcr.ch/cgi-bin/texis/vtx/country?iso=eth)

Biomass scarcity at Shimelba camp
Photo Credit: Harry Stokes

The Shimelba camp in northern Tigray, populated largely by refugees from neighboring Eritrea, is one of three UNHCR-administered camps in Ethiopia in which the CleanCook stove is being piloted. As members of the Project Gaia Ethiopia team, Dometic AB, a Swedish appliance manufacturer, and Iacona Engineering, an Ethiopian company, are piloting three hundred stoves in these camps with assistance from the Shell Foundation and NGO and government collaborators. An additional 550 stoves are being tested in other Ethiopian locations, including 14 orphanages for HIV/AID children operated by Mother Teresa's Missionaries of Charity, 17 schools in Tigray operated by the UNFAO, an IDP or "Internally Displaced Persons'" camp in the Somali

region operated by the Ogaden Welfare Development Association, and the city of Addis Ababa.

The new CleanCook is a two-burner non-pressurized stove that burns alcohol as it evaporates from a special fuel canister into a burner chimney. The alcohol, while stored and handled as a liquid, burns as a gas. Once poured into the rechargeable fuel canister it will not spill out, and can be easily extinguished by water, making the CleanCook safer than kerosene stoves. This fuel stove combination is a safe choice for refugees who live in crowded, fire-prone camps. Furthermore, in the face of severe fuelwood shortages, the CleanCook, powered with ethanol from the state-owned Finchaa Sugar Factory's ethanol distillery, has the potential to enable camp inhabitants to become energy self-sufficient for their cooking needs.

Project Gaia is a public-private research initiative that seeks to promote the use of clean alcohol fuels for cooking in developing countries around the world where electricity, natural gas or LPG are not affordable or available. Dometic AB, lead private partner in this initiative, seeks business partners in developing countries who can manufacture the stove locally and develop an alcohol fuel supply chain for the stove. Project Gaia has pilot studies underway in Nigeria, South Africa and Brazil, with other projects planned for the Dominican Republic and Haiti, Guatemala and China. The project in Nigeria is co-funded by the US Environmental Protection Agency and the Government of Delta State. Information about Project Gaia will soon be available at www.ProjectGaia.com.

World Environment Day was established in 1972 by the United Nations General Assembly and is celebrated during the first week of June. The U.N. uses World Environment Day to stimulate awareness of the environment and enhance political attention and public action.

ASIA

Health Impacts of Indoor Air Pollution: Recent Global Burden of Disease Estimates and Ongoing Research in Nepal and Guatemala

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During a June 7, 2005 lecture organized by Winrock International Nepal in Kathmandu, Nepal, Professor Kirk Smith from the School of Public Health at the University of California at Berkeley spoke on the health risks of indoor air pollution, citing that exposure to indoor air pollution causes about 1.6 million premature deaths per year, twice the number caused by outdoor air pollution. Prof. Smith discussed the first randomized trial in the Guatemalan Highlands and some of the findings of his most recent improved cooking stove evaluation study in China. He reported that the use of improved cooking stoves with chimneys that are well accepted by community can achieve reliable pollution reductions in the kitchen. He spoke about recent research and other studies done in Nepal on the association of indoor cooking smoke to cataracts and TB. He further highlighted that improvements in combustion can achieve substantial co-benefits in health and climate protection. Participants were especially interested in his discussion on newly-developed UCB Monitors to measure particulate matter.

A total of 93 participants representing government, research institutions, donors and I/NGOs working on health and household energy took part in the lecture. Winrock organized this lecture and others to create awareness among all stakeholders in Nepal on this important but largely neglected public health issue. The lecture was developed as a part of week-long celebration of World Environment Day starting June 5 with the Ministry of Environment, Science and Technology.

Update on World Bank/ESMAP/DFID funded Indoor Air Pollution Project in China

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The **"Sustainable and efficient energy use to alleviate indoor air pollution in poor rural areas in China"** project was launched by ESMAP in 2002 with a main goal of designing and implementing local initiatives that would enable rural communities in four provinces of China, with large rural and poor populations and harsher climate, to develop cost-effective and affordable household energy interventions (improved stoves, better ventilation, cleaner fuels) that meet community needs and promote behaviour changes to reduce exposure to air pollution. This work is expected to reduce respiratory illnesses, especially among women and children, increase fuel efficiency and reduce women's time expenditures. The project is community-based, aimed at clearly identifying technological and/or behavioural factors that improve health. Of the total project cost of $1.25 million, DFID provided $775,000 financing through ESMAP.

The project has the following main components: (i) a feasibility study, including market study and development of stove and ventilation designs based on existing knowledge and local conditions, field testing of stoves/ventilation devices and market

testing; (ii) the design and production of new devices, their distribution and market development and health, education and social interventions; (iii) monitoring and evaluation, including a community-based trial on the health effects of the interventions, including baseline surveys and ex-ante and ex-post measurements of indoor air pollutants; (iv) strengthening of local institutional and technical capacities, and the development of new IAP intervention strategies and policies; and (v) knowledge management through dissemination of study findings and publications in peer-reviewed journals. To date, all pilot, feasibility and pre-intervention data collection and analysis have been completed and are being published in peer-reviewed literature, in addition to standard ESMAP reports. In all four provinces, several stove and ventilation models have been designed and tested, stoves and ventilation devices have been installed, and community-based behavioural interventions targeted at school children and women have been completed. Ex-post intervention data collection has begun, and more exposure data through food and urine analysis are being collected.

The project is expected to be completed by September 2005. Early results include findings that indoor heating in these communities may play a more important role than cooking in pollution levels and spatial patterns. A variety of heating and ventilation devices are commonly used in different rooms for different needs, using various fuels to save money. The baseline survey suggests that simply providing information on risk and available interventions would be insufficient to reduce exposure and risks. A better understanding of the links between technology and behaviour under different economic and environmental conditions would improve equipment design and use.

LATIN AMERICA

TWP and AHDESA win Ashden/Climate Care Award

Congratulations to Trees, Water & People and the Honduran Association for Development (AHDESA) for winning the Ashden/Climate Care Awards. TWP and AHDESA will establish a micro-credit fund to allow poor people to borrow the money to buy an 'Ecostove' and pay back with comfortable monthly payments. The micro-enterprise project will be implemented in Tegucigalpa, the capital of Honduras, but there are plans to expand the project to the rest of the country as well as other countries in the region. For more information contact Stuart Conway at stuart@treeswaterpeople.org

Duffy Hughes Memorial Team in Guatemala

Nancy Hughes, nancyineugene@yahoo.com

In April 2005 the first Duffy Hughes Memorial Stove Team departed for Guatemala along with the Cascade Medical Team. The goal of our project was to replace as many "three stone fires" as possible with newly designed, energy efficient ONIL "plancha" cooking stoves and Nixtamal cookers. The plancha stove is equipped with a chimney and is used indoors for everyday cooking. The Nixtamal cooker is used outdoors to boil large quantities of corn that is later ground and made into tortillas.

The Guatemala Stove Project had raised money through Rotary Matching Grants, and we worked in conjunction with HELPS International who developed the stove and has a twenty-year history of bringing medical groups, construction teams, and educational programs to Guatemala. HELPS provided us with housing arrangements, transportation, interpreters, and equipment. We couldn't have designed a better program ourselves.

The two stoves were designed by Don O'Neal and are made entirely in two Guatemalan factories. HELPS makes the cast concrete parts in a rudimentary factory in Rio Bravo. The metal parts (griddle, chimney, and some interior pieces) are made in a shop in Quetzaltenango and the clay combustion chambers are made in Chimantenango. The stove production project is supported by the Shell Foundation.

Before we arrived, the community outreach coordinator demonstrated the stoves to villages in the Solola area and assessed their interest in participating in the project. Since they were interested, the local governmental office was asked to provide a truck to drive to the HELPS factory to pick up the parts and deliver them to a central area in the village. Funding for the stoves was provided by the Rotary Matching Grant and a contribution of 200Q per household (about $23.00). The community was notified of the time of arrival of the stove parts, and each family carried the up to 90lb pieces to their individual homes, often up steep mountainsides.

The two five-member teams (two experienced carpenters, two helpers, and one with some Spanish skills) worked with counterparts from the Mayor's Office and the local Women's Cooperative. Volunteers assembled the Nixtamal stove designed for cooking the mixture of water and dried corn at high heat to make masa for tortillas. The ground was leveled, the half fifty-five gallon drum was placed on two cement blocks, *(Continued on page 12)*

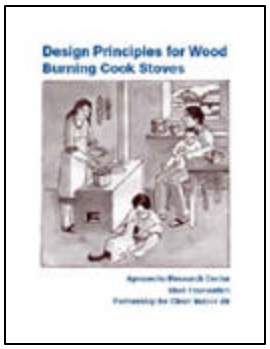
☼ WHAT'S NEW...?

..in Resources?

2nd Indoor Air Thematic Briefing on Health and the Burden of Disease

WHO recently issued its second Indoor Air Thematic Briefing on health and the burden of disease. This briefing summarizes the impacts of indoor air pollution on different health outcomes, and gives an overview of the magnitude of this public health problem in Africa, the Americas, the Eastern Mediterranean, Europe, South-East Asia and the Western Pacific Region. The briefing is available at http://www.who.int/indoorair/info/briefing2.pdf

New Publication: Design Principles for Wood Burning Cook Stoves



Design Principles for Wood Burning Cook Stoves summarizes how the application of modern engineering techniques can be applied to indigenous cook stoves, improving both combustion and heat transfer efficiency. Written in simple language, the booklet covers stove theory, design principles, instructions for making insulative ceramic combustion chambers and an in-field Water Boiling Test. A well-engineered stove can improve combustion efficiency, thereby reducing harmful emissions, and increasing heat transfer efficiency, dramatically reducing fuel use when cooking.

Support for this booklet was provided by the Shell Foundation and the USEPA. The principal authors are Dr. Mark Bryden, Dean Still and staff from the Aprovecho Research Center. You may order your free copy of *Design Principles for Wood Burning Stoves*, EPA-402-K-05-004, on-line at www.epa.gov/epahome/publications.htm. You may also order by fax at 513-489-8695. You will need to provide the publication name and number, your complete mailing address (i.e., name, organization, street address, city, state, zip code, country) and phone number.

Smoke, health and household energy Volume 1: Participatory methods for design, installation, monitoring and assessment of smoke alleviation technologies

This publication describes a UK-Government funded research project done by ITDG in three very different communities under a Department for International Development (DFID) research grant. ITDG has developed a framework to strengthen those living in poverty to work together, participating in all levels of the decision making process and leading to a sound redistribution and management of resources. Women in particular are supported through this approach. The project has worked with around 30 households in each country, comprising; a peri-urban district in Kenya; a village community in a high cold region in Nepal; a community of displaced persons around Kassala in Sudan. The project worked with communities to identify, install and monitor sustainable technologies to alleviate smoke. The project is now in a second phase, developing the interventions that have proved popular but have not shown the levels of smoke reduction required, and scaling up those that have been successful through commercial routes. Partnerships and collaboration have been vital to the project, and as the work enters this 'scaling up' phase, these early relationships are proving to be even more valuable.

The book is available on the ITDG website at: http://www.itdg.org/?id=smoke_health_household_energy and there are a limited number of hard copy editions with CD-Rom for those with poor access to the web. For a free copy please contact lizb@itdg.org.uk, though if you can cover the cost of postage, it would be very helpful.

Update on PCIA Website!

Please visit the website for information on PCIA activities!

New features on the website now include:

- Design Principles for Wood Burning Cookstoves is now available on the 'PCIA Resources' page.
- PCIA fact sheets in Spanish and Chinese. Please visit the 'PCIA Resources' page to access this and other documents.
- The website team is developing an interactive map to display the activities of PCIA partners. Please check back in the future to submit your project related information and update your profile.

(Continued from page 4)
LAC, and contribute to the integrated local development of the communities. It requires strong political commitment, solid technical expertise, a consistent multi-disciplinary approach and high level of community participation.

The HHI was launched by several institutions from seven LAC countries at the First Meeting of the Inter-American Network of Health in Housing Centers in Mexico City in April 1995. The Initiative is led by the Pan-American Health Organization and operates with multi-disciplinary and multi-institutional national healthy housing networks that together constitute the Inter-American Healthy Housing Network. The HHI is a vehicle to assist the countries of LAC, Member States of the United Nations, to achieve the MDGs. It exerts, directly and indirectly, a positive influence towards the achievement of all the MDGs.

The general objective of the HHI is to introduce the concept of healthy housing as a strategy for the sustainable integrated local development of communities in LAC countries. In particular, the HHI aims to contribute toward:

- The generation of spaces for discussion, analysis and research to promote an integrated vision of housing and its impact on health.
- The implementation of healthy housing and urban development policies.
- The improvement of housing conditions through sustainable actions that promote health.
- The strengthening of human capacities, with emphasis on community participation and empowerment.

Recently, the HHI has begun to incorporate indoor air pollution from solid fuels among key issues for healthy housing . In particular, in May, the Initiative jointly coordinated (with the Partnership for Clean Indoor Air (PCIA), WHO, EPA, the Center for Entrepreneurship in International Health and Development and Aprovecho Research Center) an indoor air quality and household energy monitoring workshop for Central American countries and Mexico. In addition, with the collaboration of Winrock International and GTZ, the Initiative has included household energy, indoor air quality and health in the agenda of the Regional Symposium on Healthy Housing that will take place in Lima, Peru in September 2005.

During this symposium, the HHN will be crafting a new workplan for 2006-7. PAHO will be pushing for IAP to become a priority area for the HHI.

In the future, the HHI will focus on expanding the collaboration with the PCIA, advocating for healthy household energy policies, promoting research-action-community participation projects and implementing capacity enhancement programs for technical professionals and empowerment programs for communities in household energy, indoor air quality, and health. For more information on specific country plans, visit the HHE website: http://www.cepis.ops-oms.org/bvsasv/i/home.htm

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Your comments are welcome!

For comments, suggestions, or news that you would like to share please email us at PCIAonline@yahoo.com. The deadline for contributions to next quarter's bulletin is **September 16, 2005**.

USEPA addresses Partnership Needs

(Continued from page 1) The Partnership for Clean indoor Air's mission, accomplishments, and plans will also be presented at Indoor Air 2005.

- Contract with local organizations to develop country/regional teaching tools (e.g., a curriculum or modules to support an existing curriculum) that will teach primary students in developing countries about the impact of traditional household energy practices on their families' health and livelihoods. These materials will be available to Partners to implement in collaboration with local government, and international health education programs.

- Support capacity building of local Partners to develop a robust business strategy framework with which to evaluate, roll out and monitor household energy programs aimed at reducing indoor air pollution in developing countries. We will be conducting regional workshops and providing individual technical assistance to Partners. This effort will build on the commercialization efforts begun by the Shell Foundation (see article on page 2).

- Continue to build capacity of local Partners to evaluate the impact of their intervention projects on indoor air pollution levels, health and well being, and household socioeconomics. This work will build on the three regional training workshops on Indoor Air Pollution and Household Energy Workshops that were led by the WHO and supported by a number of other Partners.

- Develop and disseminate information on alternative methods for defining the baseline and green house gas impacts of household energy projects.

Look to future editions of the PCIA Bulletin and the website for additional information, or contact Brenda Doroski (doroski.brenda@epa.gov) and John Mitchell (mitchell.john@epa.gov).

Duffy Hughes Memorial Team

(Continued from page 9) and the combustion chamber was placed inside and surrounded by gravel and ash used as insulation. One volunteer found a ladder or other means of getting on the roof, drilled a hole and installed the chimney, caulked, and bolted the chimney cap on top. With the help of the interpreter, another volunteer worked inside placing cement blocks on a level surface and topping them with the cast concrete forms. The combustion chamber was placed inside and was surrounded by gravel and ash to keep the stove exterior cool. The plancha, or metal cooking surface, was placed on the top, a chimney protector was formed and installed, and the ONIL stove was complete.

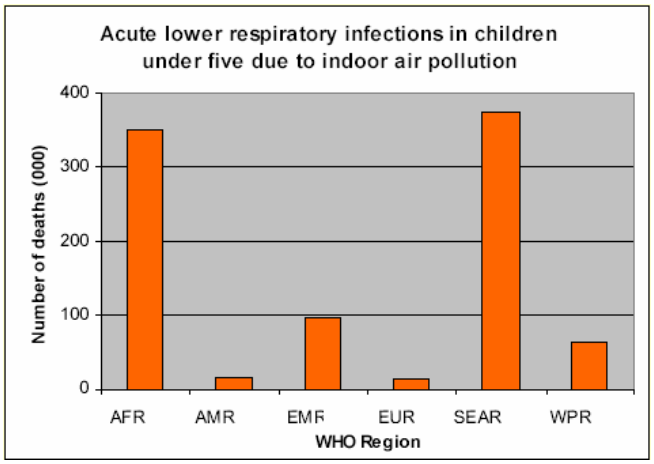
Volunteers installing chimney on roof

The member of the Mayor's Office and the head of the Women's Cooperative explain cleaning and care to the members of the household in their native language (there are 24 Mayan languages in Guatemala). The team installed over 200 stoves with local participation. Within a week additional orders were placed, and installed by the Mayor's Office and Women's Cooperative.

Upon returning to the USA, the Rotary Matching Grant Final Report was filed with Rotary International and a second grant was written for more stoves. With the cooperation of Rotary Clubs from both countries, the assistance of eager volunteers, and the help of the local Guatemalans, our project was a complete success.

You can become involved with the Duffy Hughes Memorial Stove Project by either forming your own stove team, joining one of our teams, or by making a contribution through The Southtowne Rotary Foundation; P.O. Box 5158; Eugene, OR 97405. For further information please contact Nancy Hughes.

FACT BOX



Source: Indoor Air Thematic Briefing 2, World Health Organization