

SESSION TOPIC: INTEGRATED APPROACH TO ADDRESSING AIR POLLUTION
Addressing in an integrated manner sources and impacts of indoor and ambient air pollution

Jacob Moss Senior Advisor on Energy and International Air Quality, EPA

1) Indoor Air Pollution from Home Cooking and Heating – Partnership for Clean Indoor Air (PCIA)

Case Study | **Partnership for Clean Indoor Air Pilot Projects:** The U.S Government (USAID and USEPA) is funding 10 pilot project grants to non-profit organizations in Asia, Africa, and Latin America to demonstrate innovative, community-based programs that reduce indoor air pollution from household energy use. The pilot projects will reduce indoor air pollution by 50-80% and reduce fuel consumption by 50% in homes that adopt improved cooking and heating practices. Collectively the projects will improve the health, livelihood, and quality of life in more than 60,000 households, improve awareness of the dangers of indoor air pollution, and result in more than 200 local entrepreneurs starting their own clean cook stove production/distribution businesses.
Point of Contact in U.S. Delegation: Jacob Moss 'Moss.Jacob@epa.gov

Lessons learned | **It is critical to address four primary dimensions of the issue to achieve successful and sustainable results that will successfully reduce exposure to indoor air pollution.**

- 1) *Social/Culture Change:* Address social and cultural norms in developing and disseminating improved cooking/heating technology (e.g., ensure new technology cooks traditional food using traditional fuels).**
- 2) *Market Development:* Provide training and technical assistance to enable organizations to locally manufacture, distribute, and successfully market the improved cook stoves;**
- 3) *Technology Design:* Develop and disseminate improved cook stoves that meet fuel-efficiency, economic savings, social acceptance, low emissions, affordability, and safety goals;**
- 4) *Exposure and Health Effects:* Decrease risk of acute respiratory infections for families by reducing exposure by 50% - 90% among families using improved stoves.**

Obstacle Confronted | An estimated 3 billion people burn traditional biomass and coal fuels in their homes for cooking and heating, exposing them to indoor air pollution that WHO estimates results in 1.6 million premature deaths each year.

Next steps | Evaluation of pilot projects and working with PCIA partners to scale up successful efforts.

2) Urban Air Pollution from Motor Vehicles – Partnership for Clean Fuels and Vehicles (PCFV)

Case Study | Integrated Clean Fuels and Vehicles Projects in China: This program consists of an integrated set of projects agreed upon by the U.S. EPA and the China State Environmental Protection Administration (SEPA) to transfer technology and policy to China, as well as to build capacity to sustain long-term implementation and evaluation of project outcomes. Numerous partners (e.g., international organizations, governments, industry, academia, and NGOs) are coordinating efforts to determine the best means by which to lower sulfur in transportation fuels to ultra-low levels, and enable development and use of cleaner technologies for new and existing vehicles (achieving greater than 90% reduction in particulates when fuel and vehicles are addressed in tandem). Additional projects under this program include: compliance management consultation, regulatory development and voluntary program assistance, training, development of manuals in Chinese, and outreach to business and consumers. EPA and SEPA are also collaborating with the Beijing Environmental Protection Bureau on a program to retrofit 25 diesel-fueled city buses to demonstrate the value of low-sulfur fuels combined with emission control technologies.

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- Lessons learned**
- 1) Addressing either transportation fuels or vehicle emission standards in isolation will limit achievable reductions and increase costs of achieving air quality goals.**
 - 2) An integrated clean fuel and vehicle strategy that reduces sulfur levels in diesel and gasoline fuels, concurrent with adopting cleaner vehicle requirements, is critical.**
 - 3) In addition to close cooperation with government agencies, it is essential to work with a wide array of vital private sector, multi-lateral, academic and NGOs partners to develop and implement strategies to both eliminate leaded gasoline and develop integrated national clean fuel and vehicle strategies.**

Obstacle Confronted | Air pollution in many cities in the developing world is reaching crisis proportions. According to the World Health Organization, only 15% of the largest cities in developing countries have acceptable air quality. WHO estimates that poor ambient air quality is related to about 800,000 premature deaths each year, and contributes to the plight of millions more around the world who suffer from asthma, chronic obstructive pulmonary disease, cardiovascular disease, and lung cancer. Lead emissions are extremely harmful to children under age six, interfering with the developing brain and other organs and systems.

Next steps | Continue work with China on development of a national ultra-low sulfur policy. Implement and evaluate the diesel retrofit project with Beijing. Initiate collaboration regarding compliance management.

Additional information

- The USEPA supports PCIA's pilot projects and partners in their effort to improve the fuel efficiency and reduce pollutant emissions of improved home cooking and/or heating technology through its International Improved Cook Stove Development Camps. Stove camps allow consultants to present ideas and guidelines for stove design and manufacturing and teach basic classes on combustion, health, safety and other stove-related topics. This work is taking place through fuel efficiency and emissions testing of improved home cooking and/or heating technology in the field and in a laboratory; developing technical training materials and curriculum on the design and performance of improved technology and fuel; and conducting technical training workshops for Partners in the several countries and regions.
- A series of three PCIA regional workshops, organized by a number of Partners and led by the World Health Organization, were planned, and two have been held (Central America in Guatemala in May, 2005; East Africa in Uganda in June, 2005); the third workshop is scheduled for Asia in Sri Lanka in 2006). The purpose of the workshops is to train governmental and non-governmental agencies to evaluate the impact of their intervention projects on indoor air pollution levels, health and wellbeing, the socioeconomic situation of the household and the local and global environment. The workshops provide an overview of different aspects of evaluation, training

participants in the use of monitoring equipment, and emphasizing the importance of evaluation and reporting results to members of the community and policymakers.

- As of January 2006, all of the 49 countries in Sub-Saharan Africa exclusively use and produce unleaded gasoline – an effort that the Partnership for Clean Fuels and Vehicles played a significant role in. In April 2004, the Partnership released its consensus report on the impact of unleaded gasoline on older vehicles, which states that vehicle fleets in developing countries can, in general, switch from leaded to unleaded fuel without any need for additives or adjustments to the vehicle. PCFV is launching a global lead phase-out campaign, targeted at the 35 countries that still use lead in gasoline as an octane booster. One key priority is Indonesia – the 4th most populous country in the world – which still uses lead in many cities.
- As part of the PCFV, the U.S. Government (USEPA and USAID) has funded a Mexico City diesel retrofit demonstration project. This project has successfully installed two types of emission control devices on 20 city buses to test their success on these particular vehicles under Mexico City conditions, as well as to test the top reducing device with ultra-low sulfur diesel fuel (ULSD). Numerous partners are involved, from international organizations, industry, academia, and NGOs, coordinating efforts to determine the best means by which to reduce particulate emissions from existing diesel vehicles, via these devices and use of ULSD – achieving greater than 90% reduction in particulates when fuels and vehicles are addressed in tandem. Additional work within this program includes cost-benefit analyses, and policy consultation on regulations for ULSD and clean vehicles.