

Editorial

Deadly Household Pollution: A Call to Action

Although an ancient hazard, indoor air pollution in developing countries is an issue of immediacy, for it is now understood to wreak a devastating toll on the health of some of the most vulnerable populations around the world. Consider the following facts:

- A major source of indoor air pollution in developing countries is the burning of solid fuels such as biomass (animal dung, wood, crop residues) and coal for heating and cooking. Nearly one-half of the world's population, some 3 billion people, continues to depend on solid fuels for their household needs.
- Indoor solid fuel burning is, according to WHO, responsible for about 1.6 million premature deaths per year, mainly children and women, and is responsible for 1.3–4.0% of the global burden of disease. This toll is greater than that from malaria, lung cancer, or traffic accidents and about twice that from outdoor air pollution.
- In the poorest developing countries, indoor air pollution is responsible for a greater proportion of ill-health and premature death than any other risk factor except malnutrition, unsafe sex, and poor water and sanitation.
- Children and women are particularly affected by poor indoor air quality in developing countries, and are often subjected to indoor air pollution that exceeds international health-based guidelines by 20 times or more.
- A growing body of evidence indicates that women exposed to smoke from solid fuel fires in homes may also have significantly elevated risks of lung cancer, emphysema, and tuberculosis.
- Rural women often spend many hours each week searching for solid fuels, denying them opportunities for paid employment that would improve the standard of living for their families.
- In areas of social disruption such as refugee camps, the chore of collecting solid fuels leads to risks of beatings, rapes, kidnappings, and murder of women.
- In China, household use of coals contaminated with toxic elements such as arsenic and fluorine are poisoning millions of people.

There is evidence that this is a solvable problem given the right commitment from political, corporate, institutional, and scientific leaders. Working together with leaders within the affected communities, it is possible to make improvements over short time periods, and to save hundreds of thousands of lives every year.

Recent efforts by scientists, policymakers, and corporate foundations in rural China, India, East Africa, and elsewhere have shown that low-cost interventions, including community education, improved cooking devices and fuels, improved stove placement and ventilation, or strategies for reduced exposures of children can produce important benefits, although there are few large-scale sustained efforts. The largest and most successful program, in China during the 1980s, introduced more than 150 million improved stoves with chimneys to its rural populations, although more improvement is needed to meet today's air quality standards.

Compared to the billions of dollars spent every year for research and control of outdoor air pollution around the world, however, expenditures for developing and implementing reliable interventions for reducing household air pollution among poor communities in developing countries are lagging far behind. Given that there are important environmental and social as well as health benefits of such interventions and the large populations involved, however, there is ample justification for stepping up efforts to develop, test, and deploy improved stoves and ventilation as well as promote cleaner fuels, and other innovations to reduce the global burden from use of household solid fuels.

The International Academy of Indoor Air Sciences calls upon the governments, institutions and corporations of the world to take actions to reduce the devastating effects of indoor air pollution in developing countries. We offer the scientific backing and knowledge to work together to rid human kind of this tragic but very solvable problem. It can and must be done. The solution starts with a collective will.

The International Academy of Indoor Air Sciences (IAIAS) is the honor society of the world's foremost experts on indoor air pollution. The Academy is an independent, international, multidisciplinary, scientific organization whose purpose is to promote international scientific cooperation in the indoor air sciences. Members

come from academia, government, research organizations, and private industry throughout the world. An important purpose of the Academy is to be a forum for scientific communication. This is to be accomplished in part through the provision of scientific advice by publishing consensus documents on *critical* scientific and public health issues. This document is a declaration from the Academy Congress held September 4, 2005 in Beijing, China, at the start of the 10th International Conference on Indoor Air Quality and Climate.

The International Academy of Indoor Air Sciences: The Board at the meeting – Jack Spengler (President), Jan Sundell (Vice President), Shin-ichi Tanabe (Secretary), The Board from 2005 – Jan Sundell (President), Shin-ichi Tanabe (Vice President), Bill Nazaroff (Secretary).