



Cooking Indoors using Fuel Effecting Women and Children

Three billion people rely on biomass for their source of domestic cooking fuel resulting in a health crisis in developing nations that is little known to those in the developed world – indoor air pollution (IAP). Because of cooking that occurs indoors in environments that lack proper ventilation, millions of primarily poor women and children across the globe face serious health risks from the use of dangerous biomass fuels such as wood, charcoal, dung, and crop residue. Conservative estimates for the year 2000 indicate between 1.5 and 2 million deaths, half of them children, were due to IAP. Estimates further suggest, “approximately 80% of total global exposure to airborne particulate matter occurs indoors in developing nations” (Ezzati, Kammen 2002). Even though the rate of dependence on biomass fuel is declining, this dwindling resource will not keep up with population growth that could ultimately put environments at even greater risk. In Kenya efforts are currently being made to address the overall health risks to rural women and children.

Rural Kenya has been the site of various applied research projects to determine the intensity of emissions that commonly occur from use of biomass fuels, particularly wood, dung, and crop residue. Smoke is the result of the incomplete combustion of solid fuel that exposes women and children up to seven hours each day in closed environments. These emissions will vary from day to day, season to season and amount of airflow within the residence. It has been determined that exposure in poor homes far exceeds accepted safety levels by as much as one hundred times over. Because many Kenyan women utilize a three-stone fire, the worst offender, one kilogram of burning wood produces tiny particles of soot that can clog and irritate the bronchial pathways. The smoke also contains various poisonous gases such as aldehydes, benzene, and carbon monoxide. Exposure to IAP from combustion of solid fuels “has been implicated, with varying degrees of evidence, as a causal agent of several diseases...” (Ezzati, Kammen 2002). Acute lower respiratory infections (ALRI) and chronic obstructive pulmonary disease (COPD) are the leading causes of disease and death. Cataracts and blindness, lung cancer, tuberculosis, premature births and low birth weight are also suspected as caused by IAP.

Women and primarily girls are also exposed to excess time each day in collecting fuel-wood in Kenya that makes them vulnerable to rape and fractures from the weight of carrying heavy loads. This time could be spent in more productive ways such as attending school or income production. The use of biomass coupled with inefficient cooking apparatus leads to a web of social and environmental concerns that directly links to the United Nations Millennium Development Goals.

References:

Ezzati, M., and D. M. Kammen. "The health impacts of exposure to indoor air pollution from solid fuels in developing countries: knowledge, gaps, and data needs." *Environmental Health Perspectives* 110.11 (Nov. 2002): 1057(12).

Solutions:

Although many people have been interested in this problem, they have only thought to design better stoves, etc. We believe that once stakeholders understand the problem they can solve it themselves.

Ask a women: What would she do in her kitchen to ventilate the smoke? How would she protect her health and the health of her children?

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