Training & Capacity Building

December 2014

Cooking that Kills: An Encounter in the Himalayan Foothills

Voices from the field

This month, we are introducing a new section titled Voices from the Field. The articles in this category will feature stories written by public health professionals about the lessons learned while conducting environmental health research in low- and middle-income communities overseas. Through these stories, it is our intention to increase awareness and understanding of the many challenges faced by scientists who are conducting studies, collecting data, and attempting to engage community participation in the field. We believe that these stories can help inform the global community of lessons learned and to build an informal network of current field research that focuses on real-life experiences on the ground.

By Banalata Sen

Banalata Sen, Ph.D., is the program coordinator for the NIEHS Global Environmental Health Program. She is currently on leave for one year to observe or participate in ongoing fieldwork in rural Indian communities.

Sarita and other women in rural communities spend several hours each day collecting firewood. (Photo courtesy of Bono Sen)

She walked in with a big bundle of firewood on her head. Sarita had spent the past three hours collecting firewood. The wood will last her for two days. Now she will spend her afternoon cooking dinner for her family of six hunched over her wood-burning stove. As she got started, I watched the room fill with smoke. After about 5 minutes, with my eyes beginning to water, I had to step outside to catch a breath of fresh air. But Sarita stayed in. She has become used to the smoke.

Nearly 3 billion people burn wood, dung, and other types of biomass in open stoves to cook their food and heat their homes. In 2012, 4.3 million deaths globally were attributable to indoor air pollution from solid fuel use, according to the World Health Organization. Women and children in low- and middle-income countries continue to disproportionately bear the burden of exposure to the toxic emissions released during inefficient burning of biomass. Despite decades of research and implementation efforts to alleviate the burden of indoor air pollution, the adoption of clean cooking technologies has yet to be scaled up to reach poor people everywhere.

On a recent trip to the Indian Himalayas, I had the opportunity to visit some study sites for a cookstove project being conducted by a local non-governmental organization and a U.S.-based university. I accompanied the local team as they surveyed households that had been offered two types of improved cooking stoves: wood-burning and a single-burner electric stove.

Air pollution in a kitchen using biomass fuel with little ventilation.
(Photo courtesy of Bono Sen)

Unfortunately, neither of the stoves was in use. Most of the electric stoves were broken, probably because of improper use or because of electrical power fluctuations and outages. For many families, the wood-burning stoves — some still in their boxes — did not meet their cooking needs. The design of these stoves was highly impractical: the wood needed to be finely chopped and the fire constantly tended, and the stoves still billowed smoke. I wondered how long it would take to cook two meals a day for a family of six on this stove model.

One villager expressed her frustration to me, “Collecting wood takes a lot of time. I was told this stove would cook my food in less time, and there would be no smoke. But that is not the case. I want my money back.” This sentiment, expressed by others in the village, shows that the improved cooking stoves must meet the needs of the end users if they are expected to adopt and use them. Listening to the needs of the communities is essential for any successful public health intervention. It is important to ascertain the cooking needs and preferences of the communities before disseminating stoves to avoid unfavorable outcomes.

Himalayan village.
(Photo courtesy of Bono Sen)

Stove stacking — using a combination of traditional stoves and improved cooking stoves — is a reality on the ground. Households with a working electric stove used it sparingly. Using this type of stove translates into electricity bills most villagers cannot afford. Many households had access to liquefied petroleum gas — the preferred type of fuel for improved cook stoves for reducing emissions and improving health benefits. But even these households used their liquefied petroleum gas stoves sparingly — to make tea when guests came, for example — because this form of energy is also expensive. Of the 100 or so households I visited, only one household that was using an LPG stove exclusively. The woman who was using the LPG was a school teacher: Her education and income afforded her a smoke-free cooking experience and a healthier lifestyle choice.

“We don’t want to go out and collect firewood. We want to go to work,” a young, college-educated woman told me. She was the first in her family to attend college. Younger women and those with some level of education prefer to use cleaner technologies. Interventions that engage women proactively could therefore be helpful in changing behavior and increasing the use of improved cooking technologies.

An outdoor kitchen.
(Photo courtesy of Bono Sen)

In the smoky kitchens, keeping my eyes open was difficult if not impossible. It came as no surprise that most households were aware of the health risks associated with the smoke, including eye and bronchial irritation. However, the women were not aware of the adverse maternal and perinatal outcomes from exposure to biomass smoke. Households that were comparatively well off had chimneys in their kitchen. Others had built open kitchens away from the main house. These measures are likely to reduce some personal exposure but unlikely to impact health outcomes.

Examples of improved cooking stoves disseminated in the field: an electric model (left) and a wood-burning stove (right).
(Photo courtesy of Bono Sen)

Many researchers and field workers have found that adverse health outcomes are not driving behavior change when it comes to adopting improved cooking stoves. The marginalized status of women who burn biomass fuel does not warrant changing the status quo. In contrast, children, especially unborn babies, are afforded a higher status than are their mothers in these communities. Health education interventions that raise awareness of the adverse impacts of indoor air pollution on pregnancy outcomes, the fetus, and young children could therefore hold promise.

The views expressed in this article are Dr. Sen’s alone and are based on her personal observations and conversations in the field.