
Feedback on Cooking Stoves Article (EDN 85)

Dan Hemenway from the Barking Frogs Permaculture Center wrote, “Thank you for the excellent article on smoke and cook stoves. As someone who has heated with wood for 30 years and who cooks with wood fire for half the year, let me underscore what I see as the major points.

“First, the editor’s note on smoke as an insect repellent needs underscoring. When I gave the first Permaculture Design Course in Ireland, one of my students related to us that when efficient cook stoves were introduced in a part of the Sudan, the incidence of malaria skyrocketed. If you change one thing in an established culture, do not be surprised if many unanticipated effects ensue. Naturally, in such instances we need to introduce solutions to insect control along with stove introductions. We need to look at the whole living situation.

“Two main measures are required to all but completely eliminate smoke from wood fires. The first, and most important, is to use extremely dry fuel. Alas, this will be hard to implement where people live hand to mouth in all ways, and where a stockpile of fuel is likely to be stolen if it hangs around for a while. The second is the correct draft, or airflow, to keep the fuel burning hot and thoroughly. Smoke is wasted fuel. Species of wood is less important than these two factors.

“It is also important to control the [heat] of the fire by selection of species and quantity of wood used. Fuels with a low heat value will not smoke if burned with plenty of oxygen and a good draft. Shutting the damper to control heat, instead of building a fire of the correct size and species, results in smoke. If the smoke goes out the chimney, then we substitute outdoor pollution for indoor pollution. This is also undesirable.

“Correct draft is a function of stove and flue design. There is no point in designing a general efficient stove; we need to adapt each design to local materials, technology, and aesthetic values. I once showed a picture of a parabolic solar cooker to a group in Mexico, and the women all said that they would not use it. In 5 minutes, with feedback, we designed a stove based on the same principles that they would use.

“While solar stoves clearly are a major step in the right direction (with appropriate attention to insect protection, e.g., making screens and mosquito netting available), in most climates they cannot completely replace wood, dung (alas) and other biomass fuels. In my opinion, only someone living in the area, developing stoves from the shared experience of the community, and using such a stove personally has a high probability of making significant inroads on this serious problem.”

Dr. Ed Nesman wrote to us about the same article. "I read with a great deal of interest the article on "Indoor Air Pollution from Cooking Fire Smoke," and particularly the section on the Ecostove in Nicaragua.

"In the 1980's I was a member of the evaluation team that measured the impact of these stoves that were part of the Proyecto de Tecnologia Rural in Honduras. I am enclosing a few short paragraphs from the summary report that was submitted to USAID and the Honduran Government [excerpted below]....The savings in wood in one year was estimated at nearly one million dollars in addition to the impact on conservation of resources. Of all of the technologies studied, the stove had the greatest impact."

144 respondents reported using the improved stove technology. Three indicated that they had discontinued using the stove but the remaining 141 were presently using the stoves.

Those who had adopted the new stove technology reported considerable saving in fuel. Previously, the average weekly use was 140 "lenos" (standard sticks of fire wood). This was reduced to an average use of 58 "lenos" with the improved stove. Considering the average time of stove use in months, each person in the sample that used the improved stove saved an average of 14,581 "lenos." This represents a considerable saving, both from a monetary point of view as well as in natural resources.