

wash^{plus} Weekly

Supportive Environments for Healthy Communities

Issue 217 | Jan. 22, 2016 | Q&A on Investments in Cookstoves with Jörg Peters, RWI



Jörg Peters is currently head of the Climate Change in Developing Countries group at RWI, a Germany-based think tank, and associate professor at Witwatersrand University in Johannesburg. He has worked extensively on electrification and improved cookstoves in various countries all over Africa.

Mr. Peters' work is based on large household surveys and rigorous evaluation techniques, complemented by qualitative methods. For this weekly, he also relied upon insights from other researchers working in the cookstove sector. He welcomes any questions or comments via his [email](#) or [website](#).

For starters, are improved cookstoves actually a good thing to invest in?

Let's maybe first assume that we are talking about improved cookstoves that are in fact improved. This means that the stoves either reduce wood fuel consumption or smoke emissions (or both) compared to what people use otherwise. Now, whether or not it is a good investment from the subjective perspective of the poor household depends on whether the benefits accrue to the household directly and immediately or only indirectly and in the far-away future.

A simple answer to this multifaceted discussion is that the investment is worthwhile from the poor household's perspective if it induces cost savings. The wood fuel savings have to be high compared to the stove price. This argues in favor of very simple improved biomass stoves that are available at prices below \$10. In areas where people pay for their wood fuels, like in most urban areas, such simple improved cookstoves are a good investment. A stove that uses 20 percent to 30 percent less charcoal pays back the investment after only three to four months.

Obviously, we cannot expect poor households to invest in improved cookstoves to mitigate greenhouse gas emissions or deforestation—a nonmonetary benefit that accrues to them at best indirectly. Even health benefits might not be important enough from the household's perspective to back up the investment.

Here the government, donors, or a clean development mechanism needs to step in. If these groups are interested in mitigating greenhouse gas emissions, deforestation, or harmful

smoke emissions, promoting improved cookstoves via direct or indirect subsidies is a good investment. This, again, applies only if subsidies are granted for improved cookstoves that actually reduce wood fuel consumption and/or smoke emissions.

What do you think, why are take-up rates for improved cookstoves so low in most countries in Africa, although it seems to be a worthwhile investment?

For more advanced improved cookstoves like gasifier stoves or LPG [liquefied petroleum gas] I think the reason is that the benefits only materialize many years from now. But even for low-cost improved biomass cookstoves that already pay back after a few months we observe relatively low take-up rates in many countries, also in urban areas. So, why is that? It is not so much because of cultural traits, as it is frequently hypothesized. Actually, "the poor" are pretty good economists and also much more "modern" than 30 years ago (when many of the failed cookstove programs started). There are some cases in which effective quality standards are lacking and therefore people do not trust that the stoves are really improved.

However, the major reason for low uptake is simply that people cannot afford to make the investment. This is not because they couldn't raise the money if they desperately wanted to do so, but because there are more urgent things to invest in. So, in this context, a payback period of four to five months, which appears very short for most of us, is very long for "the poor" and the investment is postponed.

So, what is the right policy answer to this situation?

Personally, I think too many aid projects expect the poor to pay cost-covering prices. Investments in water, electricity, improved roofing, health care, and others are all probably in fact worthwhile. Nevertheless, we cannot expect the poor to make all of them, simply because they are chronically short on cash and their credit is constrained.

Each of the above mentioned might be a worthwhile investment, but they compete with other investment needs and desires. In addition, as already mentioned, some of the benefits of improved cookstoves do not matter so much to the poor (i.e., deforestation, greenhouse gas emissions, and health improvements). The benefits do not pay off monetarily; they are way too far in the future or the benefits materialize elsewhere.

Hence, if we, the international community, want "the poor" to use improved cookstoves—and I think we are right in doing so—we should create clear incentives. The clearest incentives are direct subsidies or in certain areas even a free distribution of improved cookstoves.

Would people use improved cookstoves if they receive them for free?

The claim that free products are valued and used less is frequently brought up and to a certain extent justified. However, there is barely systematic evidence for this. What the evidence from research on improved cookstove adoption (and also other new technologies) in fact shows is that people do use products if they make sense to them, also if they received them for free. So, as long as we make sure that the subsidized or free-of-charge improved cookstoves make sense to the target group, they will use them.

An important side note here is that the question of which stove works well enough needs to be tested in large field trials before a distribution program starts. Lab tests or controlled

cooking tests in a dozen households are also important, but not enough. Only stoves that qualify in large sample studies under day-to-day conditions should be promoted.

Wouldn't a high subsidy induce just a flash-in-the-pan effect?

Again, this is a justified concern that critics of a subsidization policy bring up frequently. I think subsidies can be created in a smart way to avoid a flash-in-the-pan effect. This applies also to another concern, the genie-out-of-the-bottle effect (public spending for subsidies can go through the roof). Subsidies have to be institutionalized for a sufficiently long period and clear rules and phasing-out periods have to be defined and announced. The funding has to be guaranteed. This, obviously, is easier said than done and clearly there is work to be done to develop sustainable subsidy schemes. But I would argue it is possible—if the political support is there.

And, I think, it is the right time to work on it: we have a momentum in the energy sector, a movement behind the Sustainable Energy for All initiative, a strong priority the World Health Organization assigns to cleaner cooking, and a vivid climate change debate. Here, improved cookstoves, even the simple ones, offer huge climate pollutant mitigation opportunities at relatively low costs. This should be exploited and thinking about smart and sustainable subsidy schemes itself is a worthwhile investment.

References

Barstow C, F. Ngabo, G. Rosa, F. Majorin, S. Boisson, T. Clasen, and E. Thomas. 2014.

Designing and Piloting a Program to Provide Water Filters and Improved Cookstoves in Rwanda. *PloS One*, 9(3): e92403. [Link](#)

Bates M, R. Glennerster, K. Gumedde, and E. Duflo. 2012. **The Price is Wrong. Field Actions Science Reports.** *The Journal of Field Actions*, Special Issue 4. [Link](#)

Beltramo T, G. Blalock, D. Levine, and A. Simons. 2015. **The Effect of Marketing Messages and Payment Over Time on Willingness to Pay for Fuel-Efficient Cookstoves.** *Journal of Economic Behavior & Organization*, 118: 333-345. [Link](#)

Bensch G, M. Grimm, and J. Peters. 2015. **Why Do Households Forego High Returns from Technology Adoption? Evidence from Improved Cooking Stoves in Burkina Faso.** *Journal of Economic Behavior & Organization*, 116: 187-205. [Link](#)

Bensch G and J. Peters. 2015. **The Intensive Margin of Technology Adoption—Experimental Evidence on Improved Cooking Stoves in Rural Senegal.** *Journal of Health Economics* 42: 44-63. [Link](#)

Bensch G. and J. Peters. 2013. **Combating Deforestation? Impacts of Improved Stove Dissemination on Charcoal Consumption in Urban Senegal.** *Land Economics* 89 (4): 676-698. [Link](#)

Beyene A, R. Bluffstone, Z. Gebreegziabher, P. Martinsson, A Mekonnen, and F. Vieider. 2015. **The Improved Biomass Stove Saves Wood, but How Often Do People Use It?** World Bank Policy Research Working Paper. [Link](#)

Lewis J and S. Pattanayak. 2012. **Who Adopts Improved Fuels and Cookstoves? A**

Systematic Review. *Environmental Health Perspectives*, 120(5): 637-645. [Link](#)

Rehfuess E, E. Puzzolo, D. Stanistreet, D. Pope, and N. Bruce. 2014. **Enablers and Barriers to Large-Scale Uptake of Improved Solid Fuel Stoves: A Systematic Review.**

Environmental Health Perspectives, 122(2): 120-130. [Link](#)

WASHplus Weeklies highlight topics such as Urban WASH, Household Air Pollution, Innovation, Household Water Treatment and Storage, Handwashing, Integration, and more. If you would like to feature your organization's materials in upcoming issues, please send them to Antonia Wolff, WASHplus Knowledge Management Advisor, at awolff@fhi360.org.



About WASHplus - WASHplus, a multi-year project funded through USAID's Bureau for Global Health, supports healthy households and communities by creating and delivering interventions that lead to improvements in access, practice and health outcomes related to water, sanitation, hygiene (WASH) and household air pollution (HAP). WASHplus uses at-scale, targeted as well as integrated approaches to reduce diarrheal diseases and acute respiratory infections, the two top killers of children under five years of age globally. For information, visit www.washplus.org or email: contact@washplus.org.