

Clean Cooking: Why is Adoption Slow Despite Large Health and Environmental Benefits?

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Executive summary

1. Motivations underlying the research

More than 40 percent of the global population still depends on traditional biomass, such as fuelwood, agricultural residues and animal wastes, for cooking and home heating. In Sub-Saharan Africa, the traditional biomass supplies more than 80% of the total energy requirement for household cooking. Half of the total energy demand for household cooking in South Asia is also supplied by traditional biomass. More than 90% of low-income households around the world rely on traditional biomass for cooking and home heating. The widespread use of traditional biomass causes major health and environmental problems. The indoor air pollution generated from the use of traditional biomass for household cooking causes more than four million premature deaths each year; most of which are of children and women. Burning of biomass for household cooking is one of the major sources of deforestation in the developing world. It also contributes to climate change through the emissions of CO₂ and black carbon, the precursors of global warming, and the reduction of carbon sinks through deforestation and forest degradation. One of the key solutions to this problem is the adoption of clean cooking either through the use of improved or efficient cookstoves or switching over to cleaner modern fuels. However, the adoption of clean cooking is very slow, despite the global efforts of promoting clean cooking over the last four decades. This paper discusses, based on rich literature, the main factors responsible for the slow adoption of clean cooking. It also offers some innovative approaches to accelerate clean cooking policies and programs in developing countries.

2. A short account of the research performed

We conducted a systematic review of existing empirical studies that investigate the relationship between the adoption of clean cooking and the potential factors that influence the rate of adoption. We use several search engines, such as ScienceDirect, Google Scholar, Scopus, JSTOR and ISI Web of Science databases, for finding the relevant studies. We also use individual websites of several international organizations (e.g., World Bank, Regional Development Banks, UN Agencies, International non-governmental organizations) that provide the knowledge and financial services for the promotion of clean cooking. The methodology used and key findings from all relevant studies are presented. The review does not only synthesize the findings from the literature but also critically evaluates the merits of the findings.

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3. The main conclusions and policy implications

The slow adoption of clean cooking can be attributed to various supply- and demand- side factors. Key supply-side factors include lack of infrastructure associated with the supply of modern fuels and clean cookstoves, and lack of technological innovation of clean cookstoves that are locally adaptive. The main demand-side factors include households' limited access to information and awareness, limited household income or affordability, and behavioral factors. Cultural inertia also played a role in the adoption of clean and improved cooking solutions. Further, households are often not motivated towards clean cooking solutions because a system that values convenience, cleanliness and cooking time saved is lacking.

The study suggests a number of policy interventions. A policy addressing the behavior factor is the most critical to increasing the deployment of clean cooking. Behavioral factors, such as lack of motivation and ignorance towards the benefits of clean cooking, have played a big role in the failure of many clean cooking initiatives in the past. Unless the households understand the benefits (e.g., health, environmental and time saving), and appreciate the social values (e.g., cleanness, comfort and leisure) of clean cooking, they would not adopt it even if it is made freely available. Prioritizing social marketing to address these behavioral barriers and creating ownership through the engagement of local stakeholders would help for sustainable adoption of clean cooking. Also important is involving local entrepreneurs for manufacturing and marketing of clean cookstoves. Donor-driven improved cookstove programs would not sustain long after donor supports expires if the local capacity for repair and maintenance is not built and proper incentives are not created for local markets.

A policy that encourages strong and effective awareness campaigns of clean cooking that involves women and children is critical for the success of clean cooking programs. Enhancing the engagement of women in clean cooking adoption decision is very important. Increased private sector participation, together with creating a space for market-driven implementation of clean cooking, would be a way for sustainable adoption of clean cooking in developing countries.

Policies that enhance local employment and increase the income of poor households is the key to the success of clean cooking programs. As long as households have zero opportunity costs (i.e., they have free time in the absence of any productive activities), they will go to natural forests or public lands to collect fuelwood and dungs, no matter how cheaper would be the clean cooking alternatives. While a policy to make clean cooking affordable for low-income households is important, how to implement it is questionable. Existing subsidies to cleaner fuels benefitted more to rich households. Subsidies, if any, should be carefully designed to channel to targeted low-income households. Also important is further research on in-depth analysis of key barriers, particularly behavioral barriers, and come up with innovative solutions to reduce these barriers.