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# BEHAVIOR CHANGE APPROACHES FOR CLEAN COOKING

## BRIEF SERIES: BACKGROUND AND INTRODUCTION

### DEFINING THE PROBLEM

Nearly half of the global population relies on solid fuels, such as wood, charcoal and animal dung, for cooking.<sup>1</sup> Use of solid fuels on rudimentary stoves releases harmful emissions that lead to high levels of household air pollution (HAP). Estimates suggest that persistent exposure to HAP from cooking with solid fuels accounted for nearly 4 million premature deaths in 2010.<sup>2</sup>

### POTENTIAL SOLUTIONS

#### Technology

There are many market options, including improved cookstoves (i.e. advanced combustion or semi-gasifier stoves) and clean fuels (i.e. liquid petroleum gas [LPG] and ethanol), which have the potential to significantly reduce HAP. However, the adoption and sustained, correct use of these technologies, which is essential to realize positive health, economic and environmental impacts, has not yet been widely achieved. The reasons for this low rate of adoption are often complex with many interacting personal, socio-economic, and cultural factors.

#### Behavior Change

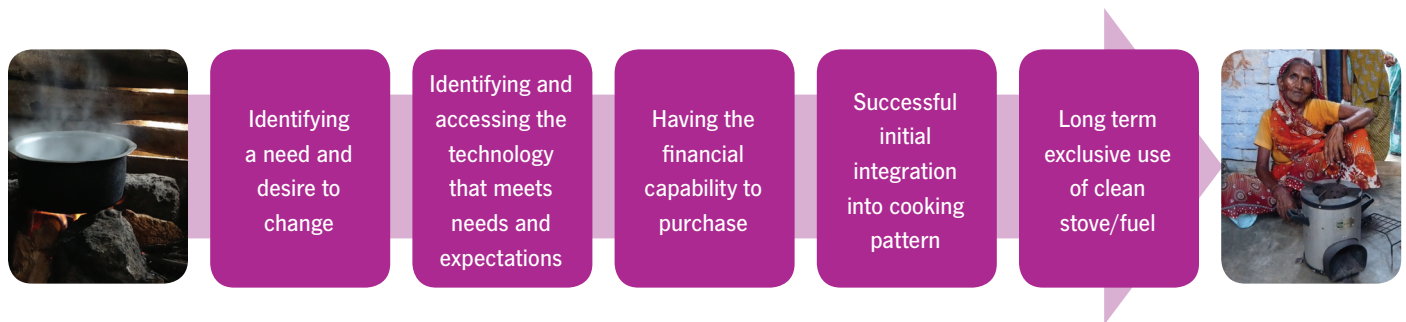
There are many deep-rooted behaviors along the spectrum of uptake, adoption, and sustained use [Figure 1] that can impede the complete and long-term transition from inefficient, polluting traditional cooking methods to new technologies.

Recently, attention has focused on the role of behavior change interventions and approaches in catalyzing widespread and lasting positive impact in the clean cooking sector. Historically, behavior change approaches have been focused on cooking habits and behavior patterns within the immediate kitchen environment. However, it is now recognized that behavior change strategies are needed at several points along the clean cooking value chain from manufacturers, to suppliers, promoters, and end users.

### TRACTION-SUPPORTED RESEARCH

From 2011–2014, three USAID|TRAction Project-sponsored research projects were implemented to identify behavior change strategies to increase the acquisition and correct use of clean cookstoves and fuels. The text boxes on the next page briefly outline each project.

FIGURE 1: Spectrum of uptake, adoption and sustained correct use of clean cooking technology



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## PATH, Peri-Urban Uganda

**Project aim:** Develop, test, and evaluate innovative behavior change interventions to foster acquisition, adoption, and correct use of a locally made Top-Lit UpDraft (TLUD) biomass gasifier stove in Uganda.

### Behavior change interventions:

- Distribution of printed materials to raise awareness of the detrimental effects of traditional cookstoves and benefits of improved cookstoves.
- Peer led promotion and community cooking demonstrations to promote the TLUD stove.
- Use of local change agents (village health teams) to provide information on HAP and health, and refer potential customers to sales agents.

**Measured outcomes:** Mixed quantitative and qualitative methods were used to measure stove use practices, preferences, and perceived impact on well-being and livelihoods. Stove sales were tracked across various price points. Stove performance (fuel consumption and HAP levels) and stove use were monitored in a subset of homes, two to four months after purchase.



Lessons learned from these three USAID|TRAction Project-funded projects have been summarized in a series of four technical briefs, which are intended to inform and guide implementation of future efforts to promote clean cooking:

1. Behavior change and communication strategies to successfully promote clean cooking technologies
2. Strategies for enabling access to appropriate clean cooking technologies: Setting up the system
3. Financial methods for stimulating purchase of clean cooking technology in resource poor settings
4. Barriers, facilitators, and motivators to correct, consistent and exclusive use of clean cooking technology

The full series is available for download at <http://www.tractionproject.org/content/technical-briefs-and-study-summaries-household-air-pollution>

## Impact Carbon, Rural Uganda

**Project aim:** Explore the impact of behavior change strategies on willingness to pay, stove uptake, and use.

### Behavior change interventions:

- Community stove demonstrations coordinated by trusted community members.
- Engagement of local governments, schools, and health centers to disseminate marketing and educational materials.
- Novel sales offer with a free stove trial, payments spread over time, and the option to return the stove.

**Measured outcomes:** A series of randomized controlled trials were used to compare cookstove uptake between villages receiving novel and traditional sales offers, and to investigate the impact of the interventions on stove usage, particulate matter concentrations, fuel use, and time spent collecting wood. Analysis also determined community responses to stove attributes, social norms, prices consumers are willing to pay based on different marketing messages, and peer influences on cookstove adoption.



- 1 Bonjour, S, Adair-Rohani, H, Wolf, J, et al.. Solid Fuel Use for Household Cooking: Country and Regional Estimates for 1980-2010. *Environmental Health Perspectives*. 2013; 121(7):784-790.
- 2 Lim, SS, Vos, T, Flaxman, AD, et al. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990-2010: A systematic analysis for the Global Burden of Disease Study 2010. *The Lancet*. 2012; 380 (9859):2224-2260.

## Duke University, Uttarakhand India

**Project aim:** Design and test interventions to increase the adoption and use of improved cookstoves, and determine how contextual factors moderate the impact of the behavior change strategies.

### Behavior change interventions:

- Dissemination of pamphlets providing information on two improved stove options (natural draft and electric G coil).
- Household demonstrations to promote the improved stoves.
- Option of installment payment plans, with rebates conditional on stove use.

**Measured outcomes:** Purchase of an improved stove in the intervention group was compared to that in control communities during the same period. The influence of stove choice, the presence of local NGOs, and availability of rebates on stove adoption and use were evaluated. Analysis also determined the impact on fuel consumption and time spent procuring cooking fuel.



## TRACTION PROJECT OVERVIEW

The Translating Research Into Action (TRAction) Project, funded by the U.S. Agency for International Development, focuses on implementation science—which seeks to develop, test, and compare approaches to more effectively deliver health interventions, increase utilization, achieve coverage, and scale-up evidence-based interventions. TRAction supports implementation research to provide critically-needed evidence to program implementers and policy-makers addressing maternal and child health issues.

For more information on the TRAction Project:  
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