



Energy Challenges

Winter 2016

Increase Access To Clean Cook Stoves

Clean cook stoves reduce health and safety risks and lower fuel expenses compared to traditional wood, dung and coal stoves. In three months, sell 500 clean cook stoves, generate US \$5,000 in revenue and design a path to scale to 25,000 homes over two years. A successful model will be evidence-based, will include continuous monitoring and testing, and a commitment to change if evidence suggests your approach is not working.

The Problem: Half of the world's population burns wood, dung, and coal in traditional stoves for cooking and heating needs.¹ These stoves are inefficient, causing chronic exposure to smoke which can lead to severe health issues.² It is estimated that 4% of the disease burden in the developing world is caused by use of traditional cook stoves.³ In Bangladesh alone, the WHO estimates that exposure to smoke from solid-fuel combustion contributes to nearly 50,000 deaths annually.⁴ The majority of these health impacts arise from acute respiratory infections, the leading cause of illness and death in children under 5 years old worldwide.⁵ The burden of gathering fuel also falls disproportionately on women, taking up to 5 hours per day.⁶ The widespread use of inefficient cook stoves contributes substantially to deforestation⁷ and climate change.⁸

The Proven Solution: Clean cook stoves can cost as little as \$10-20,⁹ and reduce fuel expenses and cooking time when compared to traditional cook stoves. Modern stoves use significantly less fuel than traditional fires or stoves. These clean stoves also reduce smoke exposure and risk of fire.

Your Challenge: We will award up to \$20,000 to a social entrepreneur who can design a venture and sell 500 clean cook stoves and generate \$5,000 in revenue, and whose business can scale and reach 25,000 homes within two years.

¹ Household Air Pollution and Health. WHO. (March 2014). <http://www.who.int/mediacentre/factsheets/fs292/en/>

² Household Cooking with Solid Fuels Contributes to Ambient PM_{2.5} Air Pollution and the Burden of Disease. Kirk R. Smith et al. (2014). <https://open.library.ubc.ca/media/stream/pdf/52383/1.0074697/4>

³ <http://www.pnas.org/content/109/27/10815.full>

⁴ Low demand for non-traditional cookstove technology. Ahmed Mushfiq Mobarak. (2012). <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3390883/>

⁵ http://www.who.int/maternal_child_adolescent/topics/child/mortality/en/

⁶ <http://cleancookstoves.org/impact-areas/women/>

⁷ The carbon footprint of traditional wildfuels. Bailis et al. (2015). <http://www.nature.com/nclimate/journal/v5/n3/full/nclimate2491.html>

⁸ <https://cleancookstoves.org/binary-data/RESOURCE/file/000/000/268-1.pdf>

⁹ <http://catalog.cleancookstoves.org/>

A successful proposal will include a localized plan that can manage uncertainty, including:

- An evidence-based model which identifies the strongest factors limiting clean cook stove access, specific to the region in which you will operate
- An evidenced-based model of how and why your intervention will boost use of clean cook stoves in long run
- A plan for continuous testing and evaluation of the program
- A commitment to change the plan if the evidence suggests that the approach isn't working

Market Information:

- The potential market is enormous. Half of the world's population cook with solid fuels in inefficient traditional cook stoves.¹⁰ Over 80% of people in sub-Saharan African countries rely on traditional biomass cooking, while over 50% of people in developing Asian countries do the same.¹¹
- The Global Alliance for Clean Cook Stoves, a United Nations Foundation program, is specifically targeting cook stove distribution in Bangladesh, China, Ghana, Guatemala, India, Kenya, Nigeria, and Uganda.¹²
- In this case, D-Prize sees a particularly strong opportunity to sell cook stoves in urban slums, which are more immediate markets for this product. We also encourage entrepreneurs to select markets that have support structures (like strong micro finance organizations), but where there is still a large market need. The Global Alliance for Clean Cook Stoves publishes country-level data.¹³
- One potential challenge an entrepreneur should address is consumer behavior. Price sensitivity, mismatch between local needs and stove design, and a lack of knowledge about cook stoves have led to extremely low long-term adoption rates.¹⁴ For example, evidence suggests that rural women in Bangladesh do not prioritize clean cook stoves over other basic developmental needs, despite the potential long term health benefits.¹⁵ A successful entrepreneur will need to find a strong marketing strategy that sells cook stoves, but also ensures they are used.
- One of the reasons for the low rate of adoption has been end-user financing. Clean cook stoves represent a significant expenditure for many households. Pay-as-you-go models have emerged that can be useful in distributing stoves.
- Past winners of this challenge include [LivelyHood's iSmart network](#) (Kenya), [LiTeAfrica](#) (Uganda), [Novotera](#) (Vietnam), and [Dazin](#) (Bhutan).

¹⁰ Low demand for non-traditional cookstove technology. Ahmed Mushfiq Mobarak et al. (2012). <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3390883/>

¹¹ http://www.worldenergyoutlook.org/media/weowebiste/energydevelopment/2012updates/Measuringprogresstowardsenergyforall_WEO2012.pdf

¹² <http://cleancookstoves.org/country-profiles/focus-countries/index.html>

¹³ <http://www.cleancookstoves.org/country-profiles/>

¹⁴ Adoptions of Improved Biomass Cook Stoves by Households: an Example from Homabay County. Isaiah Okuthe and Erick Akotsi. (2014). http://www.ijhssnet.com/journals/Vol_4_No_9_1_July_2014/22.pdf

¹⁵ Low demand for non-traditional cookstove technology. Ahmed Mushfiq Mobarak et al. (2012). <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3390883/>

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Download a First Round Application Packet at www.d-prize.org/application.pdf

Questions? Email the D-Prize team at help@d-prize.org