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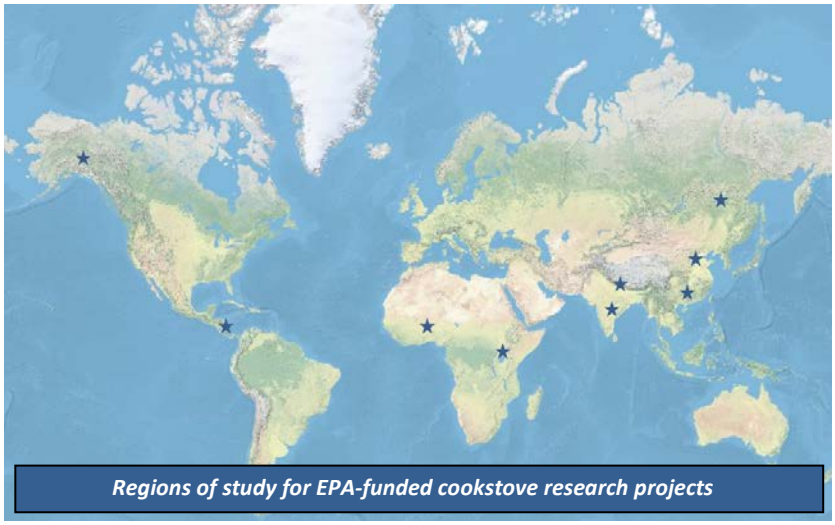
EPA Funds Cleaner Fuel Burning Research to Improve Air Quality and Slow Climage Change

In March 2012, EPA announced a request for applications (RFA) to address the topic of residential burning and its effects on human health worldwide. The RFA, "Measurements and Modeling for Quantifying Air Quality and Climatic Impacts of Residential Biomass or Coal Combustion for Cooking, Heating, and Lighting," supported funding research to quantify the impacts on climate and ambient and indoor air quality through introduction of new stove technologies.



Regions of study for EPA-funded cookstove research projects

Residential burning of solid fuels for cooking, heating, and lighting is a common practice in impoverished communities because of limited access to cleaner fuel types and technologies. More than three billion people worldwide rely on the burning of wood, dung, crop residues, charcoal, or coal in traditional stoves, which exposes individuals, particularly women and children, to harmful indoor smoke and degraded village-scale air quality. Residential burning is also a major source of black carbon, which causes regional warming, contribute to the melting of snow and ice and change precipitation patterns impacting drinking water supplies and irrigation.

EPA is a leader in cleaner cookstove research, helping to support the development of international cookstove standards, conducting research on emissions and energy efficiency of cleaner cookstoves and improving our knowledge of the health effects from exposure to cookstove emissions. Through EPA's Science to Achieve Results (STAR) grants program, six grants were awarded to support this RFA. The grantees and projects are as follows:

Colorado State University, $1,500,000

This project will use cookstove interventions in China, India, Kenya, and Honduras to explore the emissions, chemistry, and movement of indoor cookstove smoke, as well as conduct health assessments and model exposures. By comparing real-world and laboratory stove emissions of various chemical species and modeling global climatic impacts, this project will explore the aerosol formation and climatic properties of stove emissions.

University of California, Berkeley, $1,495,454

This project will explore the relationship between household and village-scale pollution to

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understand the effectiveness of cookstove interventions. They will addresses the critical question of whether health benefits can be gained by exchanging a single stove in a home, or whether neighborhood-scale interventions are needed to reduce personal exposures to cookstove emissions.

University of Colorado, Boulder, $1,500,000
This project will use small, inexpensive sensors to better monitor human exposure to residential burning pollution. This project has the potential to demonstrate and expand the use of these highly innovative, personal, portable monitors for gas-phase air pollutants. Use of these monitors will likely lead to new understanding of exposure from residential burning air pollution.

University of Illinois at Urbana-Champaign, $1,499,998
The project will investigate how local resources affect community acceptance of heating stove interventions, and how measurements will help understand air quality and climatic benefits of cookstove interventions in Alaska, Nepal, Mongolia, and China. Modeling village scale transport is particularly important in understanding the connections and steps between indoor emissions and globally relevant air quality impacts. By estimating the contribution of outdoor pollution to indoor pollution, this project will reduce key uncertainties in quantifying localized emissions transport.

University of Minnesota, $1,489,388
This project will measure changes in air quality and health outcomes from cleaner cooking and heating technologies and will conduct modeling to assess regional weather, air quality impacts, human exposure and health impacts of a rural cookstove intervention in China. By measuring a variety of chemical species (PM, black carbon, CO_2, NO_2, and VOCs) and by directly measuring health outcomes, the project will provide data about residential air pollution and its impacts on health.

Yale University, $1,497,884
This project will use socioeconomic analyses, emissions and pollution measurements, and global climate modeling to investigate the impacts of cookstove interventions in India. Research on social science is critical for understanding how best to target future interventions and determine the most effective methods for implementing stove selection.

EPA's Clean Cookstove Research
These grants exemplify EPA's status as an international leader in clean cookstove research. The Agency additionally conducts internal research to provide data on cookstove emissions and energy efficiency to support the development and universal adoption of clean cookstoves and fuels. This research is making a significant contribution towards improving the health of people in developing countries, addressing environmental problems related to cookstoves use, such as deforestation, and addressing emissions of black carbon and greenhouse gases that contribute to climate change.

More information on the grantees:
http://www.epa.gov/ncer/rfa/2012/2012_star_cook_heat_light.html

More information on EPA's clean cookstove research:
http://www.epa.gov/sciencematters/august2010/cook-stoves.htm

More information on EPA's STAR program:
http://www.epa.gov/ncer

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