

2012 BECC Conference: Poster Presenter Abstracts

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Behavioral Dimensions in the Adoption and Impacts of Cookstoves Disseminated in Rural Households

Cookstove programs recently recaptured the attention of governments, and development organizations as a cost-effective energy measure to simultaneously meet goals of improved health and reduce emissions of climate-active pollutants. All the cookstoves promoted are operated by people, who remain in close proximity of the devices to obtain the services sought: food preparation, space heating, gathering, healing, fulfillment of traditions, etc. Therefore, the individual behavior of the household members, and, the family and community dynamics are central to the actual field performance of the cookstoves. Furthermore, this behavior influences the activities around the cookstoves, critically regulating the exposure to air pollutants. We analyzed the behavioral dimensions in the adoption and impacts of the cookstoves disseminated in two controlled trials carried out in rural areas of Guatemala and Mexico. We focused on two behaviors: the patterns of combined open-fire and cookstove use; and, the behavioral determinants of exposure to household air pollution. The results from both trials showed that households with sustained cookstove use close to 90% days-used could still be exposed to elevated concentrations of air pollutants from the continued use of open fires. Thus, monitoring the residual use of these fires is crucial for impact assessment. The statistical results of the Guatemala trial showed that adjusting for all the non-behavioral individual and household-characteristics in the personal exposure models was insufficient to account for about 40% of the exposure differences between children from the case and control groups. Both trials attributed the residual variability in exposure to behavior – namely: to the patterns of combined cookstove and open-fire use, the practices for kitchen ventilation, stove operation and stove maintenance; and, to the daily patterns of time-activity and time-location. Our analysis highlights the need to develop frameworks to quantify the behavioral components in the delivery of the health, energy and climate benefits from cookstove dissemination.