

Nandi Clean Kitchen Study

Global Air Quality Trekkers - EPICS

Chronic Obstructive Pulmonary Disease (COPD) and heart disease associated with exposure to elevated concentrations of indoor air pollutants produced by biomass stoves in poorly ventilated kitchens has led to 3.8 million deaths annually (WHO, 2016). This problem is observed in many developing areas of the world, including Nandi County, Kenya. A group of women from Nandi saw the serious health effects this issue has imposed on their community and designed and built modified kitchens that contain a chimney; a roof-vent and additional windows and airflow pathways for improved natural ventilation; and an incubation chamber for chicks beneath the stove. Most importantly, the modified kitchens preserve their traditional stove design, thus requiring no changes in cooking technique. The women have partnered with Purdue's EPICS Global Air Quality Trekkers (GAQT) team for further guidance through a collaboration between Purdue, Moi University, and AMPATH Kenya. The objectives of GAQT are: (1.) to evaluate the traditional and modified Nandi kitchen designs by using air quality and ventilation data collected on a January 2017 trip to Kenya, (2.) to further improve the modified kitchens through natural ventilation modeling, and (3.) to implement those designs in a demo-kitchen in Nandi this summer.

Keywords:

Indoor Air Quality, Kenya, COPD, Global Health, EPICS, Design, Architectural Engineering, Natural Ventilation