

Building cookstoves in Calhuitz: A Lafayette high schooler's experience leading a health project in rural Guatemala

By Adam Blake

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Adam Blake, right, with one of the construction workers who received one of the stoves Adam and others built for residents of Calhuitz, Guatemala, to help cut down on indoor smoke pollution. (Contributed)

Metal buckets, cinder blocks, a drill and tin cutters. With these simple items I attempted to tackle one of the foremost global causes of death -- indoor air pollution.

According to the World Health Organization, indoor air pollution was linked to 4.3 million deaths in 2012 in households cooking over coal, wood and biomass stoves. Inhaling smoke is more than a discomfort; it can lead to many health problems including Chronic Obstructive Pulmonary Disease, lung cancer, and pneumonia. Building smokeless cookstoves called "wood gasifiers" with the materials mentioned above is one way I tried to help.

This summer, I spent five weeks in Central America with the Global Public Service Academy, which organizes trips to developing countries for high school students. High school-age volunteers make a positive impact via cultural immersion, working on health projects and serving in health clinics. The program is founded and run by Dr. Robert Malkin, a professor of bioengineering at Duke University and includes faculty from both Duke and Harvard.



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Some of the stoves built by Adam Blake and others involved with this past summer's Global Public Service Academy outreach trip to Calhuitz, Guatemala. (Contributed)

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This was my second year, and I came back as a "Leader in Training" planning and leading a project. I chose combating indoor air pollution. Although GPSA and other volunteer groups have built stoves in developing countries to address this problem, I wanted to go a step further by making a lasting impact that could grow after our group left.

For about a month we stayed in Calhuitz (pronounced "cal-weetz"), an impoverished, remote town in the province of Huehuetenango near the Mexican border. It's about a five-hour drive up and down dirt roads to the nearest hospital. GPSA had traveled there two years prior; it was my first time. During the week we stayed in dorms at Casa Materna, a clinic where women come from afar to give birth. On weekends we stayed with local host families.

Participants worked with different leaders in training on their various projects, helped with the construction work at Casa Materna and assisted community health leaders. We also studied the local Mayan dialect Chuj, one of 21 Mayan living languages in Guatemala, spoken by about 40,000 residents.

I laid out a three-pronged approach for tackling the indoor air pollution problem. First, I wanted first to educate locals about the

dangers of breathing in smoke, through talks ("charlas") local health organizers helped me facilitate. Next, I wanted to build the clean cookstoves for people in Guatemala. Last, I wanted to teach groups how to build them themselves.

Soon after we arrived, I was surprised to learn 84 percent of homes there have chimneys. I felt relieved that I could narrow my project down to the 15 percent of homes that didn't have an effective way to channel smoke away.

I soon became friends with a man named Miguel, who worked in the pharmacy (imagine a couple of shelves of primitive medicine -- not your local CVS). He helped me make a list of families without stoves to help prioritize who should get them first.

Miguel and I traveled from small home to small home, most of them with mud walls, dirt floors and tin roofs. During the home visits, it became difficult to breathe in the smoke-filled rooms. The mothers cooked without stoves, using just logs burning on the ground.

The science of how our stoves become "smokeless" is a little complicated, but basically there is a secondary burn between the two buckets used for each stove, and it is so efficient that no smoke by-product is produced.

Back at Casa Materna we made assembly lines to drill and cut all the holes for the stoves. I spent so much time outside our dorms working that I earned the nickname Hombre de Estufas ("Man of Stoves").

Trying to change centuries-old habits is one of the hardest parts of bringing new health care technologies into developing nations. There was some animosity toward us at first; we were banished from one house. But I started feeling better after I received positive feedback and words of gratitude from three households where we installed stoves .

We built 18 stoves. But in the spirit of the proverb, "Give a man a fish and you feed him for a day; teach a man to fish and you feed him for a lifetime," my goal was to help families cook for a lifetime, not just however many families we had time to build stoves for. I kept records of the locations of all the houses, as well as family names, so future GPSA trips to Calhuitz could check in on them. I also showed residents how to build stoves, and left pamphlets with pictures and clear instructions so residents could build and fix them.

Our work doesn't begin to scratch the surface of the indoor air pollution problem in Guatemala. But despite feeling overwhelmed, challenged and even unwanted at times, I believe I made a positive impact on a community in need. I can't wait for the next opportunity to make my return as the "Hombre De Estufas" or face an entirely new health issue.

Adam Blake is editor of the Acalanes High School Blueprint newspaper. He is a senior, hoping to attend college on the East Coast next year.