

Research to the Extreme ~ An Assessment of Water Usage and Environmental Health Needs in Pastaza, Ecuador

By Lia Marshall

Children with swollen bellies and skin rashes from parasites bathe in the Amazonian river. Their mother stands next to them washing the family's clothes while the two youngest kids of 11 fill their poma (plastic bottle) with water for drinking and cooking. Twenty meters upstream sits the community's one letrina (outhouse), which consists of a hole through which feces and urine flow directly into the river. Witnessing scenes such as these the prior summer first inspired our Cal Undergraduate Public Health Coalition (Cal UPHC) to further investigate the water usage and sanitation practices of these Shuar communities and to conduct a needs assessment to determine the communities' other environmental health concerns.

As the bus jumps up and down the gravel road, we watch the vegetation grow thicker and thicker. Trees shoot into the canopy while ferns and other plants spot the forest floor. After an eight hour trip from Quito, our technical assistant tells us to get off the bus; there are no signs - just a small path that leads up to a house in the jungle where his mother and ten siblings live. This will be our home for the next seven weeks.

In the first ten days, we conduct pilot studies with the nearby community of San Ramon. Making many five hour round-trips to the nearest city, Puyo, we revise our surveys and prepare for an intense five weeks of research. Working with the Director of Health for the District of FENASH, we plan our route to ten Shuar communities within the district.

The mud sucks our black rubber boots as we make our first trip into the interior. Five hours later while entering Shakap, we see this community's primary "water source". A trickle leads into a large puddle, which is surrounded by rocks with detergent marks and a wooden board for bathing. This site foreshadows what we will later find in other communities - most people use one water source for everything - drinking, cooking, bathing, and washing.

Crossing the Rio Oso, we arrive in the next community, Timias. After the trek, we happily bathe in what appears to be a clean, clear river that lies eight hours (walking-distance) from the road. The next day following torrential rains, we return to the river to collect water - only to find a flowing murky brown soup carrying a potent odor. Just as we are about to ask where the smell is coming from, I accidentally step on something wet and gooey and discover our next clue as to why many people in the village may have protruding bellies.

In our next expedition, we arrive in the community of Nankai to find that most of the families had left for their fincas (farms) and will not return until Friday. After we complete our routine training with the professor and local health promoter on how to conduct the surveys, we leave for the next village of Uwijint - two hours away. Three hours later, we turn around and start hiking back where we came from. An hour later, we turn around again and take another trail. It starts to get dark and we can barely make out the chopped mahogany trees that cover the trail. Through wandering seven hours in the jungle without direction, we realize two other significant concerns of some Shuar communities: transportation and deforestation.

The sky is pitch-black as we climb out of our sleeping bags and prepare for the final journey into the jungle. It is my last full day in the District of FENASH, and we still have one community left to visit -

torrential rains and the drowning of the vice president of CONFINAE (one of Ecuador's indigenous organizations) had prevented us from making the trip earlier. One day, 1 community meeting, 2 determined team members, 4 hours of trekking (walking like a Shuar or eight hours walking normally), 10 interviews, and 18 river crossings (nine each way) concludes our research trip to the Pastaza Province.

Watching the buildings fly by as the bus enters Quito, reality hits me – did we really just do all of that? It had been some of the most intense months of our lives – a physical, mental and emotional marathon - but our team had just crossed the first finish line.

Our time in the communities had been packed with challenges and obstacles to overcome, which ranged from dealing with community politics, working in extreme environmental conditions, to adapting to a new culture. However, from these experiences we also learned an incredible amount, including how to design, revise, and conduct culturally appropriate surveys and research. For example, we gained practical experience in earning the confidence of communities, respecting cultural practices without comprising research methods/results, and working around local conflicts.

In addition to gaining so much valuable research knowledge and skills, our team also enjoyed an amazing cultural exchange. From attending graduations, baptisms, and clausuras (end of school year ceremonies) to drinking chicha (fermented yucca) and to eating mainly yucca, platanos and papa china (starchy “vegetables”), we were fully immersed in the culture. Playing soccer with each community and dancing with the Shuar in their many community celebrations brought us even closer to the people.

Our group is currently in the process of inputting and analyzing our data. Once we finish, we plan to share our findings through presenting and publishing our results. We also plan to continue our work with the Shuar by using our results to ultimately develop appropriate intervention strategies to provide the communities with safe water and basic sanitation. Our next step includes finding more funding to continue our research by testing and demonstrating proven Point of Use (P.O.U.) water treatments in order to best assess which treatment methods are most viable in each community. We also plan to continue developing and expanding upon our educational tool to provide the Shuar with simple practices and hygiene information that they can use to drastically improve their health.

While this account gives a glimpse into the experiences of the Cal Undergraduate Public Health Coalition, it would require a book to share all that we experienced and learned. Rather than continuing the story here, we will end by saying thank you to the Center for Occupational and Environmental Health (COEH) for awarding us the Northern California Center for Occupational & Environmental Health Student Project Award. We are so grateful to them for placing confidence in undergraduate students and for making possible this amazing learning experience.