

Customer Success Story

University of Colorado Boulder Evaluates Water Treatment Plants in Amazon



The Mortenson Center in Engineering for Developing

Communities program at the University of Colorado Boulder seeks to create sustainable and appropriate solutions to meet people's basic needs.

<http://civil.colorado.edu/>



Effectively conducting the CBT while in the “field”, a household along the Amazon River.

About the CBT

The Aquagenx Compartment Bag Test (CBT) is a portable, simple, self-contained water quality test kit that lets anyone, anywhere determine if drinking water contains *E. coli* bacteria and poses a health risk.



Challenge

In the summer of 2013, a team of environmental engineering graduate researcher students in the Mortenson Center in Engineering for Developing Communities program at the University of Colorado Boulder conducted water testing in rural communities along the Napo and Amazon River near Iquitos, Peru. Their project involved monitoring and evaluating water quality at community water treatment plants and at the household level. Field conditions in the Amazon were rugged, lacking electricity and a lab. Lia Brune says her team “needed a microbial test that could hold up to the field conditions and provide reliable results, all while incubating at the ambient temperatures three degrees south of the equator.”

Solution

The team used the Aquagenx CBT in Peru to collect water samples at centralized community water treatment plants and measure the effectiveness of the water treatment process. In order to measure for possible recontamination of water between collection at the water treatment plant and consumption in the household, storage buckets in households were also sampled. Water from point-of-use filters that consist of a membrane filter were also sampled as a comparison to centralized water treatment.

Results

CBT results were reliable and enabled the research team to quantify *E. coli* contamination at varying levels in various drinking water sampling sites. They discovered that water passing through the membrane filter in the point-of-use filters was contaminated, suggesting microbial growth within the filter itself. As a result of this finding, a secondary barrier to microbial contamination was added to the point-of-use treatment system in order to effectively remove *E. coli*. Positive *E. coli* counts at the household level prompted the research team to promote community education of proper handling and storage of drinking water.

“Compared to other methods, the CBT is light, compact, easy to use and not easily contaminated in the field,” says Brune. “The CBT is the only product I’ve found that is suited for water quality testing in the Amazon. No temperature control or laboratory are needed, two things that do not exist in rural communities of the Amazon.”