



Case Study  
Ultrafiltration  
Do it Yourself  
in the Peruvian  
Andes

# Case Study: Ultrafiltration Do it Yourself in the Peruvian Andes

## Protecting Drinking Water from Parasites



### CUSTOMER / USER

Dr. Benjamin Zeier and family, based in Curahuasi, Peru



### THE SITUATION

Expensive and labor-intensive disinfection of heavily-contaminated drinking water. Recurring illnesses despite ebullition



### THE SOLUTION

Seccua UrSpring BeWell, DIY installation and configuration

In 2020, Dr. Benjamin Zeier—an emergency physician and urologist—left Germany together with his family of seven to start a new life in the Peruvian Highlands. Today, Zeier works as a physician at the Diospi Suyana mission hospital, which is nestled in the Peruvian Andes 8,500 ft. above sea level. The hospital is renowned nationwide for providing the people of the region affordable access to high-quality health care. Nevertheless, the South American highlands lead the world when it comes to the spread of infectious-diseases. Insects play a major role but the primary causes of infection are water-borne parasites, making the local water unsuitable for human consumption.

Consequently, locals are forced to rely on bottled water. Of course, boiling water is a tried-and-true disinfection alternative. Because water's boiling point at an altitude of 8,500 ft. is only 176°F, fifteen minutes of cooking are a minimum. Even the tap water used to rinse and prepare food needs to be chlorinated and chemically treated before it's safe.

The mission hospital itself has access to clean water from a private well, whereas Dr. Zeier and his family used to depend on bottled water for everything from preparing their food to brushing their teeth. Despite taking extra precautions, family members frequently suffered from diarrhea and fevers. There were even instances when they required medical treatment to combat parasitic infection. That's when Dr. Zeier went in search for a solution that would protect his family for the long term. Having to treat water before every use, whether by boiling or by adding chemicals, is extremely time consuming and inconvenient.

The doctor heard about ultrafiltration technology and—together with some friends of the family who lived back in Germany— had a Seccua ultrafiltration system flown in for his home.

## Ultrafiltration Provides Almost Total Protection from Waterborne Pathogens

In August of 2021, the Curahuasi-based family received its UrSpring BeWell ultrafiltration system via airfreight. The unit came with very detailed, yet easy-to-understand, instructions written in both German and English. On top of that, Dr. Zeier took advantage of Seccua's excellent phone support so that installing and setting up the system turned out to be straightforward.

The membranes used in Seccua filters have a pore size of 0.02 microns. Compare that to the thickness of human hair at some 60 microns. The membrane serves as a barrier against pathogens. It physically removes 99.99 % of all viruses and up to 99.99999 % of all bacteria, parasites and other microorganisms. Turbidity-promoting solids, rust staining, and many other particulates are reduced below the visibility threshold ( $< 0.15$  NTU).

Ultrafiltering water cleanses it of all microbacteria. Each unit is capable of purifying up to 237 gallons of raw water into clean, sanitary drinking water per hour.

The unit began operating properly from the minute it was switched on, which became apparent immediately. The inlet water was a turbid, brown broth that no one would want to drink voluntarily. Lab reports revealed that this was due to water from the cistern having been heavily contaminated by fecal matter. As soon as the vital kitchen tap was fitted with an ultrafiltration unit, clear, pleasant-tasting—and most importantly—healthy water began to flow immediately. A sample indicated that the water was completely untainted.

In the meantime, filtered water flows from every faucet in the home. The difference in the Zeier family's health and safety conditions is night and day. "Since we installed the ultrafiltration system in our home, the endless diarrhea and fever-scares are history! The whole family drinks from the tap," Dr. Zeier is pleased to report. "Thankfully, we no longer have to boil every drop. We could not be happier with our Seccua ultrafiltration. I would definitely recommend it to other families. I can't tell you how much the ultrafiltration has done for our quality of life. When it comes down to it, it's one of the most valuable objects we own."



You can read about Dr. Zeier's life in Peru in one of his books as well as online. —[www.missionsarzt.de](http://www.missionsarzt.de)— his website is full of fascinating case studies and individual patient stories. It's also a convenient place for you to make a contribution to the Diospi Suyana mission hospital's vital work, which is entirely donor funded.



Before: Unsavory and unsanitary brown broth



After Seccua Ultrafiltration: Crystal clear and clean drinking water



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