Published in *Utah State Engineer* – Oct. 2, 2017 – Engineering students spent part of their summer break in Southern Peru investigating contaminated water supplies and helping local alpaca farmers solve an ongoing problem.

EWB members Michael Flores, Garrett Wood, Katie Henderson, Heather Nielsen, Camiel Bruneel, Camryn Christensen, Karl Christensen and faculty advisor Dr. Marv Halling traveled to Southern Peru.

USU’s student chapter of Engineers Without Borders (EWB) travels to the region each year. Part of their mission has been to develop a light-weight portable shelter designed to protect alpacas from cold weather and predators.
Student Heather Nielsen works with a local ceramics artist in Southern Peru. Iron-rich clay can be used to make ceramic water filters that absorb arsenic.

Students and faculty advisor Dr. Marv Halling taught local residents how to build a shelter of their own and how to transport it. Alpaca farmers say the shelters make a big difference in regions where up to 50 percent of a herd can be lost to extreme weather.

This year EWB also began researching ways to reduce arsenic contamination in drinking water. Throughout the region, many residents get water from nearby wells that are susceptible to groundwater contamination. Students sampled dozens of wells near the community of Tuni Grande and recorded elevation and GPS data that will be built into a digital map to reveal contamination trends. The next step will be to reduce arsenic levels using ceramic water filters.
Heather Nielsen and Michael Flores construct an alpaca shelter. The student-designed shelters protect vulnerable alpacas from cold and predators.

Students visited Pucará, a small town known for its ceramics industry. Figurines, kitchenware and a variety of clay goods are made here and distributed throughout Peru. In regions where arsenic contamination is a concern, residents use ceramic filters which, due to their high iron content, can absorb arsenic. Samples of different clay materials were brought back to USU for analysis. Halling said the findings will enable the team to design an effective clay filter that locals can construct and sell.