



METER
ENVIRONMENT

ENGINEERS WITHOUT BORDERS ALLEVIATES PANAMANIAN VILLAGE WATER SECURITY ISSUES

Engineers Without Borders (EWB) at Washington State University in Pullman, WA has partnered with a small indigenous village located in the Comarca Ngäbe-Buglé region of Panama. The relationship between this village and EWB at WSU began in 2016 when WSU alumna Destry Seiler began living in the village as a Peace Corps volunteer hoping to help solve the community's water security needs.

During the rainy season in this village, approximately 20 households have access to water through a two-inch PVC pipe that operates by gravity. It runs approximately 1.5 kilometers through the jungle from a spring source higher in the mountain to small hose spickets located close to the homes on the distribution line. The other ~80 households do not have access to the distribution line and walk to the closest river or creek up to five times a day to find water. However, during the dry season, most spring sources dry up, leaving all households in the community to walk to the diminished supply of rivers to find their water.

The village initially requested assistance from the Peace Corps in order to find a year-round source of clean water. But, after living in the village for 1.5 years, Seiler could not locate spring sources that both survived through the dry season and could also reach the homes in need through a gravity fed system. Then Seiler began thinking of groundwater as a possible new water source for the community. Unfortunately, groundwater data for the Comarca Ngäbe-Buglé was not available from the local government agency. So she decided to reach out to WSU professor, Dr. Karl Olsen, to ask for assistance with a groundwater research project, and the EWB club was formed.

The club visited the village for the first time along with Seiler and faculty mentor Dr. Olsen in August 2018 to do an initial survey of water use and needs, as well as to create a first-ever map of the area. EWB will return to Panama this June 2019 to implement a solar-powered water pump requested by a section of the community to deliver water from a spring source to approximately 20 homes on the nearest ridgeline. The club will also install latrines in a nearby community. They will continue the groundwater survey of the area through more extensive mapping and perform a more advanced analysis with the support of a local hydrologic company.



ATMOS 41 microclimate weather station

The team will use a METER-donated [ATMOS 41](#) weather station along with a [ZL6 data logger](#) and [ZENTRA Cloud](#) software to assist in the data collection necessary to begin mapping groundwater in the area. The [weather station](#) will record precipitation, solar radiation, vapor pressure, temperature, wind, and relative humidity data that will enable EWB to begin to quantify environmental conditions and available water supply. When combined with streamflow data from rivers in the area, groundwater availability can also begin to be estimated. Because of [ZENTRA Cloud](#), EWB will be able to view this information near-real time as well as share it with the village to help guide their design decisions. EWB plans to install the [ATMOS 41](#) at a nearby village school to ensure weather station security and to provide an opportunity for local students to learn about their surrounding environment in a way they have not been able to do before.

To learn more about the Panamanian village or the work EWB from WSU is doing, visit ewb.wsu.edu.

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