

# Caminos de Agua - Volunteer job description

## Information about the Charity:

Founded in 2012, Caminos de Agua's mission is to improve human health and community well-being through adequate and affordable access to clean water, in response to the decline of water level and quality of the Alto Río Laja Aquifer, in northern Guanajuato State, Central Mexico.

The organization works in partnership with local communities, grassroots organizations, government (municipal, state, and federal), international NGOs, and leading research institutions to provide open-source water solutions for over 680,000 residents, in the watershed and beyond. Caminos de Agua also trains aspiring, socially responsible engineers, scientists, and other young professionals looking to make social and environmental impacts in their work. The activities of the organization are sub-divided in several projects, including:

- the production and distribution of certified ceramic water filters, created by Caminos de Agua to eliminate water-borne pathogens,
- community-based installations of rainwater harvesting systems,
- water quality monitoring at well sites throughout the Alto Río Laja Watershed,
- research and development of specifically engineered solutions for the removal of arsenic and fluoride from drinking water,
- grassroots community development, education, and training regarding regional water quality issues and solutions,
- national water politics, and public policy work at the municipal, state, and federal levels.

Caminos de Agua has an extensive history of working with foreign volunteers, including three SAFAD volunteers and four Cranfield MSc students on thesis placements. See [www.caminosdeagua.org](http://www.caminosdeagua.org) for more information about the charity.

## Information about the project:

The volunteer will be integrated to Caminos' Research and Development team ("Tech Team"). The volunteer will be a key person moving forward our pilot groundwater treatment systems. Technical guidance will be provided when relevant. The responsibilities of the volunteer might include (but not be limited to):

- Research and training related to the specific technologies used in the system;
- Identify a relevant community where to implement our next system, both from a technical and social point of view (working with our community outreach team);
- Participate in the consensus building and group organisation processes within the community, which will take place before (and during) the implementation;

- Designing and construction of the system;
- Participating in laboratory-based work to further optimise the processes used;
- Performing basic laboratory analysis in-house;
- Coordination with external laboratories;
- Analysis of water quality results;
- Monitor the performance of the system, and make sure it complies with the relevant Mexican norms;
- Provide technical trainings to the operators of the plant and community volunteers/assistants;
- Documentation and creation of schematics;
- Meetings with community organizers and users to assist implementation success;
- Help review the organisation's implementation strategy based on the experience acquired during the project.

**Skills required:**

- Bachelor's (or superior) in science or engineering (preference to individuals with a water background);
- Fluent in either English or Spanish with working proficiency of the other;
- An interest in developing technology for social justice;
- Experimental design and basic statistical data analysis;
- Able to take an abstract task and work independently;
- Problem solving skills;

**Additional Preferred Qualifications:**

- Experience working in the field with rural communities;
- Experience with manual work (construction/plumbing)
- Experience working in a laboratory setting;
- Comprehensive understanding of chemistry;
- Knowledge of and/or experience designing gravity-driven water treatment systems;
- Experience developing and/or working with novel sorbents for water treatment
- Proficiency in 3D modelling and/or CAD design, Fusion360.

The volunteer should be available from September or October 2023 and should be with Caminos de Agua for a minimum of 6 months. Depending on the progress made on the project, and on the interest/skills of the volunteer, other projects can be considered during the stay of the volunteer.