Global Grant Summary

Maya Jaguar School

Surface water in Guatemala covers approximately 1,000 km² of the country's total land area of 108,900 km². Although Guatemala has considerable surface water resources, these are unevenly distributed, highly seasonal, and frequently subject to pollution. Fresh groundwater sourced from wells and springs represents a crucial supply, serving potable, agricultural, industrial, public, and domestic needs. Sedimentary aquifers located across plains, valleys, and lowlands generally offer abundant groundwater resources.

Potable water demand is predominantly met by surface water, particularly in rural regions where 90% of water comes from surface sources, with the remainder supplied by groundwater. Among the nation's 329 municipalities, 66% utilize gravity-based delivery systems, 19% rely on pumps, and roughly 15% employ both methods. In 2010, annual demand was estimated at 835 million m³. Approximately 95% of the population accesses potable water; however, over one million individuals remain without safe drinking water. Only 75% benefit from in-house connections, while the remainder source water from nearby wells, rivers, or alternative means.

Water security challenges in the Northeast Highlands are more acute than national averages. The majority of Barillas municipality's 300 villages obtain potable water through boiling or, in some instances, by filtering surface water. Surface water sources serve nearly all household uses, including personal hygiene, washing clothes, livestock care, and personal consumption. During the rainy season, rainwater is collected from rooftops into basic catchment systems—typically large, open wooden boxes lined with plastic—which renders the collected water vulnerable to environmental contaminants. This water requires additional boiling or filtration prior to consumption, increasing household wood consumption. In the dry season, families may spend one to two hours (round trip) collecting suitable water, increasing time poverty and disrupting routine activities such as children's education.

Potential solutions include hand-dug wells, boreholes, or improved water catchment systems equipped with sealed 2,500-liter tanks. However, due to infrastructural limitations, topography, groundwater depth, substrate conditions, and machinery availability, wells are limited within the municipality. Rainwater catchment systems are considered the most effective method for harvesting and storing water safely during the rainy season. Nevertheless, individual tank systems are often insufficient to last throughout the dry season. As a result, community water resources ("tank farms") have been developed when feasible, providing significant supplementary water supplies that can support villages until the subsequent rainy season.

The installation of individual or community catchment systems is generally more costly than constructing hand-dug or borehole wells. These initiatives are labor-intensive and demand significantly more building materials compared to traditional wells. Each unit typically requires concrete pads, roofing posts, metal roofing, 2,500-liter tanks, and plumbing supplies. Financial support for these projects is frequently provided by civic organizations such as Rotary.

The Maya Jaguar School serves as a notable example of an institution benefiting from Rotary funding. Through a Rotary International Global Grant, in collaboration with Adopt-A-Village in Guatemala and the Hands for Peacemaking Foundation, the school was equipped with two community water catchment systems.

An evaluation of the school and its annual water requirements found that an additional 75,000 liters of water would be necessary for students and staff. The school's geography provides a limited area suitable for constructing a structure to accommodate 12 tanks, with sufficient elevation to allow for gravity-fed water distribution to the main campus buildings. A second site was chosen based on available space and holds the remaining 18 tanks. As this site does not have adequate elevation for a gravity system, it will require a small pump to supply water.

In January 2025, engineering plans received approval, allowing site preparation—including clearing and leveling of the designated areas for concrete pads—to commence. Construction of both pads began on January 20th. By early February, the concrete slab for the 12-tank was completed, and the footings for the 18-tank slab were nearing completion. By mid-February, both slabs were prepared for the subsequent phase involving installation of concrete posts and steps.

By late February, the concrete work, including posts, steps, and exterior slabs, was finished. On March 10th, the first set of tanks arrived at the site from Barillas. The round trip for transporting four tanks, at a time, took 8 hours. Roofing and plumbing materials were delivered soon after. On March 15th, the 12-tank system was roofed, plumbed, and prepared to collect water. The next day, the 18-tank system underwent roofing and plumbing, and was also ready for water collection.

Each designated area within the project was enhanced with supplementary wall framing and metal sheeting. This phase concluded in August, due to travel restrictions stemming from road conditions and the availability of labor.

The installation of an additional 75,000 liters of secure water storage, together with the existing capacity, is expected to ensure an extended and reliable water supply for students and staff throughout the dry season.