

WATER AT WORK MINISTRY

Sustainability Report

2022



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Sustainability Report: 2022



Sustainability Impacts in Three Areas: Water & Environment, Economic, and Social & Community

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How Do We Assess Sustainability?

SUSTAINABILITY: A measure of how well an enterprise is able to ensure its continued operation in the future by generating sufficient support, economic, social, and environmental, in the present.

IMPLEMENTATION OF A STANDARD METHOD: The Global Reporting Initiative (GRI), The Hague, Netherlands, has developed a format and general guidelines for assessing the sustainability of any enterprise. The Water at Work Ministry Sustainability Report follows those general guidelines and format. Self-assessment is conducted on a variety of applicable criteria.

The Water at Work Ministry Model

The mission of Water at Work is to transform the lives of over one million of the poorest people in the Dominican Republic through clean water distribution plants, business development and access to the gospel of Jesus Christ.

Key Elements

We build and equip complete water purification and distribution businesses in partnership with local churches, thus putting them in the business of reaching their own community with clean, safe water and the Gospel of Jesus Christ.

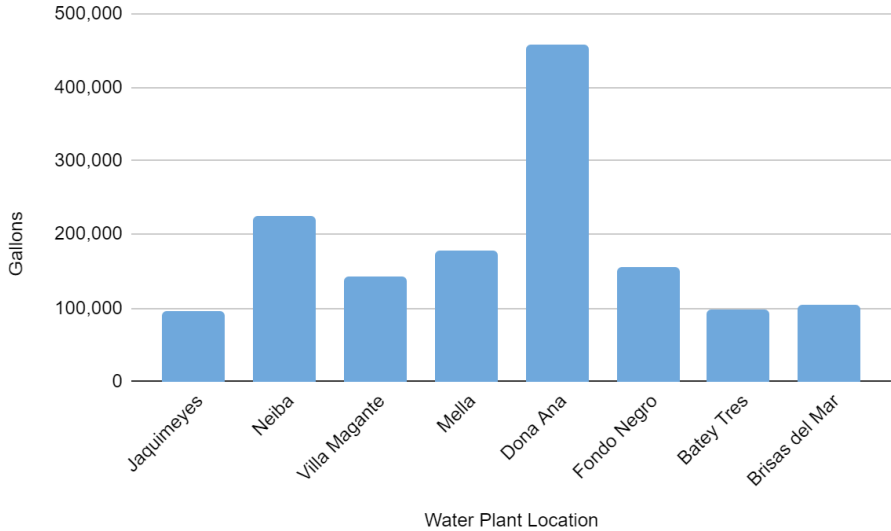
- All plants are certified for operation by the Ministry of Public Health.
- Selling below market pricing improves access to clean water for all people.
- In-country work is carried out by Fundacion Water Work, a Dominican non-profit formed and supported by Water at Work Ministry, Inc.
- Water process equipment and building materials are purchased locally in the Dominican Republic.
- Profits are devoted to sustaining the business, empowering the church in outreach and to economic development of the community.

Water Plant Names/Locations

Eight water plants were operating in 2022. Each of the plants has its own business name and service logo. However, for simplicity, the village in which each plant is located is used as its reference name in this report.

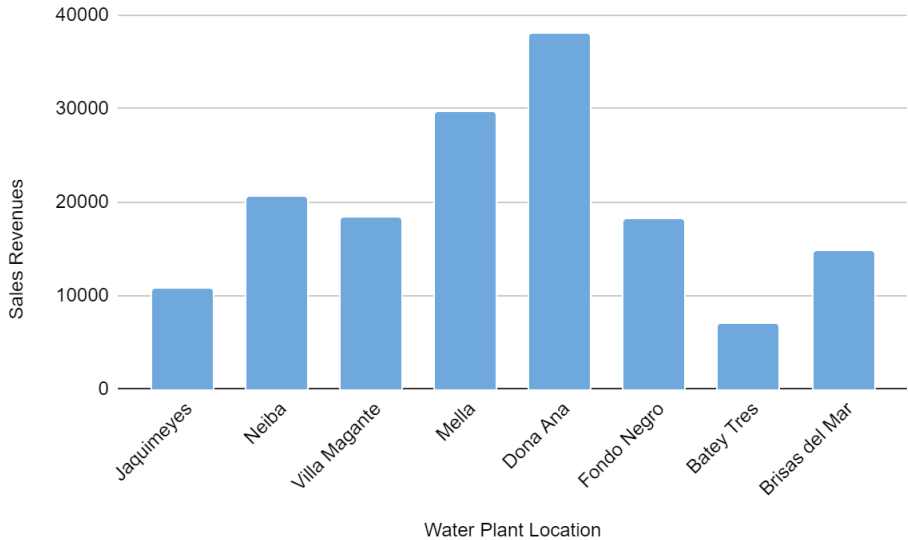
Economic, Social, and Environmental Impacts

Quantity of Water Produced by Location (Gallons)



Total production for 2022 was 1,445,720 gallons.

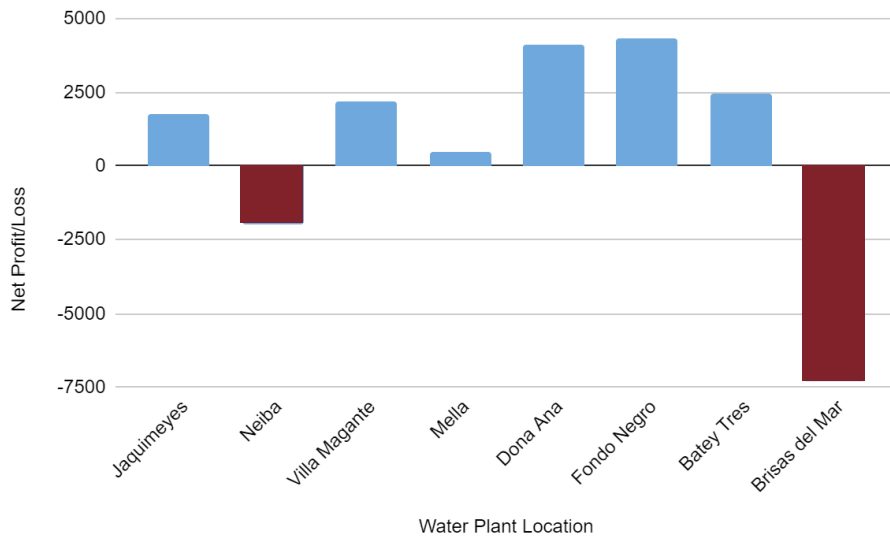
Sales Revenues for Each Plant by Location (US\$)



Total sales revenues for 2022 was \$148,364.

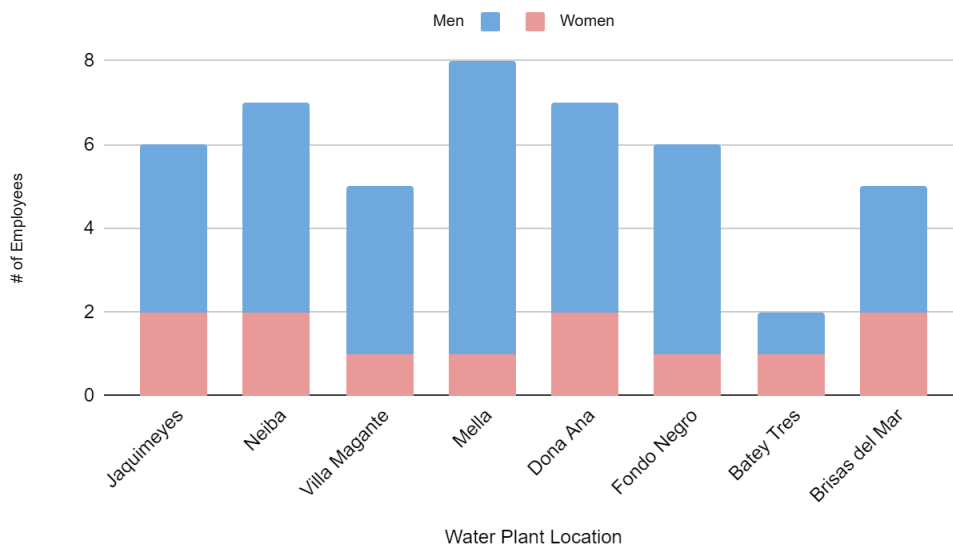
Economic, Social, and Environmental Impacts (Cont.)

Profit/Loss for Each Water Plant by Location



Significant startup costs were incurred at Brisas del Mar resulting in a loss for the year.

Employment per Water Plant Total Number of Full-time Jobs Created



Total number of fulltime jobs was 46 of which 12 (26%) were filled by women.

Discussion of 2022 Operating Results

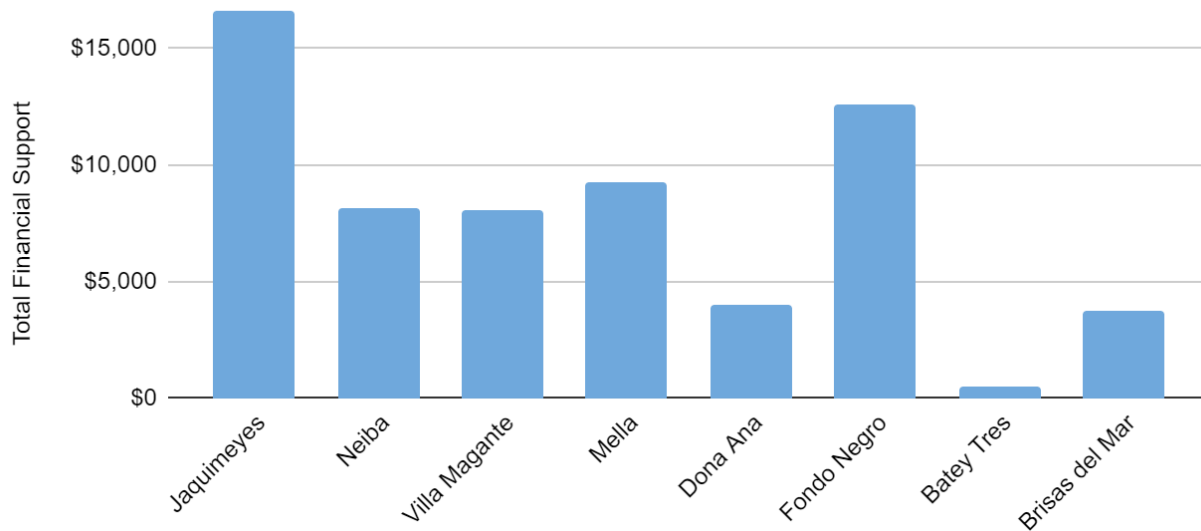
Water production for 2022 (1,445,720 gallons) was lower than in 2021 (1,628,925 gallons) due to extended downtime at some of the water plants. Overall, thirteen months of water production was lost due to three plants (Mella, Jaquimeyes and Villa Magante) being shut down for remodeling and/or reorganization. Despite this, sales revenues were up slightly (by \$1,006) over 2021 due to price increases implemented at some water plants.

Financial assistance was provided to all eight of the water plants to some degree in 2022. Our goal is to develop sustainable, self-perpetuating water businesses. The degree to which financial support was provided in 2022 is an important consideration in determining when, and if, we have reached that goal. The table below shows the financial assistance received by each water plant in 2022. The Supplies program represents an extension of credit to the water plants by Fundacion Water at Work. Plants must pay back 70% of their outstanding bill to order more supplies from Fundacion. The Supplies program is not a financial grant to the water plants but does provide assistance through the extension of liberal credit terms. The same should be said of our loan program. The loans are unsecured and interest-free and, as such, are a financial benefit to the water plants. The Expenses Paid list does indeed show financial grants that were made in 2022 to address particular needs that arose where quick action was needed to keep the water plant(s) in operation. In reality, a sustainable business should make those payments without our assistance. That is our ultimate goal.

Water Plant Financial Support

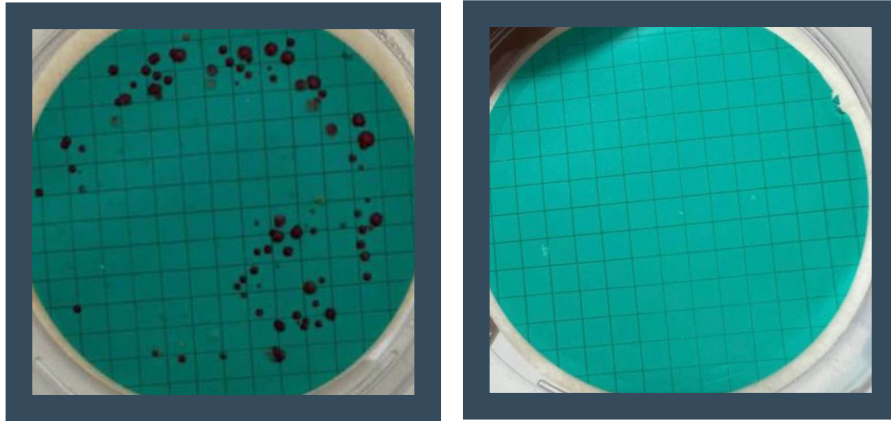
Support to Water Plants - 2022 Year End Balances (\$US)

Water Plant Location	Owed for Supplies	Loan Balance	Expenses Paid	Total Financial Support
Jaquimeyes	\$1,570	\$371	\$14,691	\$16,632
Neiba	\$1,843	\$826	\$5,442	\$8,111
Villa Magante	\$914	\$4,259	\$2,874	\$8,047
Mella	\$548	\$7,090	\$1,638	\$9,276
Dona Ana	\$0	\$2,731	\$1,290	\$4,021
Fondo Negro	\$391	\$5,914	\$6,278	\$12,583
Batey Tres	\$10	\$0	\$500	\$510
Brisas del Mar	\$379	\$1,639	\$1,773	\$3,791
Totals	\$4,085	\$22,459	\$19,795	\$46,339



Water Quality & Testing

- Biological testing is conducted for each water plant on a bi-weekly schedule with four sampling points per plant.
- Tests are conducted for E. Coli, Total Coliforms, Pseudomonas and aerobic bacteria.
- Contamination Incidents in the Final Product for 2022: NONE



**Left: Positive test for Aerobic Bacteria in the sediment filter at Mella water plant.
Right: Negative test for Aerobic Bacteria in water.**

- Remedial actions are taken to clean out any unit operations where positive tests occur.
- Downtime for remediation/cleaning of bacteria from the process was required in 2022 at the following water plants: Brisas del Mar, Jaquimeyes and Neiba.

Environmental Impacts

1. Water at Work Ministry's primary method of water distribution to resellers and residential customers is through use of plastic 5-gallon bottles. The practice is to recycle the bottles that are damaged or for other reasons not reusable.
2. One of the primary methods for providing potable water for the villages and bateys in the Dominican Republic is open area fires for boiling. The use of water from the Water at Work Ministry plants reduces the emissions of carbon dioxide from these fires. The plans include surveys to obtain an estimate of CO2 emission reduction.

Water Plant Managers Meeting



A key feature of our approach is that we get the water plant personnel together at least annually to review business operations, share ideas and marketing best practices, and to encourage one another. The meeting of the water plant personnel is a very important element of the continuous improvement objective. The lessons learned outputs contribute to the desired outcomes through the DMERL process.

The managers of seven of the water plants met together for training and to review best practices on June 26, 2022 (pictured above). A second meeting of the water plant managers was held on July 30-31 to take up additional subjects and to accommodate those who could not attend the previous meeting.

Continuous Improvement is now DMERL

We are adopting the acronym DMERL (Define, Measure, Evaluate, Resolve and Learn) to describe the internal process for documenting results and seeking continuous improvement in our mission. Read below how this has been put into action in 2022. Water at Work Ministry is adapting the MERL process to include D, for Define the program. MERL for some humanitarian organizations assumes that the Define step is the development of the grant following a

standard template. Water at Work Ministry plans to start the process with the design of the project using Change Theory. Water at Work Ministry therefore starts with the Define step to follow the overall process of DMERL.

General DMERL Process

The initial DEFINE step of the DMERL process beyond 2022 will include the use of Change Theory with the Log Frame results for the planned program concept. The Log Frame for the Water at Work Ministry mission is completed with plans to use it in the initial step for each new water plant and for major modifications of existing plants. The Log Frame format is based on the Kellogg Foundation website Change Theory. The Log Frame provides the Activities/Resources/Work required to achieve the desired program Outputs/ Outcomes/Results. The Log Frame is a required input for the Define project step.

The Log Frame will enable the program to expand the number and category of desired water, sanitation, and hygiene outcome indicators. The future indicator outputs will include results of sampling and surveys to estimate the level of the outcomes related to access of clean water plus health and social impact. The DMERL steps, with reporting throughout the program, include Measurement, Evaluation, and Resolve steps for all the program activities. Resolution provides the source for the lessons learned to maintain sustainability and generate continuous program improvement outcomes.

Scope of WASH Mission

The humanitarian mission set forth by the United Nations in their 2030 Sustainable Development Goals (SDG) includes SDG 6 which reads, "Ensure availability and sustainable management of water and sanitation for all". The term used by Rotary International for WASH programs for the general population now includes Water and Sanitation, and Hygiene. Water at Work Ministry is in collaboration with industry leaders in the sanitation and hygiene arena to include the WASH scope in their future Dominican Republic individual projects and their overall program.

Water Plant Productivity

A review of water plant operations in 2022 identified three problems areas that need to be addressed as follows:

1. Water producing capacity at most of the plants exceeds the capacity to bottle the water and get it out for distribution. Most (seven out of eight) of the water plants produce clean water at a rate of about 500 gallons per hour. However, even our most productive water plant (at Dona Ana) averages only about 60 five-gallon bottles per hour as their daily output. It became clear that we needed to invest in the capacity to fill bottles more quickly. This led us to plan for enhanced bottle washing capacity and automated bottle filling for our new water plants and to retrofit our existing plants with this capability as they come up for expansion. Our first automated bottle filling line will be installed at Villa Magante as part of their renovation and rebuilding project.
2. Water softening by ion exchange resin is a standard technology for all our water plants. However, it continues to present many operating problems, often due to operator error. Stagnant water left in the softeners eventually leads to bacterial contamination that requires downtime to disinfect and, if left untreated, leads to decreasing performance of the membranes in the RO (reverse osmosis) unit. An innovative solution was suggested by SaniAgua, one of our water equipment suppliers, in which the softeners are removed entirely from the process. In their place, two dosing pumps are added which inject antiscalant and caustic soda prior to the RO unit. These chemicals keep the RO membranes clean and let the hardness ions (calcium and magnesium) travel through the wastewater. This innovation was introduced in 2022 with the start-up of the Brisas del Mar water plant. The need for salt for regeneration of the softeners was eliminated and the potential for bacterial contamination was reduced. The plan for 2023 is to implement this technical change at all the water plants as soon as possible.
3. We rely on simple ozone generators (the MP-3000 from A2Z Ozone) at our water plants to provide ozone in the final purification step prior to bottling the water. The efficiency of these ozone generators is highest when they are supplied with dry air or oxygen. We have always tried to provide dry air by drawing the local, humid air through a tube packed with a drying medium. This has proven difficult and largely ineffective. In 2022 we decided to switch to bottled oxygen (150-pound cylinders). The bottled oxygen is very dry (dew point below 40 C) and the efficiency of ozone generation is much

higher with pure oxygen versus air. This change was made at the water plants at Fondo Negro and Dona Ana and was part of the initial design for Brisas del Mar. The results have been very good. The ozone generators run with greater efficiency and have fewer maintenance issues.

Infrastructure

It became apparent in 2022 that certain water plant locations have experienced deficiencies in their local water resource and/or electric power supply. We have three cases where it will be imperative for us to drill a well in 2022 to provide an adequate supply of water for the plant. Also, at least two of our water plants will need to add a diesel generator to ensure power is sufficient to ensure daily operation.

Raw materials Supply Chain

Review of the supply chain for the water plants indicated that service of the required raw materials for the plant water systems could be improved through Water at Work Fundacion management of key raw materials for the plants. The supply network modifications are meeting expectations.

Key Learnings from seeking a Global Grant from Rotary International

Water at Work Ministry has been involved in the process of seeking a Global Grant from Rotary International since the spring of 2021. The grant (#GG2235722) was approved on June 7, 2023. The Rotary people leading our effort along with us, learned firsthand how the Rotary grant process works and what information is required. It is important that we document what we have learned about the Rotary grant process as part of our DMERL effort. This will help prepare us for future opportunities for a Rotary Global Grant.

1. The Community Needs Assessment should be done first. Rotary wants to ensure they are addressing the top need(s) in a community. Thus, they aim to avoid conducting projects that may be popular or easy but leave the top critical needs of a community unaddressed. To do the Community Needs Assessment correctly key core groups within a com-

munity needed to be identified and formally interviewed. The needs expressed by the community groups must be prioritized and used to guide any decisions on what project(s) should be proposed.

2. The Rotary club which will serve as the International Host Club must be engaged in the project as soon as possible, even in the Community Needs Assessment phase. The local Rotary club has an important role to play in overseeing any project that is funded by a Global Grant. If Rotary can arrange it, they will send their funds through the local club. If that is not possible, Rotary will still want the local club to approve all payments for any work done on the project.
3. The Training Plan for Global Grants is important but assumes all training curricula for the project will need to be developed or purchased. The Training Plan does not anticipate that there will be an organization like Fundacion Water at Work involved with the project and positioned specifically to guide the project and provide training as part of its mission. The grant process also assumes there will be a need to pay for training and/or curriculum development. Therefore, such expenses should be included in the grant proposal.
4. The Rotary paradigm assumes funding will need to be arranged or generated to support and maintain the project in the future. Rotary requested a five-year financial plan showing how the project would be sustained over that period. We responded with a pro forma profit and loss statement that showed the water plant making a substantial profit each month.
5. The time required to apply for the grant, answer questions posed by the Rotary folks, and to receive the funds for the project may exceed two years. We began the process of gathering information and writing the grant proposal back in the spring of 2021. The grant was approved in June 2023. We believe the timeline for receiving the funds can be shortened by addressing point #1 above at the Define stage.

