Water Quality Public Health Program in the Dominican Republic

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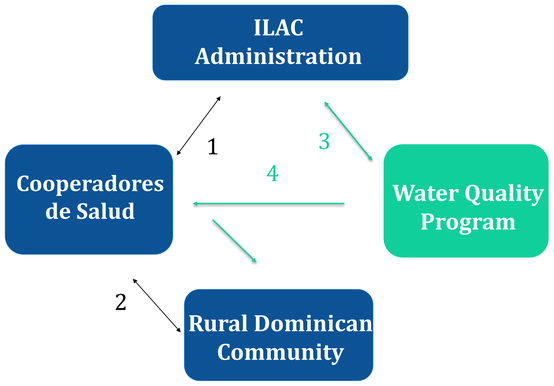
Abstract

The Institute of Latin American Concern (ILAC) is a Jesuit mission that was established over 30 years ago to provide healthcare to impoverished, rural Dominicans. Early in its history the organization realized that systematic change required a focus on public health. For this reason, a healthcare provider, cooperador, network was established for each rural community. In addition to education, water quality became an integral part of the public health effort through a program to distribute water filters to the rural communities. The object of the program is to increase accessibility of potable water, to provide education on correct filter usage, and to maintain filters.

Yearly testing is conducted in order to provide continued education of correct filter use, as well as ensuring proper functionality in rural communities. ILAC Water Quality Program 2011 testing included inspection of 500 filters from 23 different communities. Of the 500 filters examined, 7.2% were deemed non-functional, as compared to 20% in years past. Microbial analysis of 424 samples was conducted in order to observe the potablility of the sample filters. 95% of the samples analyzed produced water that was found to be safe for consumption. Testing indicates 61% of source water, i.e. aqueduct and rainwater samples, was unsafe for drinking demonstrating the need for water purification throughout the communities. The increased purity results of the filters can be attributed to the continual education of the cooperador network. The ILAC Water Quality Program aims to establish a model in which education, filter maintenance, filter production, and filter testing would be transferred to the Dominicans.

Background

- **Creighton University's Water Quality Program has been working in conjunction with ILAC for the past 7 years.**



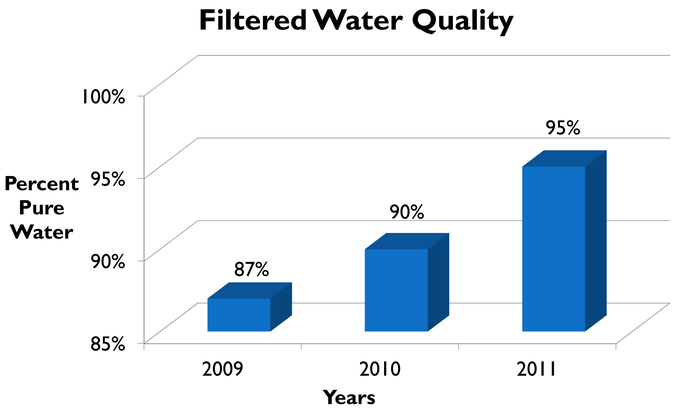
1. **Healthcare, education, project development.**
2. **Healthcare, education, community improvement, filter distribution and maintenance.**
3. **Filter construction and maintenance, water testing.**
4. **Community visits: water sampling, education, maintenance.**

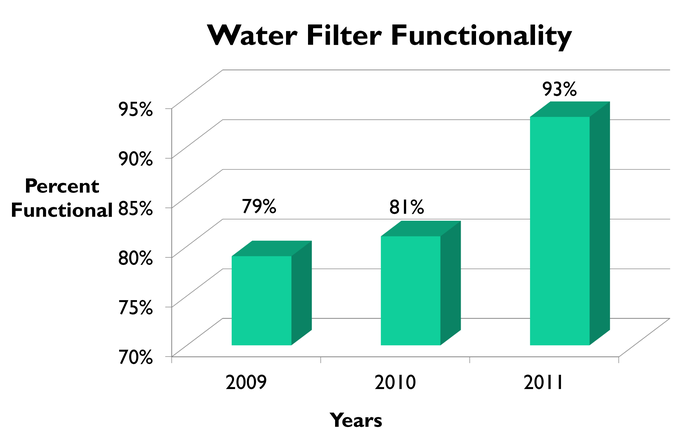
Methodology

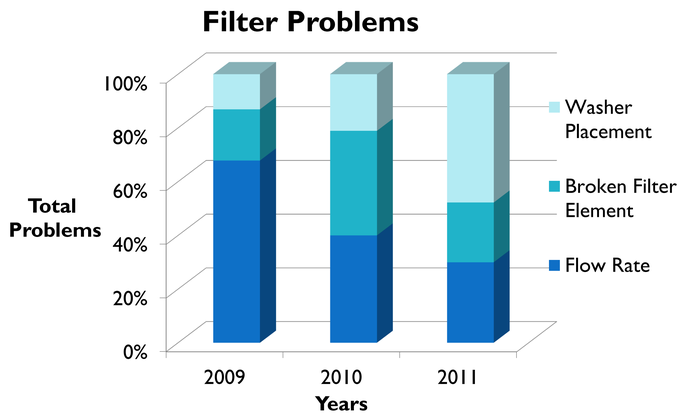
The 2011 Water Program:
Visited 23 communities, inspected 500 filters and performed microbial analysis on 424 filtered water samples.

1. Home visitation: Obtain 100 mL sample of filtered water. Record filter quality. Maintenance if necessary.
2. ILAC lab: Prepare samples for bacterial analysis. Incubate 24 hours. Analyze samples for fecal bacterial colonies. Conclude sample as potable or nonpotable.
3. Revisit Home: Explain results. Communicate and educate on proper filter usage.

Results



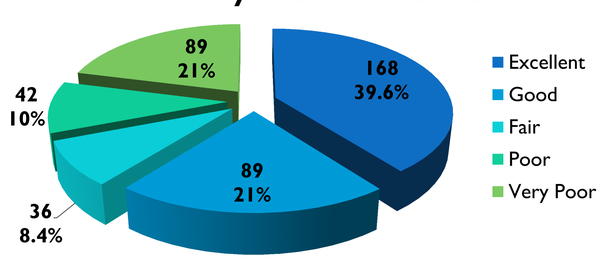




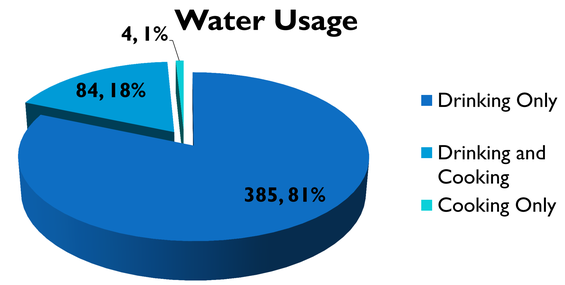
Conclusions

-Increased purity results from three years (2009-2011) can be attributed to the continual education of the cooperadores and users.
-Functionality of the filters has increased 14% over the past 3 years (2009-2011), attributed to the improved maintenance techniques which included the use of bleach
-Filter problems have shifted from major areas (flow rate and broken filter elements) to minor maintenance problems.
-Results indicate that education, filter maintenance, filter production, and filter testing can be transferred to the Dominican people.

Future Directions



-Bacterial counts in the bottom bucket indicate the need for continued education among the filter users about the importance of regular cleaning and sterilization.



- Filtered water is primarily used for drinking. The goal is to transition more families into using purified water for cooking.

Acknowledgements

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