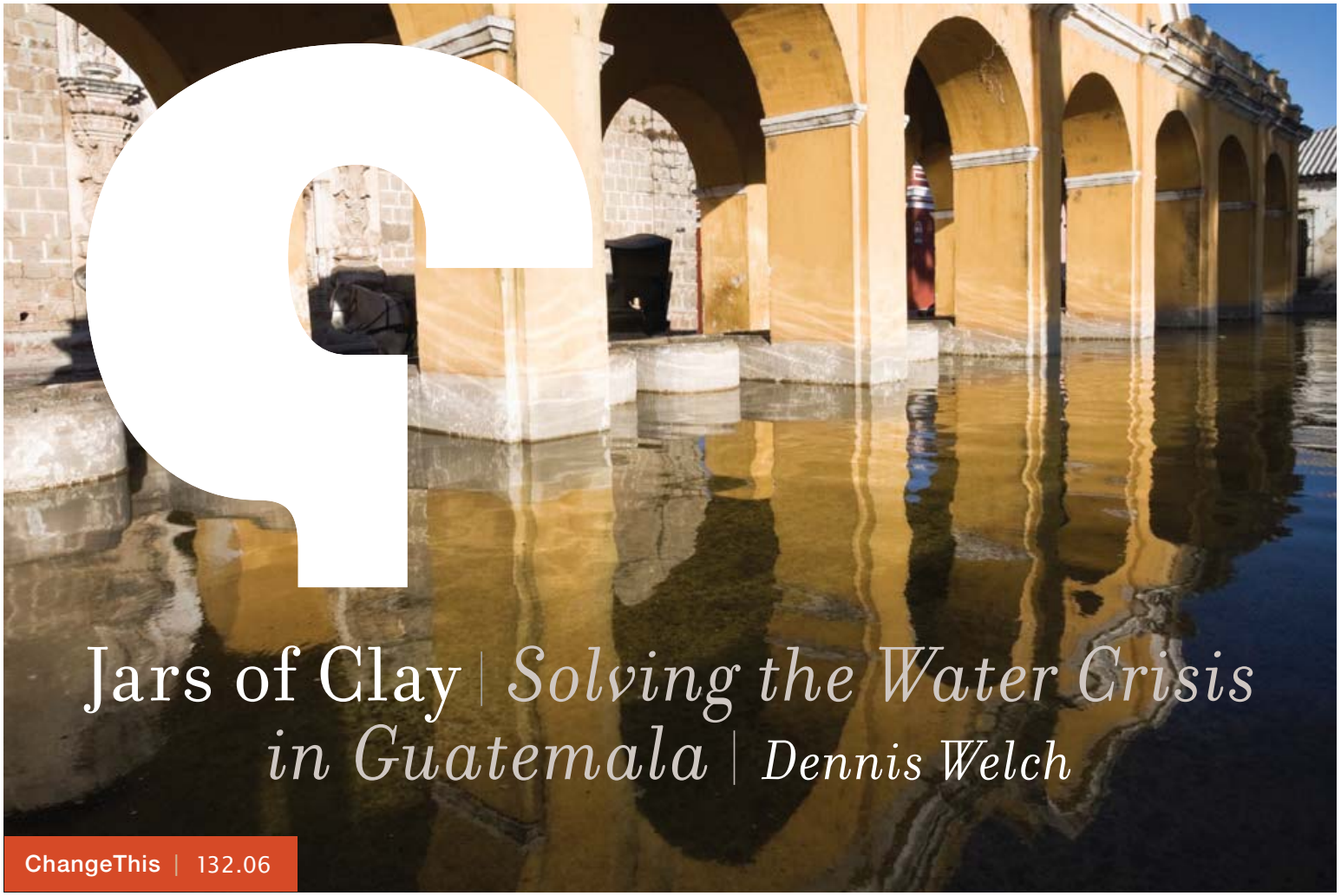


Jars of Clay | *Solving the Water Crisis in Guatemala* | *Dennis Welch*

ChangeThis | 132.06

In the high country of Guatemala,

you'll find a self-proclaimed "Social-preneur" CEO with degrees from Notre Dame and Wharton Business School who is on a mission to solve perhaps the biggest problem Guatemalans face in their everyday lives: unsafe drinking water. And, to accomplish that goal, this modern thinking business leader is using technology used by the ancient Romans, Egyptians, and Mayans, who laboriously used large clay water receptacles that were used to store fresh drinking water. These early versions of the modern filter took a terribly long time to manufacture and it was virtually impossible (and certainly impractical) to replicate on a large enough scale to solve a countrywide water filtration problem. But, after a Guatemalan professor discovered how to efficiently build a modern version of those receptacles and turn them into effective and culturally accepted water filters in a fraction of the time, opportunity came knocking for Ecofiltro CEO Philip Wilson and his company.

Wilson had been a successful entrepreneur but realized as he turned 40 that he wanted to do more. "You get to a point in life where you want your actions to point to something of significance," he says, "greater than oneself." He began his tenure as CEO with high hopes but soon found that the manufacturing process was filled with inefficiencies and variation. On good days, they could turn out only 60 percent workable pots. On bad days, the numbers plummeted

down into the 40s, or worse. To Wilson and his manufacturing team, each successfully manufactured pot represented a Guatemalan family, their health and well-being. In a country where one in twenty children under five currently dies from ingesting bad water, time was of the essence. In addition, the effect of impure water had tentacles that spread out into every aspect of Guatemalan society: schools had poor attendance because kids were often ill; individual physical and mental development for those who continually drank bad water was impaired; education beyond a certain grade was difficult for these poor souls; and, in the end, Guatemala's economy suffered because of it.

"In an effort to solve the problem, we brought in a steady stream of consultants, and one expert even wrote a huge document explaining how the filter making process worked and how to make it better," says Wilson. "But even with all of that, we were still only able to turn out 50 to 60 percent successful filters, and that was not good enough. We had to figure out how to fix it."

Wilson's goal is to have filters in a million households by the year 2020. If that goal is to be reached, the yield would have to rise significantly and he was determined to make that happen.

Enter Karl Ohaus and Judy Worth of the Lean Transformations Group. In what amounted to only five total consulting days the problems were found and solved by supporting the people who knew the most about the process in the first place: the workers themselves.

Solving the Right Problems

The process of building the filters begins at a company-owned clay mine. The clay is mined, then driven five hours to the plant to start the process of building what the manufacturing team hopes will be successful water filters. The clay is combined with sawdust, this mix is formed into a pot, and then the pot is painted with colloidal silver. Then, after a few days for drying, the filters are fired in a kiln. Somewhere in that process, there was a breakdown that had to be fixed. “At that time, we were taking the filters that didn’t work and drilling a hole in the bottom and selling them for flowerpots,” says Wilson. “We sold so many flower pots that I suspect that we drove down the price of flower pots in Guatemala all by ourselves.”

> *“In what amounted to only five total consulting days the problems were found and solved by supporting the people who knew the most about the process in the first place: the workers themselves.*

When Karl Ohaus arrived at the plant, he began with two simple questions posed to the plant supervisor: “How many filters have you made?” and “What do you suspect is the problem that is causing bad pots?” It turned out that the plant supervisor, Chema, had overseen the manufacturing of hundreds of thousands of filters and, inexplicably, not one of the steady parade of consultants who had been though the factory had ever asked Chema his opinion about the problem.

Chema knew all about the process and he had a great feel for what worked and didn’t work. Almost a sixth sense in fact. When Ohaus asked him how he knew whether or not a filter was going to be good, he answered by picking up one of the unfired filters and thumping on it with his finger and listening to the sound. He knew by the sound a filter made whether it would be good or not and whether the expense of firing them was worth it or not. In fact, he chose 20 that would be good to fire, and he was right on all 20 of them.

What a valuable asset! And he had never been asked his opinion. “Other consultants only told us what we should do, but this was the firsts time anyone asked what Chema knew,” says Wilson.

How it Worked

On Karl's next visit, he and Wilson's team created a value stream map that took the process from the clay mine all the way to the finished pot. This included:

- How they mined the clay
- How they transported it
- How they mixed it
- How they prepared it
- How they formed the filters
- How they fired them
- How they test to insure quality

"We identified the sources of variation in all of those parts of the process," says Karl. "And, then I asked, 'What experiments can you run to better understand that variation and figure out how to control it?' Chema and his team ran the experiments and he learned that a lot of the things that vary are also controllable."

As the problem identification process unfolded, Wilson saw a transformation happen right before his eyes with Chema and the workers in the facility. "They were empowered to experiment and

learn more and more about the process," he says. "And they loved that. They kept working on it and refining the process and making it better and better because they were empowered to do so."

Ohaus and Wilson and the sales team also took a long look at the sales process. When Wilson arrived at the company it was a model based on donations, and all of the filters were given away, based on the amount of money donated to the organization. Wilson had a different plan. He figured out that in the urban areas of Guatemala, people could afford to purchase filters at a profit to his company. Then, with that revenue, they could go out into the rural areas of the country and for the most part, finance the filters for families who didn't have the resources to purchase them up front. The sales part of the process had its issues as well, and so Karl, Judy, Wilson and the team followed the same Plan-Do-Check-Act process. First they constructed a value stream map of the entire process from start to finish, and then studied it and found the flaws and breakdowns and then closed the gaps to make it more efficient.

> *"As the problem identification process unfolded, Wilson saw a transformation happen right before his eyes with Chema and the workers in the facility.*

The Results

So, just five consulting days produced some remarkable results. The company is now turning out water filters with a yield efficiency of 85 to 90 percent good filters. The cost of each filter has gone down, and the flower pot business in Guatemala couldn't be happier about that, now that Wilson's company is making mostly filters and selling all they can make.

Chema and his team have become self-sufficient in running experiments to address the challenges that sometimes crop up. For example, in the summer of 2014, yield dropped precipitously, but Chema and his team conducted more experiments, figured out the problem themselves, and solved it. The percentage of good filters turned out by the factory began to climb once again in the fall, and by January of 2015, the yield was above 90 percent.

In areas of the country where the filters are in most or all of the homes, the schools are reporting a much more robust and consistent attendance. In fact, the rural schools have become central to the sales process and operation as a whole. Ecofiltro recently started donating filters to rural schools and an amazing thing happened: the kids started drinking fresh and clean water out of Ecofiltros at school, and then coming home and asking their parents to please buy one for the home. In essence, the students have become ambassadors for the company and its products, and rural sales have taken off. Today, Ecofiltros are growing by 1000 classrooms a month, which

means around 35,000 students every month are beginning to drink filtered water, a minor miracle. In the areas where Ecofiltros are prevalent, children rarely miss school because of water born diseases.

Wilson and his team have also learned a lesson or two about the sales process in the rural areas. When they first began selling filters to rural families they made the payment process easy, or so they thought: A dollar a month for 24 months. But soon, the rural buyers came to him and his sales team and suggested a different, more accelerated payment plan: A small down payment and just four no-interest payments afterwards to make it their own. Wilson and his team were shocked by this development, but soon figured out that the rural people did not like to be in debt to anyone for anything. This new plan allowed them to obtain the much needed filters and to do so without, what for them, amounted to long-term debt. Wilson says with some candor "I used my Wharton MBA to come up with a plan that didn't work." Thankfully the rural buyers came up with an even better plan and everyone is prospering because of it.

The rural buyers also figured out that the filters were cost effective. No more need to burn up their precious wood by building fires to boil and purify their water. Now, there was cool, filtered water available all the time and everyone was better off for it in every way.

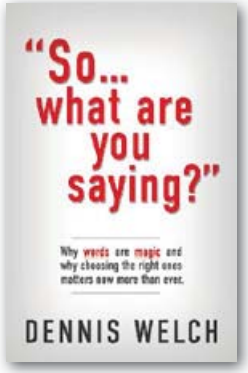
CEO Wilson and his team are well on their way to meeting their goal of having a million filters in a million homes by 2020. They are planning on expanding and replicating the success of their operation by building more factories and making sure they all use the now successful process of production, sales and financing developed over the past few years. Their hope is to sell enough filters in urban areas at a profit to allow them to expand their operation. They currently lose a small amount on each rural sale, but they hope that the manufacturing efficiencies continue to get even better so that they can break even on sales to rural customers as early as next year.

And, not surprisingly, other nations around the world are adopting the Ecofiltro model and other social-preneurs are springing up and beginning to fix the water issues in their own countries.

The model is working and it is attracting interest from many in the business world. In a recent press conference at the Ecofiltro Headquarters, Wilson was asked to describe the Ecofiltro model and why it is working so well:

“We’ve got the brain of a business,” he said, “And the heart of a foundation.”

Info



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ABOUT THE AUTHOR | Dennis Welch worked on several bestsellers and established tremendous relationships both with publishers and the media. He also served as a Senior Staff Writer at The Gallup Organization. Gallup's Chief Marketing Officer called him "one of the top 5 writers in the company." He has written a memoir: *Rich People Shop Here*. And, he has a book about the power of words, titled *So... What Are You Saying?* He is currently President and CEO of Articulate, a company specializing in PR and Communications. He is excited about helping people with important ideas communicate more clearly and using his experience and relationships to bring attention to their work.

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