



PATH AND THE SAFE WATER PROJECT: EMPOWERING THE POOR THROUGH USER-CENTERED DESIGN

In recent years, the more than 2 billion people around the world who live on less than \$2 per day¹—those at the bottom of the “socioeconomic pyramid”—have received significant attention as a potential consumer market. Although social enterprises as well as mainstream commercial companies had taken an interest in selling to these prospective customers, most were still trying to figure out how to profitably address their needs.

In late 2006, the PATH Safe Water Project received a \$17 million, 5-year grant from the global development unit of the Bill and Melinda Gates Foundation to evaluate how market-based approaches could help accelerate the widespread adoption and sustained use of household water treatment and safe storage (HWTS) products among the world’s poor. Through a portfolio of field-based pilots, PATH intended to experiment with different sales and distribution strategies to improve consumer access to safe water solutions, such as water filters and chlorine-based water purification tablets. It also planned to test different pricing and consumer financing models to address the affordability of these products. However, extensive market research revealed another problem—few products in the space were both effective and designed specifically to meet the unique needs and preferences of these consumers.

Accordingly, PATH applied for and was awarded \$7 million in additional grant funding from the Gates Foundation to design a water filter product that would meet high standards of efficacy, be desirable—or aspirational—to low-income consumers, and work effectively within the rural conditions where the majority of the poor resided. “End users in this category often don’t have a voice,” explained Glenn Austin, head of PATH’s Water, Indoor-Air Quality, Sanitation, and Hygiene group.² “Yet the end user is the linchpin in whether or not a product is going to be used regularly, properly, and consistently. So we’re trying to empower the end users by honoring their

Lyn Denend and Professor Stefanos Zenios of the Stanford GSB and Tim Elliott of PATH prepared this case as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation.

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preferences, habits, culture, and how the solution fits with them.” The PATH team would accomplish this through a process that the organization called user-centered design.

(See **OIT-106** for additional background information about PATH, the Safe Water Project, and the organization’s approach to piloting. **OIT-108** provides more information about PATH’s lessons on consumer access. **OIT-109** addresses PATH’s learnings regarding the affordability of safe water products.)

ABOUT PATH AND THE SAFE WATER PROJECT

PATH is a Seattle-based nonprofit organization committed to delivering high-impact, low-cost solutions to global health challenges. The organization’s mission is to act as a catalyst for innovations with the potential to improve the health of vulnerable populations around the world.

In late 2006, PATH launched its Safe Water Project to help address the fact that established HWTS efforts were reaching only a fraction of those in need. The purpose of the effort was to evaluate the extent to which market-based approaches could help accelerate the widespread adoption and sustained use of household water treatment and safe storage products by low-income populations over time.³

PATH’s technology solutions group, which had a history of using market-based approaches to develop and disseminate new health innovations, would spearhead the effort under Austin’s leadership. He formed a team of engineers, behavioral scientists, and commercialization experts to apply PATH’s user-centered design process to address the need for new water filter products for low-income consumers. This group would perform the work in parallel with a portfolio of other pilots focused on improving access and affordability for the products, so they would be within reach of the target market segment. Austin hoped that the product development work would contribute learnings to these other pilots, as well as drawing lessons from them.

THE PRODUCT DEVELOPMENT PROJECT

Importantly, the Safe Water Project’s product development team would have two distinct objectives. First, it would redesign a ceramic water pot (CWP) product in Cambodia to make it more appealing and functional for low-income consumers. Second, it would develop design guidelines for an optimized HWTS product, as well as a reference design that interpreted these guidelines as a working, manufacturable unit. PATH intended to find manufacturers who would then mass produce products based on the reference design that would be better suited for low-income families.⁴ In terms of how the two projects would work together, Pat Lennon, technology portfolio leader, explained, “It didn’t make sense to try to write design guidelines without having actually designed a water treatment product. So we used the development process of the CWP to inform the design guidelines and help us understand the necessary trade-offs in this product category.”

CWP Redesign in Cambodia

The initial product redesign project would take place in Cambodia as part of a larger set of commercial pilots being led by the Safe Water Project team. In Cambodia, 44 percent of the rural

population did not have access to a clean water source, and almost one-tenth of deaths for children under age five were caused by waterborne illnesses.⁵ Although earnings were low in these rural areas, PATH learned through consumer research that low- and middle-income Cambodians did purchase items such as televisions, cell phones, and radios; and they were potentially willing to allocate money to pay for safe water products. However, they wanted devices that were not only practical but also aesthetically appealing.⁶

Early in the Safe Water Project, PATH had formed a partnership with Hydrologic, a Cambodian social enterprise that manufactured the Tunsai brand CWP. The predominant users of the Tunsai product were people in the country's poorest households, primarily because Hydrologic's largest customers were nongovernmental organizations (NGOs) that distributed it through their networks.⁷

About the CWP

Ceramic water pots [also called ceramic water purifiers] are among the humblest, most ubiquitous, and most easy-to-use of household water treatment products. They can be found in Africa, Asia, and Latin America and are often made by local craftsmen. They have been the filter of choice for many charitable efforts to scale up household water treatment, and yet uptake of these simple devices [can be] frustratingly slow.

The product consists of a terra cotta ceramic pot nested inside a large clear plastic bucket with a tap. While users [generally] find it easy to operate and maintain, they complain that the pot itself is fragile and too easy to break. Ceramic quality is often inconsistent, and for the manufacturer, distribution is challenged by the sheer size, weight, and fragility of the device.

Source: "Ceramic Water Pot Upgrade," PATH.org, <http://sites.path.org/water/hwts/technology/ceramic-water-purifier-upgrade/> (July 3, 2012).

Figure 1
The Original Tunsai CWP



Source: Hydrologic.

After 10 years in the Cambodian market, the original Tunsai product had achieved just 3.5 percent market penetration, despite the fact that it was often distributed by NGOs significantly below cost or for free. Through initial market research, the team discovered why adoption was so low despite the efficacy of the product. As Ben Mandell, a PATH MBA consultant, described, "The Tunsai is very utilitarian. It's literally a filter that looks like a flowerpot, a plastic bucket with a hole drilled in the bottom, and a spigot. It was designed to filter water well, incredibly