

# Microfinancing boosts uptake of water filters

PATH partners with Indian household water treatment and safe storage manufacturer and microfinance organization to expand use of water filters that can help reduce diarrheal disease

## BACKGROUND AND PROJECT DESCRIPTION

Clean, safe water is difficult to come by for many in India's low-income communities. As a result, diarrhea is a leading cause of childhood morbidity and mortality, with 386,600 Indian children below the age of five dying from diarrheal disease each year. One-fourth of the total diarrheal disease-related deaths occur in India.

Household water treatment options such as filters are readily available in India's urban areas, but they are not affordable or accessible for low-income people in rural areas. The US\$20-\$50 cost of a filter is beyond the reach of families who may need a month to earn enough to buy one. Moreover, accessibility to filters often is poor because manufacturers frequently cannot recover the costs of distribution and marketing in rural areas.

PATH's Safe Water Project (SWP), funded by the Bill & Melinda Gates Foundation, is seeking ways to develop and test commercially viable and sustainable distribution models for water treatment and storage in India, Cambodia, Vietnam, and Kenya. In India, PATH conducted a pilot project in low-income communities in the Indian states of Tamil Nadu and Madhya Pradesh, located at the southernmost end of the Indian peninsula and in central India, respectively. The pilot had two goals. The first was to develop a better understanding of how to encourage more widespread use of water filters in poor and rural areas. Secondly, the pilot sought to gain information on how to help filter manufacturers market and distribute their products in a profitable and sustainable manner.

In particular, the Indian pilot sought to determine if various models of microfinance loans would boost purchase and use of water filters by households who did not have access to affordable water treatment and where families did not see a need for water treatment. The pilot sought to understand how commercial investments and targeted subsidies could be fused together to achieve this objective in an effective, efficient, and sustainable manner. Microfinance institutions (MFIs) help low-income families by making small loans for opening a business,



PATH/Sara Watson

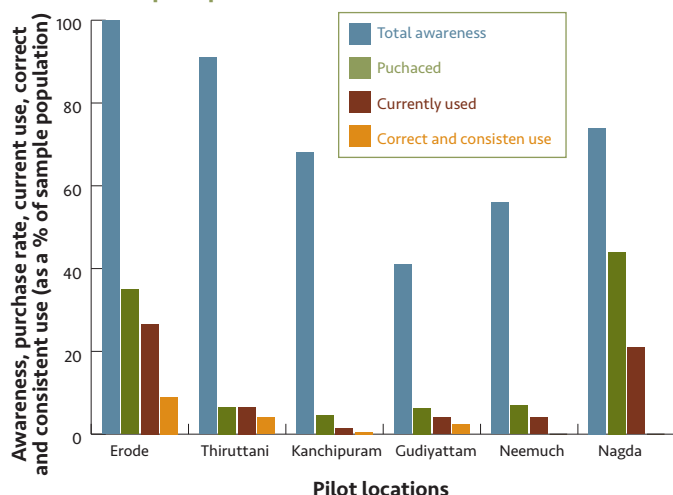
PATH conducted a pilot project in low- and middle-income communities in India to test whether microfinance institutions could be a successful distribution channel for household water filters.

purchasing consumer goods, or other reasons. In India, PATH partnered with Spandana, an India-wide MFI, and Hindustan Unilever Limited (HUL), a leading fast-moving consumer goods company.

## PILOT DESIGN AND OPERATIONS

In the pilot sites, PATH partnered with HUL to promote use of HUL's PureIt filter. The PureIt was deemed appropriate due to its low cost (\$40, with a \$20 variant offered later in the pilot) gravity-feed design that obviates the need for electricity and storage capacity that is adequate for an average family. Available for several years, the PureIt had been mostly limited to middle-income urban consumers due to the high cost of direct sales to rural populations. The microfinance partnership allowed HUL to take PureIt to rural and peri-urban areas and lower-income segments with high vulnerability to waterborne diseases, beyond their previous distribution reach, through a commercially sustainable model.

**FIGURE 1. Awareness, purchase, and use levels at pilot end line and post pilot consistent use**



This figure shows levels of awareness of product, uptake rates, comparative use at the end of the pilot, and consistent use measured in a longitudinal study after the pilot across pilot locations.

To make the filters affordable for the consumers, Spandana modified the loan products normally offered to its customers by offering loans for the cost of the device (INR 2000) to its current clients at a discounted interest rate. The proposition was profitable for Spandana because HUL was able to share a component of the margin with them that would otherwise have gone to a retailer or direct sales agent. In the regions of Erode, Thiruthani, and Gudiyattam, loan repayment rates were INR 43 per week for 50 weeks. In Kanchipuram, loans were repaid at INR 80 a week for 25 weeks.

Subsidized variants of the loan products were offered in pilot sites in Madhya Pradesh with 50 percent and 100 percent cost defrayment. However, to help ensure customer buy-in and influence continued use, the 100 percent subsidized offer was combined with an INR 730 loan for two germ-killing batteries, the filtration component of PureIt that must be replaced after treating about 1,500 liters of water.

While the pilots were designed to cover all current clients of Spandana in the selected branches, the targets were households that belong to the middle three relative-wealth quintiles. This was the core target group for the SWP in each country where the project has implemented its pilots.

Spandana’s employees managed the credit operations, and HUL sales representatives were responsible for the sale of devices and providing after-sales services to customers. In addition to the regular workforce, partners also recruited “water associates”<sup>1</sup> who were responsible for promotion of PureIt and safe drinking water practices at the Spandana

group meetings. Promotional materials providing information about the product and the benefits of safe drinking water were used at these meetings and other community gatherings. Flipcharts, leaflets, brochures, and product demonstrations were some of the methods used to complement HUL’s traditional mass media strategies like television advertisements.

The Kanchipuram, Erode, and Thiruthani pilots lasted ten months, from July 2009 through April 2010. In the Madhya Pradesh districts of Neemuch and Nagda, the pilots were shortened due to disturbances in the MFI operations caused by an MFI regulatory crisis in Andhra Pradesh. That impacted Spandana due to its large presence in that state. The pilot lasted one month in the Neemuch district and six months in Nagda.

### POST-PILOT SURVEY RESULTS

Surveys conducted after the pilot sought to answer key questions. These included uptake rates for the filters, the extent of consistent and correct use, key triggers and barriers to purchase and use, profitability and sustainability of the pilot model, and what additional measures could be taken to stimulate demand for filters.

Differences in awareness, purchase, and use rates were statistically significant.

The highest uptake rates occurred in pilots offering weekly repayment for 50 weeks or free filters, resulting in 35 percent uptake among those offered a 50-week loan in Erode, and 44 percent uptake among those offered a free filter in Nagda. Uptake rates were 7 percent in rural areas of Thiruthani and Gudiyattam (50-week loans repaid at INR 43 per week), 15 percent in peri-urban areas of Kanchipuram (INR 80 repaid over 25 weeks), and seven percent in rural Neemuch (50 percent cost defrayment).

A common factor inhibiting uptake was the lack of perceived need for filtration. In Erode, complaints about dirty, bad-tasting water from the Kaveri River—the main source of water—were common. By comparison, in Kanchipuram, local drinking water quality was seen as good, so uptake was lower despite an identical loan program.

Cash flow required for making payments and the high cost contributed to a fear of reputational loss in the community if the borrower defaulted; both proved to be significant barriers to purchase. Spandana has stringent repayment policies with joint liability groups—loan recipients are pooled into groups, and if a member is unable to make a payment, other group members must pitch in to do so. That can be deeply embarrassing to the family that misses a payment. Moreover, because a PureIt loan was seen as a

<sup>1</sup> Water associates were entrepreneurial sales representatives hired within Spandana’s organizational structure and were responsible for generating awareness about the need for safe drinking water at Spandana’s group meetings. During the course of the pilots, their role evolved to being liaisons of HUL as a “one stop shop” for new orders and post-sales needs related to PureIt. They were envisaged to be champions of safe drinking water in the community to ensure a supply of PureIt filters for continued use of devices after purchase.

consumer loan and not a productive loan, an inability to make a payment would bring further discredit.

Among pilot consumers, the loans increased affordability by spreading out payments to better match cash flows of low-income consumers. While 78 percent of purchasers in Tamil Nadu and 72 percent in Madhya Pradesh were from the SWP target group of the middle three income levels, the loan provided an additional incentive to the lower-income households within this group. Other motivations to purchase were trusted social influences such as health care workers, family members, or key opinion leaders and the appearance and utility of the PureIt filter that lent an aspirational value to the product. Demonstrations of the product and messages regarding health impact and product information about the filter during group meetings of the MFI groups and at households and other HUL brand promotions boosted uptake, and purchase was strongly correlated with recall of PureIt messages and brand awareness.

Overall, the PureIt filter was seen as a desirable product that indicated to its community that a family cared about health. The PureIt was also seen as affordable when compared with the cost of buying fuel to boil water, the water-treatment method previously used in as many as 60 percent of the surveyed households, with significant reported use at the end of the pilots. However, correct and consistent use after the pilots, measured through a longitudinal study, was much lower. This trend helped the partners to identify gaps in the replacement filter supply chain which would need to be developed for this distribution model.

In the Tamil Nadu pilot locations, while 9 percent of all households reported using the PureIt at the end of the pilot, only 1.5 percent of these households were observed to be using the filter correctly and consistently after

12 months. Many had discontinued use of the filter, and the cost of a replacement filter unit (about INR 400), incurred every 1,500 liters of use, was the primary reason for lapsed use in many cases. Lack of awareness about where to purchase replacement filters as well as lack of a local contact for after-sales service, also led households to discontinue use. In Madhya Pradesh, where the devices were given 50 percent and 100 percent subsidies on the cost of the PureIt, while 21 percent of all households reported using the PureIt at the end of the pilot, none of these households were using the device correctly and consistently after three months. The primary reason for lapsed use in these cases was gifting away or selling at a lower price in neighboring areas.

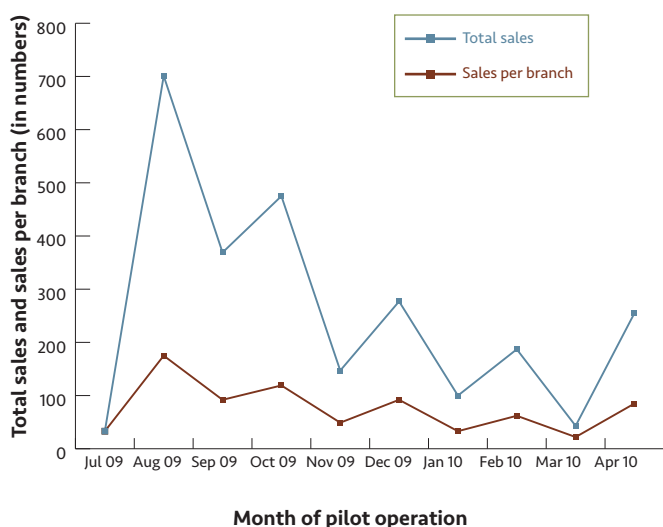
Commercial viability for partners varied across the pilot. The distribution model in Tamil Nadu generated a total cost recovery of 121 percent, making it profitable at a pilot level for all the commercial partners. The distribution model in Madhya Pradesh lacked this element of commercial sustainability due to the large subsidy component and had a total cost recovery of 43 percent, making it unprofitable for partners.

The pilot was able to create demand for filters in a market where that had not previously existed—an important step in encouraging safe water practices. And the microfinance model allowed the purchase of an effective water filter by families who previously could not afford one.

### BEYOND THE PILOTS: LESSONS LEARNED AND CORRECTIONS MADE

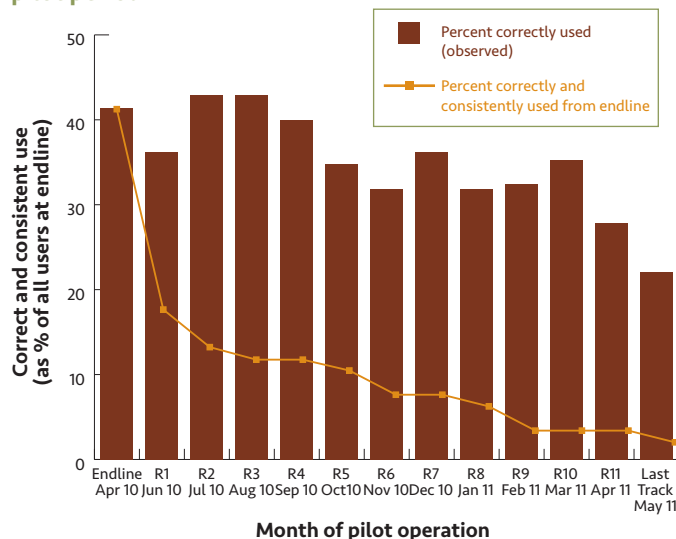
The pilot also helped PATH and HUL gain valuable lessons for increasing uptake and use of water filters among base-of-pyramid households. The test in Erode and Thiruthani—where pilot participants could purchase a full-price filter

**FIGURE 2A: Declining sales trends in Tamil Nadu after initial promotional burst**



Sales and correct and consistent use declined after the initial high burst due to lack of incentives for salespersons to promote water filters and due to a decline in promotional activities.

**FIGURE 2B: Declining use trends in Tamil Nadu after pilot period**



and repay in 50 installments of 43 Rupees— showed the most promise in encouraging filter purchase while providing a viable economic model to HUL and Spandana. In Madhya Pradesh, where filters were 50 and 100 percent subsidized, initial uptake was high but continued use was low, in part because subsidized pricing undermined the perceived health benefits of the filter and deterred salespeople from communicating the benefits of safe drinking water.

Understanding also was gained on how to manage partner roles. Spandana was equipped to extend credit to families but not to provide technical support such as stocking and replacing filter units, which impacted ongoing sales and continued use significantly. Promotional activities also died down as salespersons did not have an incentive to communicate benefits of continued use of water filters for health impact. Sales and correct and consistent use followed a declining trend after the initial high burst due to these problems.

Partners used the pilot lessons to modify the sales and distribution approach to address these problems. They employed a local salesperson as the water associate in target villages to act as a point of supply for germ-killing batteries and to promote safe drinking water on a continued basis, in addition to conducting promotional activities at the MFI group meetings. HUL now sells PureIt filters with a replacement filter unit included in the loan product, ensuring at least a full year of use by the consumer, which contributes to long-term behavior change for continued use. HUL continues to iterate on these lessons in its operations.

The pilot helped HUL and Spandana identify the elements that needed to be incorporated in the model through targeted investments and subsidies to reach lower-income populations in a commercially sustainable manner. HUL also reports that the pilots validated many of its internal hypotheses around increasing affordability through loans rather than subsidized purchases. HUL continues to build on these lessons and as of November 2011 reported about 65,000 sales using the approaches described here through new microfinance partnerships and by exploring new geographies.

Variations on this model are being replicated in Cambodia by PATH in partnership with a local manufacturer, Hydrologic, and an MFI called Vision Fund. In that project a redesigned ceramic water filter was introduced based on preferences identified through PATH's user research for product development. The pilot in Cambodia, which uses the MFI platform for sales and promotion and is supported by a loan product to reach lower-income consumers than Hydrologic's existing customer base, has recorded sales of more than 4,000 devices in nine months. The Cambodia pilot incorporates lessons learned from the India pilots while utilizing the same principles to expand the market for household water treatment devices among low-income populations.

Safe drinking water is fundamental to a family's health. PATH's pilot project in India shows how families can be given the benefits of safe drinking water by catalyzing market players to provide these essential services through targeted investments that fill distribution channel gaps.



PATH is an international nonprofit organization that transforms global health through innovation. We take an entrepreneurial approach to developing and delivering high-impact, low-cost solutions, from lifesaving vaccines and devices to collaborative programs with communities. Through our work in more than 70 countries, PATH and our partners empower people to achieve their full potential.

**MAILING ADDRESS**  
PO Box 900922  
Seattle, WA 98109 USA

[info@path.org](mailto:info@path.org)  
[www.path.org](http://www.path.org)

**STREET ADDRESS**  
2201 Westlake Avenue  
Suite 200  
Seattle, WA 98121 USA