

This is part of a series of project briefs discussing the activities, research findings, and field experiences of PATH's Safe Water Project.

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Understanding Consumers and the Market for Household Water Treatment Products in Cambodia

Background

About 60 percent of people in Cambodia do not have access to a safe water source.¹ Even more may lack consistent access to microbiologically safe water at the point of use. Water-related diseases are a major public health issue. The 2005 Cambodia Demographic and Health Survey found that 20 percent of children under age five had experienced diarrhea in the preceding two weeks.²

Surface water in Cambodia is plentiful but often of poor quality, especially in rural areas, due in part to pollution from human and



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animal activities. Some groundwater sources contain high levels of naturally occurring arsenic and other chemical contaminants.³ The principal alternatives to arsenic-contaminated deep wells are surface water and shallow groundwater, both of which are often of poor microbiological quality, and rainwater, which is liable to be contaminated during storage.⁴

Household water treatment and storage (HWTS) practices can play a critical role in protecting users from

A mother bathes her child with groundwater from the village pump. Many groundwater sources in Cambodia contain high levels of chemical contaminants. Twenty percent of children under the age of five experience regular bouts of diarrhea.



Focus groups and individual interviews were used to explore consumers' attitudes, practices, and concerns.

water-related diseases. According to the 2008 General Population Census in Cambodia, while 55 percent of urban households have access to piped water, only 5 percent of rural households do.⁵ Thus the reality for most Cambodians is that they must collect water, store it for use in the household, and treat and protect it themselves if they are to have safe water. An estimated 200,000 people (about 1.5 percent of the population) already filter or chemically treat drinking water in their homes. Many more boil water, treat it with coagulants, or strain it through cloth before drinking.⁴

PATH's Safe Water Project is exploring the effectiveness of commercial strategies for providing HWTS products to low-income consumers in Cambodia and other developing countries. This project brief summarizes the results of three studies—a consumer study, a product scan, and an analysis of distribution channels—which were conducted by PATH from April

to December 2008 to inform the development and implementation of a safe water pilot project in Cambodia.

Study Objectives and Methods

Investigating potential customers

The consumer study was designed to explore water management practices and attitudes at the community and household levels. A rapid assessment process (RAP) was used to collect qualitative information at four locations: one urban site in Phnom Penh province and three rural sites in Battambang, Kampong Cham, and Siem Reap provinces. For the purposes of this study, field workers:

- Interviewed key informants—including commune and village chiefs, health center chiefs, and

community-based organizers—to understand the context at the community level, particularly regarding water and health issues.

- Directly observed water management practices in 40 households (including ten households at each of the four study sites).
- Conducted 16 focus group discussions (FGDs) (four at each study site) and 40 in-depth interviews (ten at each study site) to explore consumers' attitudes and practices regarding water collection, storage, and treatment and water-related disease.

A total of 128 men and women participated in the FGDs, and 40 men and women were interviewed individually. All participants were selected from households with low to middle incomes, defined as earning US\$1 to \$5 per day; field workers asked the village chief to identify households in this income range before approaching prospective participants. Over half of all participants had completed primary education. Depending on where they lived, participants engaged in subsistence farming and fishing, worked at a rubber plantation, were employed by private companies and government offices, or engaged in small businesses. Around 40 percent did not have a permanent or regular job.

Examining product availability

The objective of the product scan was to determine which HWTS products were already available commercially or by donation in Cambodia—including both fast-moving consumers goods (FMCGs)

and durables. Field teams visited retail outlets at one urban, one peri-urban, and one rural site in each of 11 of the 24 provinces in Cambodia. Field teams visited 484 outlets in all, including market stalls, home appliance shops, pharmacies, and supermarkets. They observed what HWTS products were for sale at each outlet, interviewed retailers, and made informal household visits to observe water storage and treatment practices.

Analyzing distribution channels

The objective of the channel analysis was to assess the suitability of various distribution channels for HWTS products, based on information about the value chain, key participants, margins, costs, motivations, and strategies. To better understand distribution channels in Cambodia, field workers:

- Interviewed approximately 40 key players at manufacturers, consumer brand companies (including Unilever, Abbott, and Coca Cola), distributors, social programs (including Population Services International and Deutsche Gesellschaft für Technische Zusammenarbeit [GTZ]), nongovernmental organizations (NGOs), and other links in the supply chain.
- Visited and held informal discussions with retailers and wholesalers in the provinces.
- Reviewed other information available on distribution channels in Cambodia and neighboring countries.

Household Water Management

Water sources

The consumer study found that households use a variety of water sources, depending on access, availability, convenience, cost, and perceived quality. During the rainy season, most people—even urban residents connected to a piped water system—collect rainwater for drinking and cooking. Rural residents consider rainwater to be cleaner than other water sources available to them, while urban residents switch to rainwater in order to save money on expensive piped water. When the rains stop, rural residents generally turn to rivers, streams, ponds, hand-dug wells, and drilled wells.

Rural participants in the consumer study expressed great interest in improving local water sources via rope pumps, boreholes, and drilled wells. Proper covers, cement surrounds, ease of use, and cleanliness of the water were especially important to them. Residents of Phnom Penh with access to a piped water supply were more interested in rainwater tanks, which can store supplementary water and reduce spending on piped water.

Water collection and storage

Distances to a water source are short (from 5 to 250 meters) in rural areas of Cambodia, and households collect water almost daily. Rural households often pump water directly from the river to water storage containers in the home. Alternatively, they may



In the wet season, most Cambodians collect rainwater to drink because it is convenient, clean, and inexpensive. These large concrete jars are the most common way to store water in the home.

carry water home from the river, well, borehole, or community pond in 15- to 30-liter plastic containers. Women and men seem to share the task of collecting water. Families were observed bathing or washing directly at the water source.

Concrete water jars of around 200 to 500 liters are the least expensive and most common way to store water in the home. Some households also use plastic containers ranging in size from 5 to 120 liters. Most use different containers to store water for different uses, with smaller vessels used to store drinking water. Because piped water systems do not always operate all day or every day, some urban households store tap water in 1,000-liter stainless steel tanks that cost US\$60 to \$80.

The consumer study did not specifically examine hygiene in the home, although other studies in Cambodia suggest that practices such as hand washing are weak.⁶ However, the findings do suggest that storage practices may compromise the safety of drinking water. Less than half of households cover water storage jars to keep out dust and insects, and observers noted that the lids often

did not fully cover the openings. In addition, most people draw water from storage containers by dipping a cup in the water; this is a potential source of contamination.

Perceived quality of water

Most Cambodians judge whether water is safe for drinking based on its color, clarity, smell, and taste. Visible dirt, insects, lime, a greenish color, or an earthy smell are all considered signs that water is bad.

Knowledge of the source also influences perceptions of water quality. For example, most people think rainwater is safe because it comes directly from the sky. The fact that it is clear, odor-free, and tastes good also indicates its quality. Although a few people are concerned about the possible contamination of rainwater with dirt from roofs and mosquitoes, many believe rainwater is so clean that boiling or other treatment is unnecessary. Almost everyone is aware that water from rivers or ponds is not safe, partly because it looks dirty and smells unpleasant, but also because people realize that it is contaminated by washing, bathing, and animal cleaning. As a

result, people generally use surface water for drinking only when they have no other option. Groundwater is considered better than surface sources, but not necessarily better than rainwater. Some consumer study participants were concerned about the lack of proper covers to protect wells from dirt and dust as well as their shallow depth.

In rural areas, most participants in the consumer study felt that water quality was the main factor affecting the prevalence of water-related disease in their communities. In contrast, residents of Phnom Penh considered the piped water supply system to be safe. Many said that since switching to piped water, they had not had to worry about water shortages during the dry season and their health status had improved.

Water-related disease

Both rural and urban residents consider water-related diseases, including diarrhea, to be among the most common illnesses in their communities. They understand diarrhea is associated with consuming unsafe water, especially water that has not been boiled. However, they do not necessarily

Norms related to water practices and beliefs

“Clean water is odorless and clear. In contrast, bad water is turbid and has a bad smell.”

“We boil only when we are sick. When we get better, we will drink water without boiling again.”

“I boil, or the water will cause disease and cost more money.”

“Women drink boiled water since they are at home. Men drink untreated water because they are outside.”

believe that water-related disease is a serious problem. No one in the consumer study knew of any child deaths from these diseases, and study participants believed that it was possible to seek a cure when and if such diseases occurred.

People place more emphasis on treating than preventing disease. Observers found that households rarely practice boiling as a preventive measure; rather they boil drinking water as a curative measure after family members get sick. Households habitually treat diarrhea and other water-related illnesses with traditional medicine or by visiting private or public health services.

Motivations for treating water

The belief in a link between safe water and health and well-being—especially children’s health—is one of the strongest motivations for treating water at home. Some participants in the community study also noted economic benefits. They pointed out that the cost and inconvenience of treating water, while not inconsiderable, is less than the cost and inconvenience of medications and repeated clinic visits. Others pointed to sociocultural motivations for home water treatment, including a desire to:

- Follow established and culturally accepted practices, like boiling.
- Do as influential people and organizations in the community advise.
- Impress the neighbors by owning a water filter and drinking treated water.

Complacency about potential health risks discourages treatment, but

other barriers are more practical in nature, most notably the time and energy needed to treat water. While being too “busy” or too “lazy” were the most common reasons given for not regularly treating drinking water, some people also pointed to their lack of money and knowledge. As a result, most households treat water opportunistically and episodically—when fuel and time are available, when illness demands it, or at home but not at work.

Treatment Practices and Preferences

Two of the four consumer study sites have community water treatment options. Most residents of Phnom Penh are connected to a large-scale, public piped water supply

system. A small-scale, privately owned piped water system also serves several hundred households in the area visited in Battambang province. Alternatively, households in Battambang can buy 20-liter containers of treated water from a plant constructed by the 1001 Fontaines pour Demain project. Consumers praise the convenience of the piped systems but complain about connection costs. The 1001 Fontaines community treatment plant produces equally good water, as judged by consumers, but at a lower price. Household water treatment is the only option at the other two study sites.

Some participants at all four study sites reported treating water at home by waiting for sediment to settle and/or straining the water through cloth. In Siem Reap province, some households also use alum as a

Table 1. Perceptions of methods for household water treatment

Filters	Boiling	Tablets and powders
Advantages		
<ul style="list-style-type: none"> • Effective in eliminating microbes • No particles in water • Ease of use for large family • No need to boil water • Produce clean, clear water 	<ul style="list-style-type: none"> • Most effective way to eliminate microbes • Produces clean, safe water • Easy method for community 	<ul style="list-style-type: none"> • Effective in eliminating microbes • Ease of use • No need to boil water • Portability—can take and use anywhere
Disadvantages		
<ul style="list-style-type: none"> • Not affordable for poor households • Water still contains some microbes • Cannot add tea 	<ul style="list-style-type: none"> • Time-consuming • Requires fuel • Slow • Poses risk of fire 	<ul style="list-style-type: none"> • Chemical substance may be harmful



Field workers demonstrate the benefits of water filters, chemical disinfectants, and boiling during focus group discussions and interviews.

coagulant in the dry season, when the water is visibly dirtier. Boiling—although not a very common practice—is the most frequently used household treatment method everywhere and is also considered the best way to kill germs. This makes boiling the standard for comparison for HWTS products.

To explore the potential for commercial water treatment products in Cambodia, field workers demonstrated water filters, chemical disinfectants (both tablets and powders), and boiling during the FGDs and interviews. Table 1 summarizes the reactions of the participants. The product scan and channel analysis also closely examined the supply of and demand for water filters and chemical disinfectants. The results of all three studies are synthesized and summarized below.

Boiling

Although a consensus exists that boiling creates the safest water

and is important for health, few households in Cambodia regularly boil their drinking water. Boiling is more common in Phnom Penh than in rural areas, even though urban households have access to safer water sources. Over half of study participants in Phnom Penh reported boiling water from the piped system, and about three-quarters consistently boiled rainwater. Consumers emphasize two major obstacles to boiling: the time required and the high cost of fuel. Some also complain about the taste and temperature of boiled water, while others cite the risk of fire. The consumer study suggests that people either boil regularly or boil very rarely—there is little middle ground.

Chemical disinfectants

The product scan found only two chemical disinfectants designed to treat water in Cambodia: Chloramine, which the government distributes for free after floods and

disasters, and Clonazone, which is sold only by a handful of pharmacies in Phnom Penh and Kampong Cham provinces. Few participants in the consumer study were even aware of purifying tablets and powders before watching the product demonstrations. The consumer study also revealed some confusion with Abate, which is a larvicide added to stored water to control dengue. Abate is widely distributed by health centers through the Ministry of Health and the Cambodian Red Cross. Some respondents in Siem Reap province believed that Abate kills all microorganisms that cause waterborne diseases, not just mosquito larvae.

In addition to lack of awareness, disinfectants face three other challenges in the Cambodian market. First, people worry that chemical additives are harmful to health. Second, water treated with chlorine compounds conflicts with consumer preferences for clear, tasty, and odor-free water; the products do not improve turbidity and leave behind a distinctive chlorine taste and smell. Third, most FMCGs only treat 20 liters of water at a time, while household water storage containers in Cambodia typically hold hundreds of liters.

After watching the product demonstrations, however, some rural study participants were impressed by how fast, convenient, and easy to use the disinfectant tablets and powders were. They also liked their portability, which could address the problem of drinking untreated water while working. By their very nature, FMCGs are also more affordable than durables for poor consumers because they can be purchased in small quantities. All

this suggests an opportunity exists for chemical disinfectants in the Cambodian market. According to the FGDs and interviews, the ideal product would be tablets that treat water inexpensively (at a unit cost of US\$0.02 to \$0.25 per 20 liters) and produce as little odor as possible. Consumers would like the option of buying tablets individually as well as in packs and want tablets that can treat 200 liters of water at once, since that is the capacity of common storage containers.

Filters

A commercial market already exists for two types of water filters in Cambodia:

- Mineral pots, which include ceramic, cartridge, and/or mineral stone filter elements, are the most widely known and distributed type of water filter in Cambodia. The product scan found 25 different brands for sale. Mineral pots are available in all provinces, and retailers report high demand in urban and peri-urban areas.
- Ceramic water purifiers (CWPs) are clay pot filters locally produced by NGOs, including International Development Enterprises (IDE), Research Development International (RDI), and the Cambodian Red Cross. Over half of participants in the consumer study were familiar with CWPs, and the product scan found them at 14 percent of the retail outlets visited. However, demand for CWPs is reportedly less than for mineral pots. Many such products are distributed for free by NGOs.

Also available in some parts of Cambodia but less well-known are ceramic candle filters



PATH/Thuruvuth Nop

A commercial market already exists for HWTS devices in Cambodia. The most widely known and distributed type of water filters are mineral pots, which include ceramic, cartridge, and/or mineral filter elements.

imported from Vietnam and BioSand filters installed by Hagar International and other NGOs.

During FGDs and interviews, participants expressed a strong preference for filters over other household water treatment products because filters visibly clean dirty water; are easy and convenient to use; and, in the case of mineral pots, have great visual appeal related to social status. However, only a few households at each study site actually used water filters, and urban residents were more likely to do so than rural residents. The relatively high upfront cost of water filters (which range from US\$8 to \$20 depending on the type and brand) poses a major obstacle. Concerns about breakage and the perception that boiling is better for killing germs may also limit their use.

Observers noted that filter owners did not change cartridges every 6 to 12 months as recommended. People generally believed that if the filter still worked, there was no need to

replace the parts. Observers also found that many filters had fallen into disuse due to breakages. The difficulty of finding spare parts for water filters of all kinds contributes to both problems, that is, continuing to use filter elements long after they have lost their effectiveness or abandoning filters after a part breaks.

Mineral pots—which are the most expensive type of filter at a cost of approximately US\$15 to \$20—appeal to consumers’ social aspirations. People think they look more modern, more expensive, and of better quality than CWPs. Although consumers consider CWPs less desirable, their lower price point of approximately US\$8 to \$11 makes them more affordable. NGO endorsements of CWPs also carry weight with consumers.

Selecting brands

There is increasing brand awareness for durable and health-related products in Cambodia, particularly



Microfinance institutions employ credit officers like the one pictured here to make consumer financing available to villagers, but most people would prefer buying HWTS products on an installment plan.

among urban and peri-urban populations. Branding is less important in rural markets, where limited purchasing power makes pricing more important.

Consumers find it hard to distinguish between products of different quality and between authentic brands and cheap fakes. Therefore, when they select products, Cambodian consumers rely heavily on the advice and endorsements of people and organizations they know and trust. Many consumer study participants wanted to see the logos of trusted NGOs on HWTS products to help them select products.

Field workers found conflicting opinions about products made in Cambodia: some people distrust locally made products, while others prefer them. However, there was general agreement that—no matter what the country of origin—HWTS products should include labeling and instructions in Khmer. A lack of instructions, especially in the local

language, may help explain why so many mineral pot owners do not use or maintain them properly.

Ability and Willingness to Pay

Consumer purchasing power

Average per capita household consumption in Cambodia is less than US\$1 per day. Over half goes to food, and only around 7 percent to consumer durables. Purchasing power is growing rapidly in the top quintile, which accounts for almost half of all consumption. However, wealth is static or growing slowly for the bottom 80 percent of the population.⁷

Limited purchasing power poses a significant challenge for HWTS products and practices in Cambodia. As noted above, the cost of fuel poses a major barrier to boiling,

and many users of the piped water system in Phnom Penh save money by collecting and consuming rainwater in the wet season. When asked what they would do with extra money, most consumer study participants said they would invest it in business or agricultural activities; few were willing to purchase water-related items. In addition, the rural poor tend to wait for delivery of subsidized products. In this situation, pricing becomes an essential marketing strategy for HWTS products, especially for rural and lower-income consumers.

However, Cambodian consumers can and do buy items they think they need, including televisions, bicycles, and light sources. The growth of consumer loans has facilitated these purchases. This demonstrates that many households could allocate enough money to pay for HWTS products if effective promotion changed their priorities.

Consumer credit and other payment schemes

Cambodia is still primarily a cash economy, and buying on installment is uncommon. However, Cambodians are not averse to debt; the credit market is well-developed and expanding, and people are increasingly using credit for personal consumption as well as for business. Most vendors in villages and markets sell goods on credit to customers they know, and households favor private over public health clinics partly due to their willingness to extend credit. There is also a growing market in consumer loans offered by formal credit institutions, although informal village moneylenders capture much of the rural market at a high cost to borrowers.

This suggests that prospects for using consumer credit to facilitate the purchase of water filters are good. Participants in FGDs and interviews, however, showed little interest in borrowing money to buy a water treatment product because they were afraid they would not be able to repay the loan. They preferred instead to pay in monthly installments. Other strategies, such as timing promotions to occur during harvest season when households have more disposable income, could supplement or substitute for credit offers.

Cambodia has a sophisticated and rapidly growing microfinance industry with wide reach and penetration. Microfinance institutions (MFIs) can potentially play different roles in the distribution of water treatment products. First, they can encourage distributors, wholesalers, and retailers to stock new HWTS products by offering them inventory loans. Second, they can collaborate with distributors to offer consumer financing for water filters. However, a key barrier is the prevalence of high interest rates in this rapidly growing and profitable industry.

The Supply Chain

Most businesses in Cambodia follow traditional commercial distribution models, with goods moving from a manufacturer to distributors and then on to wholesalers and retailers (Figure 1). FMCGs and durables are sold through similar channels.

Three motivations drive the behavior of players at every level in the commercial supply chain in

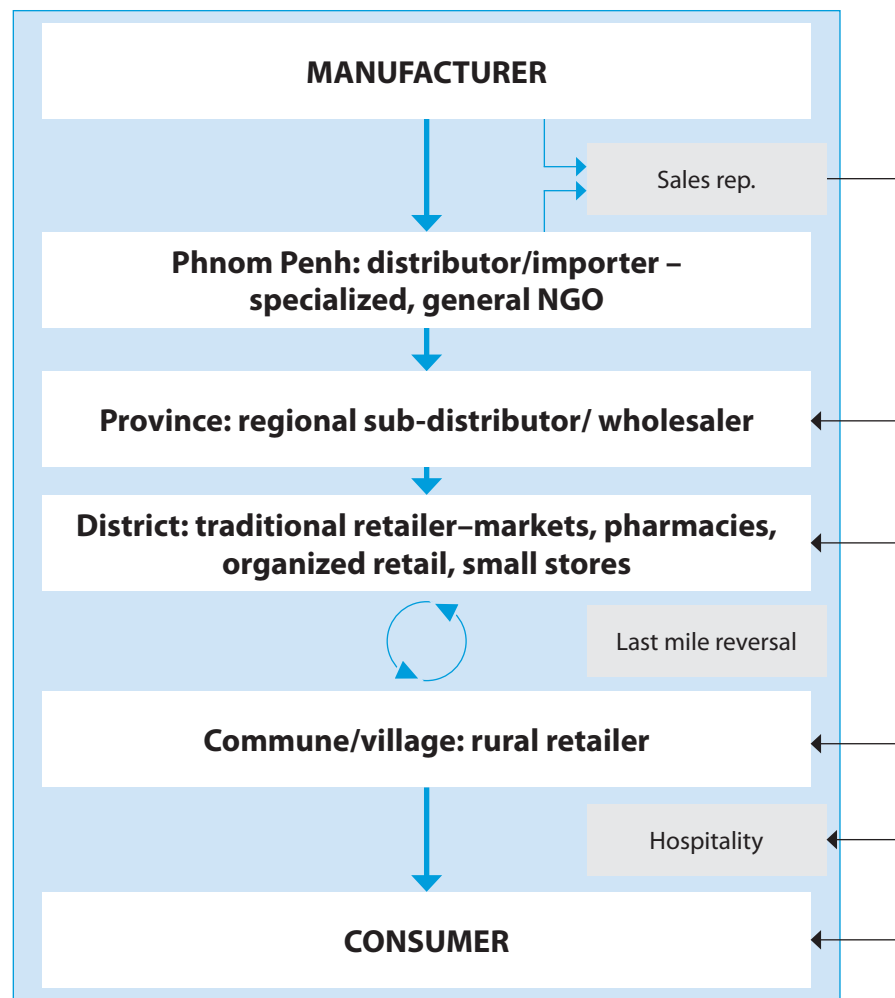


Figure 1. Commercial distribution channel

Cambodia, including distributors, wholesalers, and retailers:

- They tend to be risk-averse.
- They are driven primarily by evidence of consumer demand.
- Volume is more important than margins.

These characteristics have important implications for bringing commercial HWTS products to market, as described in the sections that follow.

Distributors and wholesalers

Distribution channels are long because most products—even if

they originate outside the country—are shipped from Phnom Penh, and distribution is opportunistic, decentralized, and fragmented. Few distributors have nationwide coverage; most operate from Phnom Penh and employ sub-distributors and wholesalers to work deeper into the provinces. Many manufacturers and distributors do not track where the product ends up.

Distributors are easy to find and prefer to work closely with manufacturers on building a brand and developing markets. HWTS manufacturers can benefit from distributors' mobile sales teams, which act as direct sales agents to

wholesalers and retailers in the provinces, provide promotional and merchandising support, and sometimes service new customers on a direct delivery basis. These sales representatives can help generate demand and build a brand, but they tend to focus on easy-to-sell products in order to meet sales quotas. When introducing a new HWTS product to the market, manufacturers and brand owners may need to subsidize promotion costs to reduce distributors' risks and offer sales representatives incentives to push the product.

Manufacturers can also work directly with a wholesaler to distribute their products. Many wholesalers are also importers and have strong established retail networks in the provinces. However, wholesalers offer little more than a warehousing, inventory, and transportation service. Their market research consists of looking at retail outlets to assess consumer preferences, and they

are more likely to invest in popular products that are already in demand. They compete largely on price and do not actively promote products.

Retailers

Retailers focus on securing repeat customers rather than attracting new customers. They do not actively promote the products they carry, although they will take advantage of promotions and merchandising displays organized by manufacturers or distributors. Instead, retailers focus on stocking what consumers want and what they can sell in volume. This means that relatively few retailers carry HWTS products, for which they do not perceive much demand. The product scan found that retail outlets in urban and peri-urban areas were more likely to stock HWTS products than outlets in rural areas. Market stalls accounted for a large majority of the outlets that stocked home water treatment products, but some home

appliance shops, supermarkets, and pharmacies also carried them.

Wholesalers can sometimes convince retailers to add new products to their inventory if the product is familiar but the brand is perceived as “new and improved.” However, retailers primarily add new products in response to consumer demand. This suggests that manufacturers and distributors should focus their efforts on educating consumers and stimulating demand for HWTS products.

Manufacturers and distributors must also contend with retailers' lack of brand loyalty: retailers will readily switch brands if it allows them to lower prices, increase margins, or fill gaps in their inventory. Therefore, manufacturers and distributors may want to consider offering incentives—such as free or discounted product and merchandising support—to encourage retailers to carry certain brands of HWTS products.

Reaching rural markets

Reaching the last mile presents a challenge in Cambodia. There is little organized distribution in rural areas. Most distributors do not send sales representatives beyond the district level, especially for durables. Instead, small retailers at the commune and village level travel to towns to buy in district markets and then resell locally. Only certain household durables, such as water containers and cookstoves, are carried at the village level. Thus, while rural consumers buy FMCGs locally, they generally travel to district or provincial towns to find a good selection of durables. They will travel up to an hour for products they really want.

HWTS manufacturers have three basic alternatives to reach rural markets. One alternative is to rely on a “pull” strategy; if they can generate demand for a product, either village retailers or consumers will travel to buy it. Another alternative is a creative “push” strategy that subsidizes costs for the last mile, for example, hiring sales representatives to carry the goods to village retailers or a direct sales force to go directly to rural households. Finally, they could pursue some combination of “push” and “pull” strategies.

Potential channels for HWTS products

Chemical disinfectants. Pharmacies may be the best outlet, at least initially, for distributing disinfectants. Pharmacies' credibility with consumers could help overcome the lack of familiarity with the products and assuage concerns about their potential dangers. Pharmacy distributors would naturally play an important role in this scenario. Pharmacies already distribute the only such product currently sold in Cambodia.

The FMCG/mixed goods retailers present in every rural village offer another alternative. They are eager to add new brands in response to consumer demand and also are willing to extend credit to known customers. However, consumers do not necessarily associate these outlets with health-related products. Since village stores carry limited inventory and emphasize volume, they also would not stock disinfectants until there was considerable demand for the product.

Filters. Both direct sales and stores selling household durables offer promise as potential channels for selling filters. In either case, large distributors could play a key role in terms of organizing education, incentives, and supply for sellers.

Consumers think stores that sell kitchenware and household durables would be the best sales outlets for water filters. These retail outlets already have experience with filters and would be prepared to move quickly to add new brands as soon as demand emerges. However, these types of shops are generally not present in village



PATH/Thunvuth Nep

Consumers are more likely to buy chemical disinfectants from pharmacies because they are a trusted source of information on health matters.

markets and do not provide merchandising or product education.

Consumers are also familiar with direct sales. Some consumers have purchased kitchen durables from direct sellers, and there are anecdotal reports of direct sales of mineral pot filters in rural areas. With proper training, direct sellers can demonstrate and explain products. However, it can be a challenge to gain consumer trust; findings suggest that consumers probably do not trust these vendors sufficiently to buy chemical disinfectants from them. In addition, direct sales are relatively expensive and difficult to monitor.

The growing organized retail sector in Cambodia presents some other possibilities for distributing both disinfectants and filters, especially in urban areas and for upper-income consumers. For example, gas stations often have companion mini-marts, although high prices and space constraints limit the range of products offered. Supermarkets offer

the advantages of high traffic and a capacity for merchandising displays.

Replacement parts. For filter replacement parts, direct sales could offer both convenience and an opportunity to instruct users on proper maintenance.

Some 2,000 battery charging stations in Cambodia provide a potentially promising channel for the distribution of filter replacement parts. Half of rural households rely on these stations to recharge batteries for lighting, and the stations have been a successful point of sale for light-emitting diodes in an RDI pilot.

Alternative outlets. The health and development sectors offer alternative distribution channels that lay outside the traditional retail sector. They offer consumers both convenience and credibility. For example, many FGD and interview participants said they would prefer to buy disinfectants and water filters at the house of either the village



Consumers prefer mineral pots over ceramic water filters because they look modern and well-made, but poor households cannot afford them.

chief or the head of the village health volunteers. While public health centers cannot serve as a point-of-sale, private clinics might be a viable distribution channel and sales outlet for chemical disinfectants. Other possibilities include village development committees and community water treatment points.

Promoting HWTS Products

Stimulating demand is the main challenge for commercial HWTS strategies in Cambodia because retailers, wholesalers, and even some distributors require evidence of consumer demand before they will add new products to their inventory. If marketers can generate enough demand for HWTS products, however, even village vendors will stock them, which would dramatically increase accessibility in rural areas.

Generating demand will take a mix of promotional activities and messages. Commercial marketing typically promotes specific brands and assumes that consumers are already aware of the broader product category—but this is not the case in Cambodia for HWTS products. Therefore, marketers must also be prepared to introduce and familiarize consumers with new safe water product categories, such as chemical disinfectants. But the task does not end there; long-term promotion is needed to bring about behavioral changes like incorporating water treatment into daily household routines.

Marketing mix

The mass media reach large audiences in Cambodia. Most households own televisions and radios, and many people also listen to the radio at work. While radio remains the most popular medium in rural areas, television may have more impact

in urban areas. Consumer study participants reported that radio and television were common sources of information on water-related products. The mass media are an effective way to raise awareness of the problem of contaminated water and to introduce new product categories such as chemical disinfectants. However, radio and television do not necessarily prompt consumers to make purchases.

Word of mouth is more effective than the mass media in validating new products, changing behavior, and prompting purchases. Most study participants reported that interpersonal communication with family members, relatives, and neighbors was their main source of information on water-related products. Generating positive word of mouth requires engaging consumers directly, for example, via promotional blitzes at national festivals and concerts, buy-one-get-one-free offers, health education in schools, promotions at factories, live product demonstrations in villages, village chiefs on loudspeakers, and quiz shows. These kinds of promotions can also direct consumers to points of sale and help convince local retailers to stock HWTS products.

Product demonstrations have proven especially effective in increasing demand for social products in Cambodia because of their ability to prove the tangible benefits of a product. For example, demonstrations of HWTS products can show just how quick and easy they are to use or how much cleaner water looks after treatment. Given the low adult literacy rates in Cambodia, product demonstrations can also play an important role in

Table 2. Key opinion leaders in the community

	Strengths	Weaknesses
Village (or commune) chief	<ul style="list-style-type: none"> • Considered trustworthy and knowledgeable • Networks with commune at large • Close relationship with residents permits ongoing product education 	<ul style="list-style-type: none"> • May need incentive to act as information channel • Difficult to monitor quality of information delivery • Influence not uniform across all communities
Health centers	<ul style="list-style-type: none"> • Have promoted boiling • Medical professionals lend credibility • Experienced with outreach on health issues • Willing to promote HWTS products 	<ul style="list-style-type: none"> • Less than half of residents consult the health center • Operational District must approve any structured promotion or endorsement • May need to create incentive for health center chief
NGOs	<ul style="list-style-type: none"> • Highly credible • Resources and ability for wide outreach • Social marketing experience 	<ul style="list-style-type: none"> • Associated with subsidized product delivery • Have their own agenda • Bureaucracy impedes quick engagement
Product vendors	<ul style="list-style-type: none"> • Have access to new product information • Used to recommending goods to customers • Well-known to customers • Customers ask pharmacy staff for guidance on product selection 	<ul style="list-style-type: none"> • Competing motivations, such as stocking higher-margin inventory and maintaining vendor relationships • Less trusted than noncommercial institutions • Difficult to monitor

instructing consumers on how to properly use and maintain filters and other HWTS products.

The consumer study also suggests the importance of involving local leaders, community-based organizations, and trusted public institutions like schools and health centers in marketing HWTS products. Compared with product vendors, they are far more credible and influential sources of information and advice (Table 2). Marketers should consider working with:

- **Village chiefs:** Perhaps the single most trusted and influential

individual in the community, the village chief regularly disseminates information to villagers. Village chiefs potentially could facilitate community meetings and product demonstrations, endorse products, or even sell HWTS products from their homes.

- **Community organizations concerned with health and development issues:** Study participants singled out elected village development committees as a preferred and trustworthy source of information on water treatment. However, other local groups may also be influential, including

community-based organizations established by NGOs, water and sanitation user groups, village health support groups, and self-help groups.

- **Health centers:** Cambodia's network of 942 health centers already promotes safe water sanitation. Health centers could spur demand for HWTS products by sponsoring product demonstrations and offering product endorsements.
- **Village health volunteers (VHVs):** These outreach workers are a credible and influential source of

health information. Some study participants wanted to purchase HWTS products from the VHV head's house.

NGOs make attractive partners for commercial HWTS ventures, even though they have a social rather than a commercial orientation. NGOs are a trusted presence in many communities and offer strong reach into rural markets. While their capabilities vary, many NGOs possess relevant experience in health education, community-level promotion, and social marketing; some also have experience in distribution and microfinance. NGOs and international organizations can also work to supplement government efforts. For example, the World Bank Water and Sanitation Program plans to work with the Ministry of Rural Development on a protocol to verify HWTS product performance and offer a “seal of approval” to those which qualify.

Audiences and messages

Women make most decisions regarding everyday purchases, such as food and toiletries, so they are the primary audience for efforts to market chemical disinfectants. However, men and women usually share the decision to purchase durable products such as water filters, so both must be convinced to take action.

The consumer study's insights into common motivations and barriers to household water treatment can guide message development, as illustrated in Table 3.

Table 3. Promotional messages that address common barriers to using HWTS products in Cambodia and publicize benefits valued by consumers

Issue	Potential messages
Lack of awareness	<ul style="list-style-type: none"> You don't have to “make do” with the water available; you can improve it. You cannot judge the safety of water by its appearance.
Health	<ul style="list-style-type: none"> Water-related illnesses can and should be prevented. Treating water will improve your children's health and well-being.
Cost	<ul style="list-style-type: none"> Treating water is cheaper than treating illness. HWTS products are cheaper than boiling.
Convenience	<ul style="list-style-type: none"> HWTS products are quick and easy to use. Disinfectants can be easily carried to worksites.
Effectiveness	<ul style="list-style-type: none"> Filters and disinfectants are as effective as boiling at removing germs. Filters improve the clarity, color, smell, and taste of water.
Safety and quality	<ul style="list-style-type: none"> The chemicals in disinfectants will not harm your health. Individuals and organizations that you trust have endorsed these products.
Social aspirations	<ul style="list-style-type: none"> Modern families treat their water with modern appliances.
Sales outlets	<ul style="list-style-type: none"> You can buy water filters and disinfectants at [fill in name and location of sales outlet].

Implications for Marketing Household Water Treatment Products in Cambodia

Product

- Water filters already have traction in the Cambodian market, but consumers prefer mineral pots over more affordable CWPs, even though CWPs are also effective. Redesigning CWPs to look more

modern, more durable, and of higher quality can make them more appealing.

- There is an opportunity to create a market for disinfectants among rural and low-income populations by stressing their convenience, speed, low cost, and portability, but any such product must come with strong safety assurances. Reducing the product's chlorine taste and smell will also make it more appealing to consumers.

- Printing packaging and instructions in Khmer will help consumers use and maintain HWTS products properly; it may also help retailers advise their customers.
- Consumers rely on outside endorsements and seals of approval to distinguish good quality products from bad.

Price

- The bottom 80 percent of consumers in Cambodia has limited purchasing power and is sensitive to price. Therefore, different products should be created for different price points.
- Brand owners can make durables more affordable by selling them on an installment plan or promoting them heavily at harvest time, when rural households have more disposable income.
- Distributors, wholesalers, and retailers are reluctant to handle new and unproven HWTS products because they are price sensitive and risk averse. HWTS manufacturers should consider reducing distributors' and retailers' costs by: sharing inventory risks, offering volume discounts and/or free or discounted product, building in healthy margins, assuming the cost of social and commercial marketing, and offering retailers merchandising support.

Place

- Initial efforts should target areas that rely on surface water sources, since people are more motivated to treat surface water than other sources. Urban areas



PATH/Thunvuth Nep

Cambodian consumers rely heavily on the advice and endorsements of people and organizations they know and trust. Educating retail vendors on the proper use of products will help consumers use and maintain HWTS products properly.

may also be a fertile market despite the presence of piped water systems; urban residents care more about and have more money to spend on safe water.

- Initially, the most appropriate retail channels for HWTS products are pharmacies for disinfectants, household durable stores or direct sales for water filters, and direct sales for replacement parts. Large distributors can play an important role in activating and supplying these channels.
- HWTS manufacturers should engage and educate a sales force to cover key distribution points, visit retail outlets in provincial and district towns, and educate vendors on proper use of the products. The easiest way to accomplish this is to work with a distributor that already employs mobile sales

teams and to offer its sales representatives special incentives to introduce HWTS products.

Promotion

- HWTS promotional activities have three objectives: creating awareness of a new product category, promoting specific brands, and changing household behavior.
- Mass media—television in urban areas and radio in rural areas—are an effective way to raise awareness of safe water issues and HWTS product categories.
- Direct promotions are necessary to generate positive word of mouth, change behavior, and encourage consumers to buy a HWTS product. Live product demonstrations at the community level have proven especially effective and have the added

benefit of teaching consumers how to use the product.


- Because Cambodians place great trust in respected local leaders and institutions, marketers should seek endorsements and help with information dissemination and product demonstrations from village chiefs, MFI credit officers, village health volunteers, health centers, NGOs, and other opinion leaders.
- Messages should use boiling as the standard of comparison to promote the effectiveness, convenience, ease of use, safety, and health and economic benefits of HWTS products.

The way forward

Based on the study findings summarized in this brief, PATH is pursuing several activities in Cambodia together with partners. These include support and technical assistance for a social enterprise partner to pilot direct sales of filters and health-related goods, a value chain analysis to understand the relative success of mineral pots and derive lessons for the rest of the category, and quantitative consumer research to help identify consumer segments and create targeted product and marketing strategies. Once complete, results of these activities will be made available.

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