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PROVIDING SAFE DRINKING WATER IN BENIN: THE POUZN AQUATABS PROGRAM RESULTS AND LESSONS LEARNED

PROGRAM CONTEXT

Located on the west coast of Africa between Nigeria and Togo on the Gulf of Benin (Figure 1), Benin is one of the poorest and least developed countries of the world, ranking 161/182 in the UN's Human Development Index for 2009. Sixty-six percent of the



population resides in rural areas. Overall health indicators are poor, with a low life expectancy of 56 years and high infant (78/1000 live births) and child mortality (123/1000 live births) (UNICEF 2008).

Lack of safe drinking water is a major problem confronting Benin's residents, particularly in rural areas, where, according to the 2006 Benin Demographic and Health Survey (BDHS), 43 percent do not have access to improved

water sources (Institut National de la Statistique et de l'Analyse Économique et al. 2007).¹ The 2006 BDHS also indicated that 94 percent of the population did nothing to treat drinking water to prevent diarrhea. Of those who did treat, 50 percent used eau de javel (household bleach, which is not manufactured to foodgrade standards and is not of a consistent concentration that allows for proper dosing for water treatment) and 33 percent used other often inadequate treatments (such as straining through a cloth). According to the Ministry of Health (MOH) 2005 Annual Report and data from the national health management information system (Système National d'Information et de Gestion Sanitaires), the principal reasons for health facility visits for children under five were: malaria (41 percent), respiratory infections (20 percent), diarrhea and

¹ A 2007 GTZ-funded survey of 300 deep wells in the Ouéme and Plateau departments revealed that 97 percent were contaminated with fecal coliform and other diarrhea-causing microbes. (Interview with GTZ advisor, June 2007, Ministry of Water, Directorate of Mines, Energy and Hydraulics.)



gastrointestinal problems (15 percent), and anemia (7 percent). The World Health Organization estimates that 13 percent of deaths in children under five in Benin are caused by diarrhea.² High diarrhea-related death rates can be attributed to poor hygiene and sanitation practices and poor quality drinking water – both of which contribute to the spread of water-related diseases.

The Social Marketing Plus for Diarrheal Disease Control: Point-of-Use Water Disinfection and Zinc Treatment (POUZN) Project, implemented by Abt Associates and Population Services International (PSI), was invited by the U.S. Agency for International Development (USAID) in 2007 to implement an integrated diarrhea prevention and treatment program through private sector channels focusing on water treatment at the household level. The POUZN Project determined that introducing the chlorine-based water treatment tablet, Aquatabs, through the private sector was the most appropriate intervention for addressing the need for household water treatment. Initial marketing efforts centered around seven major urban and surrounding peri-urban areas located in the following departments: Alibori, Atacora, Atlantique, Borgou, Collines, Donga, and Zou, where PSI was already implementing a social marketing program that included child health products, and the capital city of Cotonou. In total the program reaches 70 percent of the population or about 6.1 million people. Aquatabs are the only widely available product for disinfecting water, other than the household bleach mentioned above.

² www.countdown2015mnch.org/documents/2010report/Profile-Benin.pdf (2010. UNICEF)

PROGRAM GOALS

The goal of the Aquatabs program is to reduce incidence of diarrhea among children under five by:

- ▶ **Creating a sustainable supply of and increasing access** to a chlorine-based household water disinfection product (Aquatabs).
- ▶ **Improving caregiver knowledge** of the importance of treating and appropriately storing household drinking water.
- ▶ **Increasing use** of Aquatabs to treat household water.

TIMELINE

- ▶ The POUZN design team visited Benin in June 2007 to assess the need for and the feasibility of importing and social marketing a water disinfection product.
- ▶ The POUZN workplan was approved by USAID in October 2007 and in March 2008 the POUZN team developed a detailed marketing plan.
- ▶ The product was officially launched into the Benin market in September 2008.
- ▶ In 2009, the POUZN team expanded marketing through a number of new community channels and in 2010 launched a television advertisement that considerably increased sales.
- ▶ The program was evaluated using a representative household survey in the target departments in November 2009.

PROGRAM COMPONENTS

Product: Household Water Treatment with Aquatabs.

The POUZN team imported Sodium Dichloroisocyanurate (NaDCC) tablets, manufactured by the Irish company Medentech under the brand name **Aquatabs**, for distribution in Benin. The June 2007 assessment examined the various product options and selected Aquatabs as the most appropriate product for Benin, given that there was not an acceptable local manufacturing option. Aquatabs, packaged in strips of 10 tablets, have proven effective in field trials in the developing world for treating water in the home (Clasen et al. 2007). The 67 mg tablet imported specifically for this project was registered in Benin by PSI through an *Autorisation de Mise en Marché*.

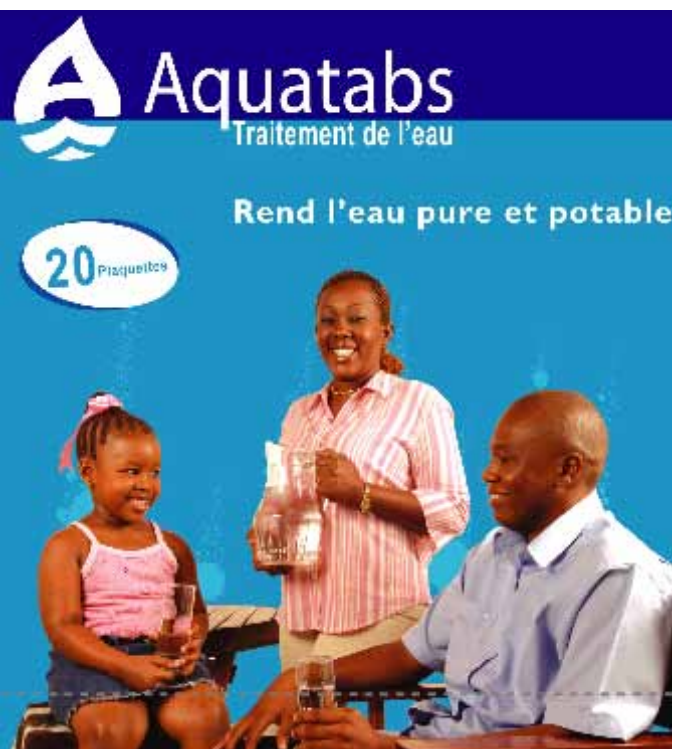
Price: After conducting formative research with potential consumers in a number of areas of Benin, the decision was made to sell each strip of 10 tablets of Aquatabs for a cost recovered retail price of FCFA 125 (US\$0.25). Each tablet treats 20 liters of water; therefore, a strip of 10 is designed to treat the drinking water for a family of five for approximately 10 days. Aquatabs are promoted as an effective and affordable household drinking water treatment product to consumers in lower socioeconomic groups where water treatment has not been the norm.

Due to the fact that the Aquatabs packaging contained no use information, the team developed a colorful box, with use instructions printed thereon, to educate the target population. Unfortunately, this doubled the base cost of the product. In order to maintain an affordable yet sustainable price, the initial margins for both wholesaler and retailers were kept relatively low, as shown in Table I. Medentech has since redesigned its packaging, both making it more colourful and printing use instructions in three languages on the reverse side. This will allow the POUZN team to eliminate the overpackaging and readjust trade margins as old stocks are depleted.

Benin
Aquatabs

3

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Promotional poster enhances brand recognition at clinics and retail outlets.

TABLE I. RETAIL AND CONSUMER PRICE MARGINS FOR AQUATABS

Treatment	Prices	Prices (US\$)	Margin %
Base Price for Tablet	40 FCFA	\$0.08	—
Packaging	40 FCFA	\$0.08	—
Total Cost (PSI)	80 FCFA	\$0.16	6%
Wholesaler/NGO	85 FCFA	\$0.17	17%
Retailer	100 FCFA	\$0.20	25%
Consumer	125 FCFA	\$0.25	—

DISTRIBUTION: ENSURING ACCESS TO AND AVAILABILITY OF AFFORDABLE PRODUCTS

Building on its existing distribution system, PSI expanded the network for Aquatabs (Figure 2) by working actively with two private pharmacy wholesalers and one government pharmacy wholesaler, *Centrale d'Achat des Medicaments Essentiels (CAMÉ)*, to distribute and sell Aquatabs through private pharmacies and public sector clinics and pharmacies. In addition, the POUZN team worked with 10 commercial wholesalers to market the product through the commercial distribution channels for fast-moving consumer goods such as shops and kiosks. Given that this is a low cost product with relatively low profit margins for distributors and retailers, and still untested demand by consumers, one additional pharmaceutical wholesaler, covering half of the pharmacies in southern Benin refused to carry the product and only half of the commercial wholesalers agreed to market the product. Both the advent of

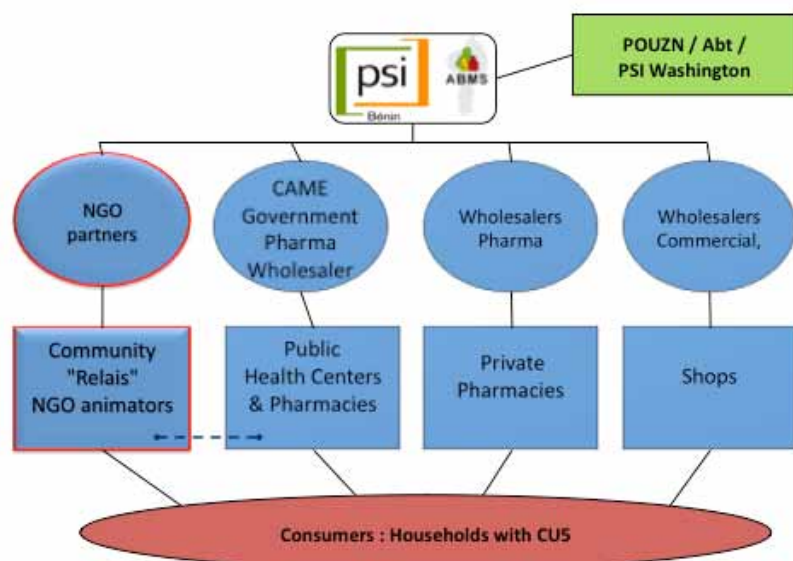
the television advertising, which has already improved demand, and reductions in base costs through revised packaging, which will impact wholesaler and retailer margins, should address these issues.

POUZN **promotional** efforts were concentrated in the seven target departments and the capital city of Cotonou. However, Aquatabs are distributed nationwide and are available for sale in approximately 1,050 commercial outlets and 450 public health clinics throughout the country.

The government's pharmaceutical wholesaler, CAMÉ, operates in a fashion similar to commercial wholesalers. They purchase Aquatabs from PSI at the wholesale price and sell to clients through public sector clinics at the full cost price. Both CAMÉ and clinics benefit from this price structure with the margins funding distribution costs and contributing to sustainability through this channel. While sales through the clinics were initially slow, they have increased markedly with the advent of both the television advertising and a new supervisory linkage between the clinics and the community sales personnel. A portion of institutional sales are also distributed through public health centers as part of emergency relief efforts.

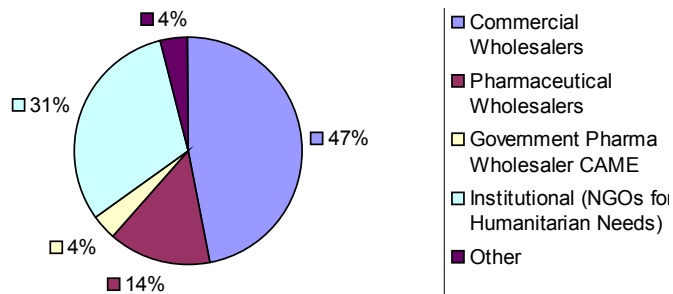
Since inception, 47 percent of the product has been purchased by commercial wholesalers and sold through shops and kiosks, 14 percent was purchased by pharmaceutical wholesalers and marketed through private pharmacies, 4 percent was purchased by CAMÉ for sale through MOH health clinic pharmacies, 31 percent of sales were made to institutional entities

FIGURE 2: DISTRIBUTION SYSTEM



(primarily the Red Cross) for humanitarian response; and 4 percent sold to other distribution channels (Figure 3).

FIGURE 3: AQUATABS SALES CHANNELS



PROMOTION: IMPROVING CAREGIVERS KNOWLEDGE AND PRACTICE

With 94 percent of Beninese not treating their water with any method at the start of the program, POUZN had the dual challenge of introducing both the concept of water treatment and the product. Cholera outbreaks in Cotonou and Malanville and a flood emergency in Ouéme and Plateau departments immediately prior to the launch (August and September 2008) allowed the POUZN program to respond quickly with supplies of Aquatabs, strengthening exposure to the product and the importance of household water treatment. As a result, international NGOs continue to be a major purchaser of Aquatabs as shown in Figure 3 (above).

POUZN utilized both mass media and interpersonal communication to increase demand for Aquatabs.

Mass Media: POUZN’s initial mass media efforts utilized national radio networks to reach households living in urban and peri-urban areas. Two safe water radio spots (one promoting the Aquatabs brand and

one promoting household water treatment more generally) were developed in 2008 and more than 32,500 radio spots were aired during the period March–December 2009. In 2009, due to slow first-year sales outside of emergency channels, it became apparent that the team needed to expand its efforts to advertise Aquatabs as a necessary household product and improve brand recognition. This included

stepping up radio advertising, developing a television commercial, and placing billboards in strategic locations in each of the target departments. In late March 2010 the team launched a television advertisement on two national television stations, one private and one public. This had additional positive impact on sales, supporting the efforts of the community and retail sales agents, who found that both consumers and retailers were much more likely to buy an



Group sensitization sessions by community health workers improve knowledge on the need to treat water, increase user self-confidence, and encourage sales.

initial supply of the product after they had seen the advertisement. This also sharply increased orders by wholesalers.

The POUZN team also produced briefs on safe water and diarrhea for use by 14 community radio stations with reach deep into the rural areas. Using those briefs the community radio stations prepared community radio messages, special interviews, and other media programs specific to household water disinfection. These community radio activities supplemented national radio broadcasts.

Interpersonal Communication (IPC):

To complement the mass media promotion the team engaged 13 NGOs with community agents trained in community development and outreach skills. The NGOs were provided with training in diarrhea prevention techniques and with the POUZN team set monthly targets for delivery of IPC through sensitization sessions.



Community-based sales assures community access to Aquatabs.

As of May 2010, the POUZN project had trained 1,842 individuals in both public and NGO sectors to support promotion of Aquatabs. These included over 400 MOH health clinic staff, 211 hygiene and sanitation assistants from the Department of Hygiene and Sanitation, 90 individuals from partner NGOs and radio stations, 179 community-based health promotion/sales agents, and 124 other promotion agents. More recently, 64 community-based animators and 772 women leaders from approximately 100 women's groups were trained and engaged to both sensitize community members and to sell Aquatabs door-to-door. Sixty Peace Corps volunteers were also trained on point-of-use water disinfection, allowing them to promote the use of Aquatabs in their various community development efforts.

POUZN PROGRAM EVALUATION RESEARCH RESULTS

In November 2009, the POUZN project conducted a survey of 2,914 households with children under five in the target departments to assess program progress. PSI also conducted a retail audit survey during the same month to assess coverage and penetration of all of its socially marketed products, including Aquatabs. In May 2010, the POUZN team conducted a mystery client survey to assess Aquatabs promotion through pharmacy outlets. The results of these research studies are highlighted below. Where appropriate, the data were compared with baseline data provided by the 2006 BDHS.

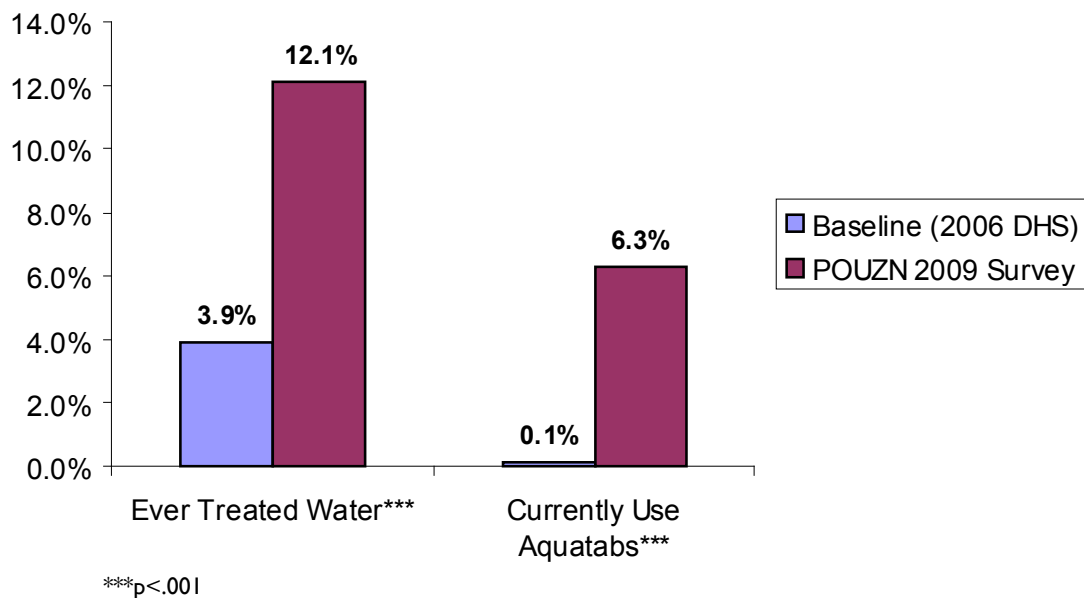
USE OF AQUATABS AS A HOUSEHOLD WATER TREATMENT PRODUCT

Comparison of data from the 2006 BDHS and the 2009 POUZN survey shows that the proportion of households with children under five that had ever treated their water in the past using any method increased from 4 percent to 12 percent.³ Factors found to be strongly associated with treating water were exposure to mass media messaging, social norms (behaviors supported by friends, family and/or other community members), knowledge that one must treat the drinking water to make it safe to drink, and self-confidence in being able to use a water treatment product correctly.

Of that 12 percent, 18 percent had used a chlorine product (usually household bleach), 52 percent were currently using Aquatabs, 10 percent had used a filter, 3 percent had boiled their water and 9 percent had used another unspecified product or method.

Of Aquatabs users, 5 percent reported using the tablets daily, 33 percent reported use 1–3 times per week, while 44 percent were intermittent users (during the wet or dry season, during a change from one water source to another, or when they were unable to boil). Of those who had heard of Aquatabs, but had not yet tried the tablets, 63 percent did not feel the need to use them; 10 percent said they were “impossible to find.”

FIGURE 4: WATER TREATMENT BEHAVIORS IN HOUSEHOLDS WITH CHILDREN UNDER FIVE



³ These results are based on comparable data: for both years, the data shown here are from a population-based survey of households with children under five in the POUZN program departments.

IMPROVING ACCESS TO AQUATABS

Aquatabs users obtained the product primarily from private pharmacies (28 percent) or public health clinic pharmacies (26 percent) but also from markets (12 percent), kiosks (11 percent), and other outlets (9 percent). Community sales agents and NGO sales accounted for 8 percent of sales. Community sales channels opened only in late 2009 and are expected to increase in importance in the future. Urban users tended to purchase Aquatabs from a pharmacy (36 percent) or public health clinic (25 percent) while rural users tended to purchase Aquatabs from a public health clinic (44 percent) or market vendor (36 percent).

The POUZN team conducted two retail audit surveys in December 2008 and November 2009 in all 12 administrative departments of Benin. These surveys indicated that coverage (defined as at least one point of sale in the enumeration area [town or segment of larger cities] surveyed) of Aquatabs had improved from 7.5 percent in December 2008 (soon after product launch) to 35.5 percent by November 2009, ranging from 20 percent in the department of Couffo to over 95 percent in Littoral (encompassing the capital city of Cotonou). Penetration (defined as percentage of shops in each enumeration area which carried the product) had improved from 1.6 percent to 10.4 percent during this same period. The POUZN team made significant efforts over the one-year period to increase coverage and penetration in departments with previously low rates, resulting in significant increases in northern departments, but particularly in the capital area of Littoral.

During a mystery client survey of 10 private pharmacies in the Cotonou area in May 2010, 98 percent of personnel recommended Aquatabs when clients asked for a product to disinfect water, which is not surprising given that the retail audit study showed that 95 percent of outlets surveyed in Cotonou carried the product. It is significant that commercial outlets are both carrying the product and are referring clients to the product when asked.

EFFECTIVENESS OF MASS MEDIA AND INTERPERSONAL COMMUNICATION EFFORTS

The POUZN team implemented a two-pronged communication strategy in Benin. The team developed and aired both generic and branded mass media messages, utilizing national radio networks to reach households living in urban and peri-urban areas. The team also implemented an IPC campaign to increase demand in rural catchment areas, working through NGOs already trained in community development and outreach skills, to create awareness and promote product use.

POUZN staff analyzed water treatment behaviors in relation to the respondent's exposure to at least one message about Aquatabs or water treatment⁴ either via one of the radio spots or via a women's group meeting or community sensitization session delivered by one of POUZN's partner NGOs. The household survey results indicated that 21 percent of respondents had heard of Aquatabs. Of those who had ever used Aquatabs, 40 percent had heard an Aquatabs message; 22 percent had heard a message on the radio (which ran from March to December 2009);

⁴ Generic (water treatment) and branded (Aquatabs-specific) messages ran at equal frequencies during the promotional period.

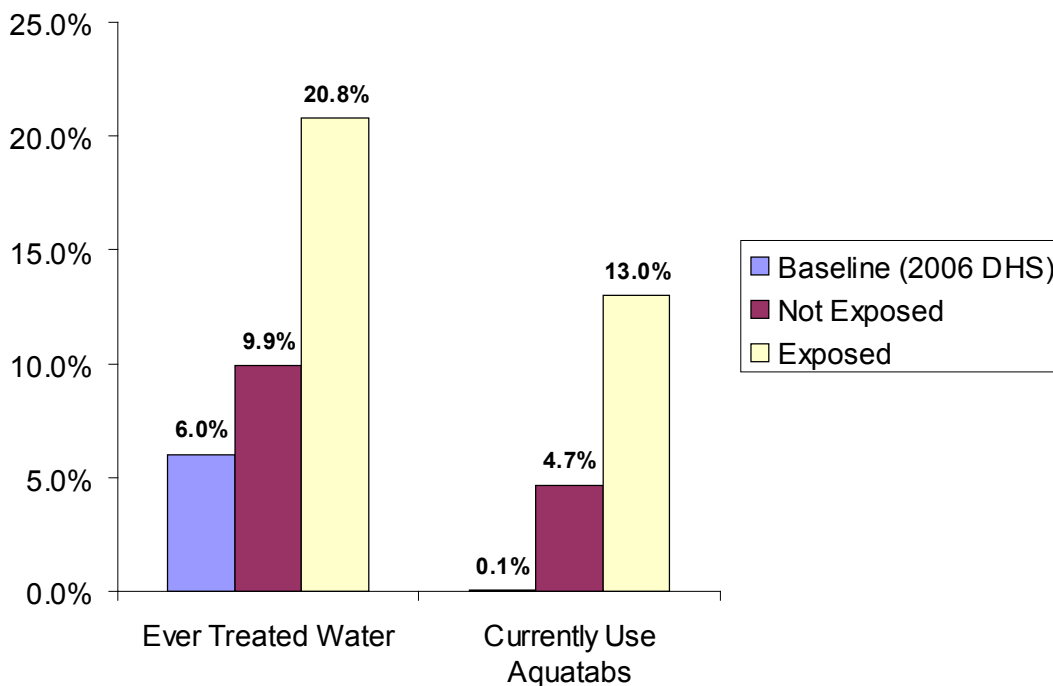
11 percent had seen a generic message on water treatment on the television (branded TV advertisements were not aired until March–April 2010); and 10 percent had heard a message via an interpersonal contact (NGO animator or family member).

POUZN placed considerable emphasis on promotion through IPC channels. Research results indicated that among respondents who had a personal contact that involved discussing Aquatabs, 52 percent had discussed Aquatabs with friends, neighbors, or relatives, 30 percent with health personnel, 11 percent with community animators, 10 percent with market traders (*commerçants*), and 9 percent with community health workers. Rural respondents, when compared to urban respondents, were more likely to have

obtained information about Aquatabs from an NGO community animator or MOH community health worker or health clinic staff while urban respondents discussed Aquatabs more often with neighbors, friends, relatives and market traders. NGO partners have been active since October 2008, reaching over 150,000 individuals in group sensitization sessions or community promotional events.

Figure 5, below, illustrates the association between exposure to safe water or Aquatabs promotional messages and water treatment behaviors. Individuals who had heard a message were twice as likely to either treat their drinking water or to use Aquatabs. An individual's perceived access to/availability of water treatment products was also statistically significant.

FIGURE 5: WATER TREATMENT BY RESPONDENTS WITH AND WITHOUT EXPOSURE TO MESSAGES ON SAFE WATER/AQUATABS , 2006–09 (% OF HOUSEHOLDS)



SUMMARY PROGRAM CONCLUSIONS

The percentage of targeted households with children under five years ever treating their water increased from 4 percent to 12 percent. Of those treating their water, more than half had tried Aquatabs at least once. Pharmacies – both commercial and those associated with MOH health centers – were the primary sales points, followed by commercial retail outlets (boutiques, market stalls, etc.). Few consumers purchased from community sales agents, but this is expected to change over time, given the new emphasis on this sales channel. Many consumers continue to use the products in critical seasons of the year, upon changing their source of water supply or during disease outbreaks.

Exposure to behavior change messages (either through mass media or IPC) was clearly an important driver of use. Research showed that radio was the primary source of information, followed by generic television programming. Respondents who had heard a message about Aquatabs were twice as likely to purchase and try the product, compared to those who had never heard a message. Research results indicated a positive association between exposure to at least one POUZN program message and ever treating, ever chlorinating, and currently using Aquatabs.

LESSONS LEARNED

Community-based awareness-raising alone is not sufficient to increase sales. The project team found that sales in rural areas did not take off until the project added both television advertising and created a cadre of community-based sales personnel to complement the communications program, providing immediate, local access to the product.

Mass media plays an important role in creating awareness of and demand for previously unknown products.

Radio advertising, via either local or national stations, was important in encouraging sales but the advent of television advertising created sufficient product awareness for sales takeoff. Furthermore, in urban areas, television is particularly effective when working to identify new retailers. New retailers who have seen the product on the television are more apt to be open to stocking the product.

The community (family, friends, and relatives) is an important source of information and influence. Social norms are a significant feature of Aquatabs use and these individuals are frequently cited reference points for advice. Information about Aquatabs was frequently obtained from family or friends, indicating the diffusion effects of the many sensitization sessions of partner NGOs and the need for effective community-based IPC, particularly in rural areas where television ownership is low or non-existent.

The cost of packaging can be a deterrent to marketing Aquatabs through commercial channels. If use instructions are clear on the product itself and through campaign messages, eliminating overpackaging can reduce the cost of the product and allow for wholesaler and retail margins that are more attractive to the trade, thus making the product more commercially viable.

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II

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Commercial outlets provide nearly half of all Aquatabs sales.

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ABOUT POUZN

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