

Appendix D – Implementation Case Studies

Household Water Treatment and Safe Storage Implementation Case Study: Biosand Filters

AQUA CLARA INTERNATIONAL

Introduction

Aqua Clara International (ACI) is a non-profit NGO headquartered in the USA and operating in Kenya. They are focused on empowering communities to meet their own needs by using a partnership-based, entrepreneurial model. The goal of ACI is a completely locally-driven and sustainable program that involves partnership between schools, their surrounding communities and ACI. All partners work together to sensitize the area in the use and adoption of different types of beneficial technologies, including biosand filters, rainwater harvesting, sanitation, and household high-yield gardens.

ACI developed a biosand filter using a plastic container for the filter body in 2007 and have received training and follow-up support from CAWST. As of August 2011, ACI has implemented more than 1,800 biosand filters in Kenya. Currently, their project consists of two main areas in rural communities around the towns of Kisii and Eldoret.

Creating Demand

ACI raises awareness and creates demand for the biosand filter and other products, through schools, Community Development Entrepreneurs (CDEs), and Community Health Promoters (CHPs). These 2 key roles have different functions. The CDE operates a small ACI business and is responsible for social marketing, constructing and selling water, hygiene and sanitation (WASH) products to end users; whereas the CHP is mainly responsible for education, oversight and follow-up with the end users.

Each small business, run by a CDE, is based at a rural school. Primary schools are selected through an application process after initial meetings called by the local district education officer. Interested schools submit application forms to ACI and go



Demonstration ACI Filter in Kisii, Kenya (2011)

through a selection process. ACI selects 1 school per sub-location so that the CDEs have different markets for the various ACI products. The first level of ACI products consists of 3 WASH products: biosand filters, two types of safe water storage containers, and hand washing containers.

CDEs are identified through the school and ACI interviews each candidate to select the best individual for the position. These individuals are not paid a salary, but receive a small profit from each of the items sold. They drive the success of their business.

School launches are held to kick-off the local business. Local chiefs, neighbors, clubs, parents of the students, and other stakeholders are all invited by the school. The launch is participatory to engage the public and help them understand the filter and why it's important. It also serves as a public endorsement of the CDE and their

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work by ACI. CDEs can take orders for filters starting at the launch. CDEs receive a financial incentive from ACI for monthly sales that exceed 5 filters.

During the launch, local ACI staff explain how the program works, introduce the CDE, CHP and school representative, and discuss how the biosand filter works. All the participants then work together to prepare sand and gravel for a demonstration filter installation.

CHPs are women recruited from the local community to help promote good WASH practice alongside the products for sale. One of the main roles of the CHPs is to make household visits 30-60 days after purchase of the biosand filters to check on construction standards, end user knowledge of filter use and safe water storage. They also use this opportunity to train on simple hygiene and sanitation improvements.

Some of their awareness and education materials were prepared by ACI themselves, while others were provided by CAWST and UNICEF.

Supplying Products and Services

ACI staff manage the supply chain of the materials for biosand filter production and arrange transportation of the materials to the schools.

The school acts as a “neutral zone” and local partner for the business in the community. Schools provide the following:

- Safe place for the materials – away from animals and secure from theft
- A demonstration site for the ACI products that is open to the local community
- A timetable for care and maintenance of all of the ACI products used in the school
- School representative and students in the Water & Hygiene Club to care for and maintain all the ACI products
- Support for the Water & Hygiene Clubs e.g. a room to meet and the School Representative for oversight

The plastic filter body is a locally available, 75 liter container commonly used in Kenya

for rainwater harvesting and water storage. ACI's management of the supply chain enables them to negotiate with Kenyan suppliers so that the cost of the filter is as low as possible for the end user. This is also true for the safe water storage and hand washing containers.

Most raw materials for the filters are found in the project areas; however, filtration sand is sieved at a centralized source in Nakuru and transported by truck to the project areas. ACI is considering washing the sand in Nakuru, to further improve quality control.

Biosand filters are priced at 1070 Kenyan Shillings [KES] (US\$12). 820 KES (US\$9) is the material cost of the filter and the CDE receives a profit of 250 KES (US\$3). Safe water storage containers are also for sale from the CDE for 350 KES, for which they receive 20 KES profit. 80% of households that purchase a filter also purchase a safe water storage container.

Filters are constructed and installed by the CDE. CDEs are given the tools and materials necessary for their first 20-25 filters. As they sell each filter, they repay 820KES back into a material resupply account. Once they have sold their first batch of filters, the money collected is used to order the next batch of filters.

The CDE is also responsible for training the end user on how to use the filter, how to store treated water safely, and how to identify when the swirl and dump (maintenance) needs to take place. The CDE will also return to teach the user how to do the swirl and dump for the first time. The sales contract between ACI and the CDE clearly stipulates that 50KES of their 250KES profit is for this purpose. The user will contact the CDE when they think the maintenance needs to be done.

Households are expected to pay for their filter, participate in sand washing for their filter with the CDE, and transport all the materials to their homes from the school.

The community health promoters (CHPs) that have been recruited by ACI help to educate the filter users, deliver training to the school students, and monitor filter use in the homes. ACI selects women to be CHPs

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because they have better access to the women in the households and collect more honest responses.

CHPs are chosen based on the following criteria:

- Must be a resident of the local community
- Enthusiasm and interest in WASH education in the community
- Mobility – ability and willingness to visit different homes
- Good command of spoken and written English

CHPs are not ACI staff, but receive stipends for conducting specific program activities, such as follow-up visits and school education sessions with the Water & Hygiene Clubs. Each CHP supports the work of 1-2 CDEs. The number of visits that they make each month is determined by the productivity of the CDE, thus they have a financial incentive to promote the CDEs work in their area.

CHPs receive field kits that have the following materials: ruler, notebook, binder, 1 liter container, ACI brochure, 3 PHAST games, CAWST WASH posters, CAWST HWTS posters, Prescription for Health DVD, and ACI's biosand filter manual. They are also provided with bags, t-shirts and lanyards to increase their credibility in the community. Items are added to this kit on a regular basis. CHPs are also provided with a biosand filter for their own home so they understand how to use and maintain the filters and be a good role model for their community.

Monitoring and Improvement

ACI uses the CHPs as their primary method of monitoring the biosand filters. They have established a follow-up visit schedule:

- 1st visit – 1-2 months after installation
- 2nd visit – 12 months after installation
- 3rd visit – 24 months after installation

At a monthly meeting, CHPs receive the sales orders from the CDEs for the previous month. These are the households they must visit in the next month, provide follow-up support to and complete a questionnaire

which is then submitted to ACI staff. The promoter receives a stipend of 100KES for each follow-up visit conducted.

The monitoring information is used later by the program staff to help determine what should be implemented next.

ACI's model is reaching the poorest of the poor who earn less than \$2/day. In a monitoring survey completed in 2010, the survey estimated reported household income of biosand filter users to be less than \$1/person/day. They have learned that if a product is marketed well with a good distribution mechanism, people are willing to pay the full hard cost of a filter.

Building Human Capacity

ACI is committed to capacity building within their staff and at the community level. They see this as one of the best ways to ensure the long-term sustainability of the project.

ACI project managers have received training from CAWST on Community Health Promotion for WASH and Low Cost Sanitation to further build their skills and knowledge to implement their program.

Initially, CHPs and CDEs participate in a 5-day training workshop. The training content includes the basics of water, hygiene and sanitation, how the filter works, filter construction, filter operation and maintenance, and basic filter troubleshooting. There is a strong emphasis on safe water storage as well as how to train the end user on all of the above. CHPs are trained on how to conduct basic filter tests and household surveys while CDEs are trained on basic social marketing techniques and record keeping. This forms the basis for CHPs and CDEs to begin working as part of the project. Additional training is provided at each of the monthly meetings.

ACI project managers deliver refresher training to CDEs as needed. They use the information from their monitoring program to help them identify common problems and areas that need additional training.

CHPs have monthly meetings where training is an integral part of the agenda. They review lesson plans with the project

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manager for the sessions to be delivered at the schools in the next month. Project managers also provide refresher training based on monitoring data during the monthly meetings.

End user training is done by the CDE at installation and during each of the follow-up visits by the CHP. The CDE provides the training on filter maintenance once it has been requested by the household.

Currently, CHPs are teaching end users filter use, maintenance, safe water storage, and hand washing at critical times. ACI plans to expand this content. They recognize this is also a good way to introduce sanitation improvements and options for low cost sanitation.

CHPs are also working to build the capacity of students at the schools where the CDE businesses are based. CHPs deliver twice monthly education sessions with the Water & Hygiene Clubs and school

representatives. This strengthens their local partnership with the school and community.

Program Financing

ACI subsidizes their staff costs as well as education and follow-up to the users and schools. The end users pay the complete hard cost of the filter and safe storage container.

ACI receives funding for education and project management through a variety of sources, including individuals, foundations and corporations.

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<http://aquaclara.org/>

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Wellness through Water.... Empowering People Globally
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CLEAR CAMBODIA

Introduction

Clear Cambodia is a local faith-based non-governmental organization (NGO). Their mission is to transform water quality, sanitation and health in target communities by making appropriate technology and education accessible to all. Clear separated its operations from Hagar Cambodia in 2010 to focus on its own mission and vision.

They were originally trained by Samaritan's Purse in 1999 and have received follow-up support from CAWST. As of November 2010, Clear has implemented 67,000 biosand filters in the country. Currently, their project consists of five teams and works in five provinces (Kampong Thom, Prey Veng, Svay Rieng, Kampong Chhnang and Pursat). Their target for 2010 was to install another 15,600 biosand filters.

Creating Demand

In general, people in Cambodia already have a high awareness about household water treatment. This was achieved through mass media communications (e.g. television and radio broadcasting), implementation by NGOs, and cooperation with government in their community plans for water, health and sanitation.

Clear raises their own awareness and creates demand for the biosand filter by conducting promotion meetings in the target villages. The meetings are usually held with schools and general community groups. They meet with each group twice in the first stage (promotion and health education) and then follow-up meetings are conducted after the filters have been installed.

Their community outreach and health education teams use a variety of tools and communication methods to reach their audiences, including posters, leaflets, booklets, videos and presentations.



Some of their awareness and education materials were prepared by Clear themselves, while others were provided by Samaritan's Purse, CAWST and UNICEF.

Community health promoters, who are volunteers selected by village leaders, are trained to support the Clear staff in promoting the biosand filters and providing education to recipients. They receive at least one day of training and then apprentice with Clear staff for a period of time, such as one week or longer depending on need and situation of the community. Competent community health promoters may be contracted later by the program to conduct monitoring work or follow up visits.

Seeing others experiencing the benefits has also been powerful in creating demand within villages. Clear reports that others who have seen the benefits of the filters want the same thing for themselves, and have sent written requests for filters to be installed in their villages as well.

Clear is incredibly successful at demand creation and has learned that collaboration with local community leadership and community meetings are the crucial entry points. People usually request a filter when they understand, accept and value the technology, and know why they get sick from contaminated water. The demand is actually beyond the program's capacity. To date, Clear still has 150,000 filter requests outstanding.

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Supplying Products and Services

Clear employs Cambodian staff to manufacture and distribute biosand filters. They use travelling teams that transport the molds and tools required to build the filters at temporary work sites in each village. The team includes staff to supervise construction and conduct the community outreach and health education. They will spend several weeks in the village until the demand has been satisfied before moving onto the next.

Most construction materials are found locally, however filtration sand is transported by truck from a centralized source in one province to ensure quality control.

The full cost of a biosand filter and safe storage container is about US\$60 (including transport, labour and education). Clear subsidizes the filters to make it affordable for those that cannot pay the full cost. The Village Development Committee identifies the poorest households in the village, and they have first priority to receive filters. Clear requires the following from a family before they can get a filter:

1. Contribute US\$4 to partially pay for the cost of the filter
2. Contribute labour (e.g. mixing concrete and washing sand)
3. Transport the filter from construction site in the village to their house
4. Attend the BSF promotion meeting, the health and hygiene promotion meeting, and be present at follow-up visits

Households are also required to sign a contract committing them to properly using and maintaining their filters. If the filter is observed to not be in use after two follow up visits, it is taken away and the US\$4 is given back to the household.

Clear also sells biosand filters to wealthier households who are able to pay the full cost.

Monitoring and Improvement

Clear has established a follow up visit schedule to monitor the biosand filters:

- 1st visit – 1 month after installation
- 2nd visit – 3 months after installation
- 3rd visit – 6 months after installation
- 4th visit – 12 months after installation

Monitoring is usually done by community health promoters who complete questionnaire forms that are submitted to Clear staff. As of 2011, monitoring will be changed to from paper forms to digital, and will be done by staff. Monitoring of older filters will still involve community health promoters.

The monitoring information is used later by the program to consider what should be implemented next.

The program has had some challenges in monitoring the filters that were purchased at full cost. They cannot monitor the filter when there is an individual household located far from the project area. Clear suggests that when a household wants to purchase a filter, they should cluster themselves with at least five households in the same area to buy filters. This makes it more cost effective for Clear to do follow up and check their filters.

Program Financing

Samaritan's Purse has fully funded all of Clear's work, and in addition, actively provide programmatic support.

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TEARFUND AFGHANISTAN

Introduction

Tearfund is an international relief and development agency based in the United Kingdom. They are working globally to end poverty and injustice, and to restore dignity and hope in some of the world's poorest communities. Tearfund has been operating in Afghanistan since 2001.

Tearfund believes strongly in supporting the development of sustainable livelihoods through their water, hygiene, and sanitation (WASH) programs. They are seeing success with a demand-led approach to implementing WASH interventions in post-conflict settings.

As of June 2011, Tearfund Afghanistan has implemented more than 15,000 biosand filters in 15 districts in 4 provinces. 7,000 of these filters were produced and sold by local artisans who are trained and supported by Tearfund.

Creating Demand

To create demand, Tearfund uses 2 participatory approaches in sequence – Community Led Total Sanitation (CLTS) followed by Participatory Hygiene and Sanitation Transformation (PHAST). CLTS is a mobilization approach to “ignite” the community to desire change. CLTS confronts a community about their dirty environment and provokes a decision by the community members to stop open defecation and build latrines.

After the community recognizes the role of sanitation for good health, Tearfund will facilitate PHAST methods, to educate the communities about the need for good hygiene, in particular hand washing with soap or ash.

These two promotion and education approaches set the foundation for community members to demand safe water. Biosand filters are promoted in areas where people are using open canals and streams



Biosand Filter Shop Opening Ceremony, Kapisa

that pass by their homes as their source of water. Tearfund works with artisans who market and sell the biosand filters in their communities. Together, they work closely with local Mullahs to receive their endorsement and promotion at religious gatherings. The support of religious leaders is critical in most communities to gain acceptance of new technologies and ideas.

Artisans initiate community demonstrations at schools, clinics and mosques. Successful artisans have also opened biosand filter shops to create and meet demand. As part of the initial promotion, Tearfund invited government officials, as well as religious and community leaders to endorse the shop at a grand opening ceremony. In some cases, television, radio and newspaper media are also invited to give the shop additional publicity and credibility.

While artisans promote the products locally, Tearfund has invested in a large-scale marketing campaign for biosand filters, advertising them on billboards, TV, radio and leaflets. Prior to implementing biosand filters, Tearfund had already used radio broadcasting for raising awareness about good hygiene practices and community development issues. They used this as a basis for developing the campaign for biosand filters. The social marketing approach has been successful at raising awareness about the technology and creating demand.

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Government support of biosand filters has been integral to implementation and expansion of projects. Tearfund has lobbied the Ministry of Rural Rehabilitation and Development (MRRD) to amend the National WASH Policy to include the biosand filter as an appropriate WASH option in Afghanistan.

Supplying Products and Services

Tearfund staff are responsible for the marketing campaign, tools and education initiatives that accompany the biosand filter project.

Local artisans are selected in conjunction with the local government and community development committees to operate biosand filter businesses. Tearfund provides the artisans with:

- Training in filter production, installation and monitoring
- Materials for promotion and marketing
- Steel molds
- Ongoing support through joint monitoring visits with Tearfund staff
- Refresher training, as needed.

Artisans will manage between 1 and 2 molds as part of their filter business. Initially, in areas where the biosand filter was unknown to the community, Tearfund donated filters to selected households to help create demand. After a period of time, the retail cost of a filter was charged to other households.

A memorandum of understanding was signed with the artisans setting the retail cost of the filter at US\$6 with US\$2 in profit to the artisan. Over the last three years the price has risen to US\$22 with US\$9 in profit. The price adjustment reflects the willingness and ability to pay by community members. The full cost of a biosand filter is about US\$30 (including materials, labor, education and marketing).

The artisans source and prepare the filtration sand and gravel as well as produce the concrete filter box. To assure and maintain the quality of the filters, Tearfund staff work closely with the artisans to train them in all stages of production through training of the end users.

Monitoring and Improvement

During the implementation phase, Tearfund staff conduct household visits to monitor the project. They also provide artisans with monitoring and follow-up forms so that they have the tools to monitor their business. Artisans are not required to report back to Tearfund with the results of their day-to-day monitoring of the business. Side-by-side monitoring visits with Tearfund staff help the artisans to identify problems and take immediate action to correct any issues.

Community Water Groups are also engaged to help monitor the biosand filter projects. The groups are trained by Tearfund to manage different aspects of WASH in the community, including knowledge of the biosand filter and basic troubleshooting. Participation in the group is voluntary.

While the promotion and direct implementation phase by Tearfund has completed in some districts, they still have a presence in those districts for other projects. This presence enables them to do periodic monitoring of previous projects and receive feedback from various stakeholders; however, monitoring after the project has closed remains a challenge. There is no one responsible for regular monitoring and follow-up activities.

Tearfund is seeing significant improvements in the health and well-being of communities in Kapisa Province. Livelihoods have been improved for filter artisans and their families. District health clinics in targeted communities have also reported a 61% reduction in water-related diseases since the projects began.

Building Human Capacity

A key component of Tearfund's program is to build the capacity of the people involved in the project. They were originally trained in biosand filter implementation by BushProof. Since then, CAWST and the Danish Committee for Aid to Afghan Refugees (DACCAR) continue to provide additional training and follow-up support to Tearfund staff.

Household Water Treatment and Safe Storage Implementation Case Study: Biosand Filters

Artisans, initially, receive 5 days training on biosand filter construction, installation, operation, maintenance and troubleshooting. Tearfund also trains the Community Water Groups and does side-by-side monitoring visits with artisans and Water Group members. Refresher training is also provided as Tearfund identifies different needs.

Artisans do the initial training of the end users and are a resource for larger problems the users may encounter. Community Water Group members will also provide ongoing support to users in the community.

Tearfund remains active in the target districts. They are called on for support, periodically, by artisans.

Tearfund reports that, “*the high demand for filters in Kapisa Province has resulted in interest from other technicians to receive training on their manufacture.*” To meet the demand, Tearfund has collaborated with UNICEF, DACAAR, and CAWST, to deliver biosand filter technician training to additional artisans.

Program Financing

Tearfund Afghanistan’s WASH activities are funded through a variety of sources including UK Department for International Development (DFID), Bureau for Population, Refugees and Migration (BPRM), UNICEF,

Canadian International Development Agency (CIDA), and trust funds.

Funding from the international community for relief and development activities in Afghanistan is being reduced as it withdraws from the country. Tearfund is hopeful the demand-led basis of the program will enable ongoing gradual expansion of the biosand filter. In the meantime, they are seeking other institutional funds to continue their efforts in Afghanistan.

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Household Water Treatment and Safe Storage Implementation Case Study: Ceramic Pot Filters

RESOURCE DEVELOPMENT INTERNATIONAL (RDI), CAMBODIA

Introduction

Resource Development International (RDI) – Cambodia is an international NGO based in the USA. They have implemented various projects to provide safe water to rural villagers of Cambodia, including household water treatment, arsenic research and testing, rainwater harvesting, water supply and sanitation.

RDI has been manufacturing and distributing ceramic pot filters, called Ceramic Water Purifiers, in Cambodia since 2003. Their program originally started on a small scale as they developed their manufacturing techniques. They have scaled up over the years and in 2007 distributed 24,000 filters to households. In total they have distributed approximately 60,000 filters throughout Cambodia and internationally.



Creating Demand

RDI believes that user education is one of the most important aspects of a ceramic filter implementation program. Research conducted on their program confirms that filters are more likely to be used by households that already have some knowledge of safe water, sanitation, and hygiene practices.

RDI developed an extensive education program that links with the distribution of filters and their other programs (such as school rainwater tanks and hand washing). RDI creates their own education materials, including instruction brochure provided with filters, posters, flip charts and video.

They have developed key messages which are reinforced consistently with villagers, community members, and distributors to ensure correct filter use and maintenance practices are retained and implemented.

RDI has also found that it is very important for uptake to have the support of the village Group Leaders. They engage the Group Leaders by meeting to discuss the importance of safe drinking water and ceramic filters. The Group Leaders are normally given a filter which gives them an opportunity to try it out, understand how it works, and ask questions. RDI has found that this increases their support for the filter and provides an opportunity for demonstration within the community. If the Group Leader is convinced, they are given about 10 ceramic filters to sell to community members at a personal profit.

RDI also targets schools for education and promotion of ceramic water filters. Similar to the Group Leaders, teachers are often respected members of the community with recognized education and knowledge that give the filters credibility.

Two water filters are provided for each classroom in the school at no cost. RDI establishes letters of agreement with the schools to ensure there is clear understanding of the roles of the school in maintaining the ceramic water filters, along with other water, hygiene and sanitation facilities installed at the same time.

Household Water Treatment and Safe Storage Implementation Case Study: Ceramic Pot Filters

Teachers are responsible for maintaining the classroom filters. They are given training about safe drinking water, and filter manufacturing, use and maintenance. RDI also provides each teacher with a filter for use in their home, and conducts a follow up home visit. Teachers are also given the opportunity to become filter distributors.

Using a puppet show, RDI's educational team teaches up to 50 students at a time about health, hygiene and safe drinking water. Students are also given free water bottles to encourage the use of safe water.

Supplying Products and Services

RDI developed its initial product requirements, manufacturing process, and maintenance instructions over a 12 month period prior to the release of its first filter.



RDI manages a factory themselves in the Kien Svay district of Kandal province where they employ local skilled staff who are paid on an hourly basis. The cost to produce a ceramic filter is US\$7.

RDI uses a number of different methods to ensure the filters are accessible to community members following manufacture. They have factory-based sales direct to users in Kandal province and to NGOs and government agencies in Cambodia.

In addition, 26 retailers and one distributor are operating in Kandal and Siem Riep provinces on a full cost recovery plus profit basis, accounting for one-third of total sales. The retail cost to users is US\$8 and

US\$2.50 to replace the filter element. Other sales are direct to communities using mobile marketing and education teams. Using these different distribution strategies, RDI is able to sell about 23,000 filters a year at full cost.

A comparatively small number of filters are also distributed at subsidized cost to villages in NGO-led programs in Kandal province. The subsidized filters are targeted to the poorest households and costs vary from US\$1 - \$7.

A study of the RDI filters conducted by Brown et al. (2007) shows that investment, at any level, by the household was associated with continued filter use versus receiving the filter for free. Other NGOs and government agencies purchasing filters from RDI who distribute the filters free of charge which could negatively impact the overall commercial market that RDI has created.

RDI also believes that their filters are not a passive product; they require ongoing management and maintenance by users. Therefore, supplying support services to households is essential for the ongoing and appropriate use of ceramic filters. Key issues that are considered in RDI's distribution strategies are:

- Ensure appropriate training and education material is provided to the distributor in the short and long term so that they are capable of explaining the operation and maintenance requirements and providing on-going service to consumers (e.g. and answering questions about the filter)
- The distributor needs access to educational and instructional material to provide to the end user to ensure correct maintenance is conducted in the long term
- An ongoing connection between the distributor and the community is important to provide a contact point for filter replacements, purchases and service support

Household Water Treatment and Safe Storage Implementation Case Study: Ceramic Pot Filters

Monitoring and Improvement

RDI has a monitoring program to ensure that they manufacture high quality filters. Flow rate tests are carried out on every filter to ensure it is within the tolerance range. The filter elements are also examined for cracks and other defects at every production step, and removed from the process if they do not meet requirements. Each filter is stamped with a date, serial number and manufacturer's name.



RDI also tracks the filters sold, and periodically goes back to the community and runs tests on the filters to verify that they are still functioning properly.

Their manufacturing and education method has been developed over 3 years and is continually reviewed and improved. Currently RDI is reviewing its fuel source for the kilns and piloting the use of compressed rice husks as a more sustainable fuel.

RDI is also the largest water quality tester in Cambodia. It provides water quality testing services for many NGOs and companies, and provides laboratory facilities and trained staff for partnership research with international universities. This experience and background increases RDI's ability to

test, research and continue to develop ceramic water filter technologies.

RDI is open to sharing their knowledge and best practices with other implementers. With support from Engineers Without Borders Australia (EWB Australia) they released the RDI Ceramic Water Filter Factory Manual. This document provides information on the manufacture, education and distribution of ceramic filters to support other implementers who are interested in introducing factories to new communities.

They have also actively participated in external evaluations conducted and published by the Water and Sanitation Program in Cambodia.

Program Financing

Funding for RDI's program activities are provided by individuals and donors. Costs are also partially recovered through direct sales to users and to NGOs and government agencies in Cambodia.

RDI also actively encourages international volunteers to visit and support their Cambodian staff.

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Household Water Treatment and Safe Storage Implementation Case Study: Ceramic Pot Filters

THRIST-AID INTERNATIONAL, MYANMAR

Introduction

Thirst-Aid International is an NGO headquartered in the USA. Their primary focus is the prevention of waterborne illnesses that result in diarrheal morbidity and death, particularly among children under five. Thirst-Aid promotes education and knowledge as the principal tools for safe water intervention, inspiring the drive for improved water quality to come from within communities prior to the introduction of household water treatment technologies.

Thirst-Aid has been implementing ceramic filters in Myanmar since 2004. Their current project started in February 2006 and they have distributed approximately 200,000 filters in the country, providing about one million people with safe drinking water. They have also responded to emergency situations, such as providing filters after the 2005 tsunami that affected Southern Thailand and the 2008 cyclone in Myanmar. Thirst-Aid's plans to scale up to reach an additional 14 million people in Myanmar.

In addition to implementing ceramic filters themselves, Thirst-Aid is also working with the private sector to create a market. They have set up ceramic filter factories in the country, who ultimately become independent commercial manufacturers. Their work is supporting the development of the private sector by helping to build capacity and empowering local people.

Creating Demand

Thirst-Aid creates demand for safe drinking water by promoting education and knowledge as investment capital. They base their approach on the assumption that educated people do not willingly drink contaminated water – much less give it to their children.

They use a marketing campaign that targets the population that can afford ceramic filters.

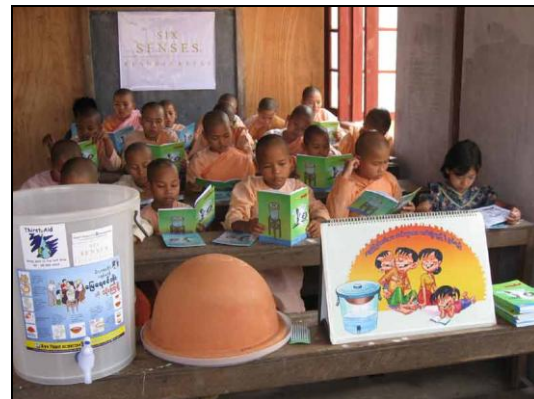
There are two filter models, one for the middle class and one for the working poor.

Thirst-Aid staff conducts awareness raising and education with a variety of target audiences, including women's groups, schools, monasteries, orphanages, community based organizations, NGOs and international NGOs. They meet and follow up with the different groups as often as necessary.

Their staff use a variety of education tools and communication methods, including billboards, posters, games, flip charts, hands on practice and videos. Thirst-Aid created most of their education materials, with contributions from UNICEF. The government supports the program by approving their education materials before use.

Thirst-Aid provides the currency for community buy-in by issuing *Certificates of Knowledge* upon successful completion of their educational program. These certificates serve as legal tender that can be later used for the purchase of household water treatment technologies.

Thirst-Aid emphasizes that in order to create demand, the filters should not be viewed as a give-away product for the poor. They should be marketed as a desirable, easy to use and effective product for everyone who needs improved water.



Household Water Treatment and Safe Storage Implementation Case Study: Ceramic Pot Filters

Supplying Products and Services

Thirst-Aid first started with their own ceramic filter factory that employed local staff to manufacture filters for distribution through larger and international NGOs.

Thirst-Aid has since established eight ceramic filter factories in Myanmar. Once fully operational, the facilities are turned over to local people as income generation projects.

It has taken Thirst-Aid at least two years of training and support to make sure that the manufacturers truly understand the entire process; and that quality, production, and the market can be sustained. Based on their experience, Thirst-Aid recommends that new implementers do not start ceramic filter production unless they are willing to maintain a long-term presence and are certain of a sustainable market.

The units sell for between US\$8 to \$19 depending on the receptacle, distance from source, and manufacturer. Currently, filters are typically sold to international NGOs who have their own objectives and distribution methods, they have not agreed on a common standard.

While some NGOs distribute fully subsidized filters to households, Thirst-Aid advocates for them to be a commercial product and not something that people view as something that should or will be given to them. Thirst-Aid anticipates the biggest obstacle will be NGO's giving filters away without requiring recipients to invest at some level. It is difficult for Thirst-Aid to promote and market filters through the private sector if households believe it is a product for the poor and that if they wait long enough they might receive one for free.

Monitoring and Improvement

Thirst-Aid has a monitoring program to ensure quality control of their filter production process.

Most of the filters currently in use were distributed by NGOs in response to Cyclone Nargis, and as funding for this disaster has been used, there is currently little follow-up or monitoring being done by any organization besides Thirst-Aid.

Thirst-Aid also supports continuous improvement of implementation programs in the region. With support from UNICEF, they organized the "Myanmar Ceramic Water Filter Summit; Post Nargis Evaluation – Lessons Learned" that was attended by 13 international organizations, including several from Cambodia and Thailand.

Program Financing

Thirst-Aid's education component takes up about 75% of their project implementation resources, in terms of both money and time. Thirst-Aid recommends that other implementers should be willing to invest as much in education and training as they do in the technology. Funding for Thirst-Aid's awareness raising and education activities are provided by donors and partners, including UNICEF.

Most of the private sector manufacturers have already recovered their costs (including promotion, production, distribution and follow-up) and have a price system that will make it possible for them to earn an adequate profit.

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Household Water Treatment and Safe Storage Implementation Case Study: Air RahMat Chlorine

AMAN TITRA, INDONESIA

Introduction

Aman Tirta is a public-private partnership that was created to manufacture, promote and distribute a liquid chlorine solution (called Air RahMat) and safe water storage in Indonesia. In an effort to promote safe water, Aman Tirta has also been working with the government of Indonesia to improve the policy and enabling political environment for household water treatment and storage (HWTS) in the country.

Program partners include:

- John Hopkins Bloomberg School of Public Health/Centre for Communication Programs – overall program management, communication and behaviour change interventions
- CARE International (NGO) – community participation component
- Lowe Worldwide – product promotion and marketing
- PT Tanshia Consumer Products – manufacturing, distribution, marketing and product development
- PT Ultra Salur – exclusive distributor
- Local retail outlets – product sales across the country



Air RahMat, Indonesia
(Credit: Tirta/JHUCCP)

The program follows two approaches to increase access to safe water:

1. **Stimulating the commercial sector** to manufacture, distribute and market a product that makes water safe to drink through disinfection and appropriate safe storage at the point of use at affordable prices on a national scale; and
2. **Creating demand** through a strategic behaviour change program that effectively promotes and positions the product in the market place and maximizes linkages with Indonesian NGOs to increase its adoption.

Aman Tirta has been working closely with the private company PT Tanshia to prepare for the ultimate transfer of the program to the company after the end of the project.

Creating Demand

Air RahMat is targeted to middle-low income mothers with children under five. Its promotion and sales were rolled out using a phased approach in various locations across Indonesia over a period of several years – starting with the product launch in Jakarta in 2005.

The aim of the communication and marketing strategy is to raise awareness and get people to try Air RahMat. It promotes Air RahMat as an easy-to-use and affordable option for safe drinking water, endorsed by the Ministry of Health. Education materials and communication methods included posters, leaflets, radio and television spots, and mobile demonstration trucks giving away free water samples.

At the same time, a strong community mobilization effort, led by local NGOs, plays a significant and active role in increasing knowledge and education on safe drinking water. This is done through person-to-

Household Water Treatment and Safe Storage Implementation Case Study: Air RahMat Chlorine

person communication, community dialogue and action. Mobile sampling 'road shows' were used throughout the country. These road shows provided information, games, quizzes, water samples, interpersonal communication, and dialogue with community members.

Aman Tirta also worked with government institutions in the areas of health and education to expand coverage.

Research and monitoring of advertising and sales trends initially showed that the program was effective at raising awareness of the product, but that people weren't necessarily buying it. This resulted in a change in advertising strategy, to better target mothers (e.g. through advertising in women's tabloid magazines), focusing on the believability of the ads and the product claims, and increasing the mobile sampling teams so people could try the water. Sales increased in the fourth year of the program following these changes and other initiatives.

Supplying Products and Services

The chlorine product was originally developed as part of the Centre for Disease Control and Prevention (CDC) Safe Water System (SWS) program which includes both disinfection and safe storage.

Air RahMat is manufactured and bottled in Indonesia by PT Tanshia. It is distributed extensively through both traditional retail outlets (e.g. stores and kiosks) and non-traditional outlets (e.g. community-based organizations (CBOs), NGOs, micro-credit organizations and community health volunteers). Distribution is managed by PT Ultra Salur, a private company.

Due to Aman Tirta's efforts to expand the market, the number of retail outlets selling Air RahMat went from 8,500 to over 15,000 in the fourth year of the project.

Air RahMat is sold in 100 mL bottles – enough to treat 660 litres of water, or the average amount used in a household in one month. The bottle is sold for Rp 5,000 (about US\$0.50). In 2008, \$597,511 was invested in the program. In the same year, 71,000 bottles and 548,000 sachets of Air RahMat were sold. PT Tanshia also developed a 3 mL one-use sachet, which entered the market in 2008.

Monitoring and Improvement

The product manufacturer, PT Tanshia, established a laboratory on-site to assist with product quality control and research and development.

A Health and Economic Impact study was completed mid-way through the project. It showed that people's attitudes towards chlorination and their decisions to use Air RahMat were positively impacted through the project activities. It also showed a health impact, observable through a 50% decrease in diarrhea incidence, and safer stored water in the homes of those using Air RahMat and the purchased safe water storage container.

The slower pace of sales than targeted indicated that behaviour change for household water treatment may be slower than anticipated.

Program Financing

US Agency for International Development (USAID) funded the 6-year program that ran from 2004 to 2010.

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Household Water Treatment and Safe Storage Implementation Case Study: Aquatabs

PATH, VIETNAM

Introduction

Over the past several years in Vietnam, great strides have been made in raising awareness of households to the benefits of treating water through boiling. While most Vietnamese households now boil their water before consumption, there is still a sizable segment of the population that does not choose to boil. This creates a need for some other means of household water treatment and safe storage (HWTS).

Since 2008, PATH, an international non-profit organization committed to improving global health, has been working to better understand the environment for HWTS in Vietnam and how both awareness and treatment of household water can be improved. A component of this work is to better understand how commercial enterprises can produce, distribute, and support correct use of HWTS for low-income populations.

PATH's work in this area has included both research and targeted interventions through partnership with both public and private organizations. Research studies from 2008 to 2010 identified an opportunity for a public/private collaboration with Medentech, Zuellig Pharmaceuticals, and local district medical centers (DMC) in the the Mekong Delta region of Vietnam.

The Project

To complement boiling practices and to fill gaps in water treatment, the partners designed a pilot study to introduce the chlorine-based water treatment product, Aquatabs, to 4,200 households in two districts of Can Tho province. The pilot sought to create a new distribution channel for Aquatabs by making the product available through the health station collaborators (HSC) working with local DMC.

Product sales were supported by demand generation activities such as social

marketing events, while correct water storage was encouraged through the distribution of free safe water storage containers to many households in each district.

Creating Demand

Historically, retailers, wholesalers, and even distributors have not carried new HWTS products in Vietnam for which the public has not yet expressed a desire, nor will they shoulder the burden of educating the public about them. As such, HWTS manufacturers need to create "pull" in channels that do not have much "push" (PATH, 2010).

To help create the pull, or demand, PATH used a combination of social marketing events and mass media exposure to promote Aquatabs to poor households and those with children under five years of age.

Social marketing events were held at least once in every commune and were led by government HSC and overseen by the DMC. The government is a common partner for outreach and education campaigns in Vietnam because it has excellent networks and reach, including clinic-based health education. Also, the government is trusted by consumers, especially by rural Vietnamese who place more trust in local leaders and institutions than outsiders (PATH, 2010).



Billboard created to encourage water treatment with Aquatabs Vietnam (Credit: PATH)

Household Water Treatment and Safe Storage Implementation Case Study: Aquatabs

Supplying Products and Services

Aquatabs is manufactured and packaged by Medentech in Ireland. The product is imported into Vietnam through the regional distributor Zuellig Pharma. Once in the country, it is transported and warehoused by DMC and the HSC sales staff based in the communes.

The product is then made available for 1,000 Vietnamese Dong per tablet to households by HSC as they visit communities as part of their normal daily responsibilities. In conjunction with making Aquatabs available, the HSC also instruct consumers on the health importance of treating water and the correct use of Aquatabs.

It was also recognized that not all households have appropriate storage containers. As such, select communes received free storage containers to test whether this will have an impact on uptake and correct and consistent use.

Building Human Capacity

In order to maximize impact of the pilot, the partners recognized the need to build the capacity of the HSC who play a critical role in the project implementation. As such, PATH, Zuellig, and the DMC trained 63 HSC through a two-day workshop focusing on water and sanitation, the benefits of water treatment with Aquatabs, and interpersonal communication skills. HSC also met regularly with oversight from the partners to discuss challenges faced and best practices in household education and to receive additional training.

Monitoring and Evaluation

Throughout the pilot, HSC captured information about the number of Aquatabs sold and household response to the pilot. These monthly reports have been compiled and will be combined with an endline survey of households performed by Abt Associates at the completion of the pilot. Results will be analyzed and made available later in 2011.

Challenges Faced

There were several challenges that needed to be overcome throughout the pilot implementation.

The first challenge was the historically low awareness of and demand for products such as Aquatabs in Vietnam. This product and others like it were not well-known before the project started and, therefore, made the demand generation activities sponsored by the pilot critical to successful acceptance by households.

In addition, chlorine-based products are not common to Vietnam and the residual taste and smell they leave in treated water is often not desired by households. Medentech has worked hard to develop a lighter chlorine taste/smell version of the product, but it still remains to be seen whether this will be acceptable to Vietnamese consumers. People often equate Aquatabs in tablet form with medication and have expressed concerns about its long-term side effects. All of these issues will need to continue to be addressed through proper education and marketing activities if the product is to succeed commercially in the country.

Finally, working through HSC presented unique challenges as well. While they were very dedicated to the project, many HSC found it difficult to spend enough time distributing Aquatabs since their other job responsibilities were also quite time consuming. Developing ways to incorporate this into their daily routine and providing proper incentives for HSC to prioritize the distribution of Aquatabs proved to be critical. Also, while sales and marketing materials were developed to assist HSC in creating demand for Aquatabs and to educate households on the benefits of treating water, they were not ready at the beginning of the pilot. Once these tools were made available, HSC feedback was that they were valuable assets to their work in the program.

About the Partners

PATH is an international nonprofit organization that creates sustainable, culturally relevant solutions, enabling communities worldwide to break longstanding cycles of poor health. By collaborating with diverse public- and private-sector partners, PATH helps provide appropriate health technologies and vital strategies that change the way people think

Household Water Treatment and Safe Storage Implementation Case Study: Aquatabs

and act. PATH's work improves global health and well-being.

Headquartered in Seattle, Washington, PATH has offices in 31 cities in 23 countries. PATH currently works in more than 70 countries in the areas of health technologies, maternal and child health, reproductive health, vaccines and immunization, and emerging and epidemic diseases. PATH's Safe Water Project is working to enable commercial enterprises to produce, distribute, sell, and maintain good-quality HWTS products for low-income populations.

Medentech, the manufacturer of Aquatabs, is committed to driving a significant positive health impact globally by improving access to safe drinking water and reducing surface and environmental contaminations by developing, manufacturing and marketing cost-effective disinfection solutions. Medentech is headquartered in Wexford, Ireland, with distribution agents in over 60 countries worldwide.

Zuellig Pharma Vietnam Ltd. is the largest multinational service provider for pharmaceutical and health care products in Vietnam. They distribute approximately 20 percent, by value, of the total

pharmaceutical market in the country and partner with over 30 global principals.

The District Preventive Medicine Centers (DPMC) at Vinh Thanh and Co Do are governmental organizations working for preventive medicine and environmental health in the Can Tho province.

Program Financial Support

The Bill & Melinda Gates Foundation provides financial support to the PATH Safe Water Project. The private-sector partner, Zuellig Pharma, absorbed distribution and some marketing costs. The Vietnamese government paid the salaries for some of the HSC. Consumers pay the full cost of the product itself.

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Last Update: September 2011

Household Water Treatment and Safe Storage Implementation Case Study: Piyush Chlorine

ENVIRONMENT AND PUBLIC HEALTH ORGANIZATION (ENPHO), NEPAL

Introduction

Established in 1990, ENPHO is a leading indigenous NGO in Nepal. They contribute to sustainable community development through the development, demonstration, and dissemination of appropriate technologies such as various HWTS options (e.g. chlorine, SODIS, ceramic filters, biosand filters, and arsenic mitigation), and sanitation technologies.

In 1994, ENPHO responded to a cholera epidemic among the Bhutanese refugees living in rural Eastern Nepal. After an initial site assessment, they concluded that chlorine was the most appropriate option and provided it to the refugees.

Realizing that the chlorine solution has enormous potential for wider use in the general population, ENPHO began to sell it as a commercial product from its office and in some pharmacy shops in Kathmandu. The product is registered with a brand name “Piyush”, which is a Sanskrit word meaning “drinks of the gods”.



Creating Demand

From 1994 until 2000, due to lack of donor and government support, ENPHO sustained Piyush promotion activities from its own internal budget, estimated at 8000-10,000 NRs per year (US\$120/year). ENPHO could only afford to print some leaflets, and told others about Piyush by incorporating it as part of other training workshops of hygiene and sanitation programs. Piyush had a low profile in the market.

Starting from 2000, ENPHO started to attract increasing donor funding for HWTS promotion. This allowed them to:

- Develop additional information, education, and communication materials on Piyush
- Conduct awareness training to various schools, community associations, health clinics, and local governments
- Promote Piyush through mass media, exhibitions, and conferences

The intensity of HWTS promotion activities gained traction after 2006, when the government of Nepal, together with a number of international and national development agencies, collaborated to generically promote various HWTS options throughout the country, including boiling, SODIS, filtration, and chlorination.

Supplying Products and Services

Piyush is currently produced at ENPHO. Commercially available liquid bleach is purchased from the market, tested at ENPHO laboratory for its chlorine concentration, and diluted to achieve 0.5% chlorine concentration. ENPHO packages the solution in 60 mL bottles which are labelled, sealed, and dated. Each bottle can treat 400 litres of water, sufficient to meet the drinking water demand of an average family of 4 to 5 person for 1 to 2 months.

Previously, ENPHO tried to produce Piyush by an electric-powered chlorine generator, using salt (sodium chloride) as an ingredient. However, electricity is highly unreliable and expensive in Kathmandu, and the resulting chlorine solution degraded quickly. Therefore ENPHO prefers the current process of diluting liquid bleach.

The normal production capacity is about 2,000 bottles per day, but can reach to over 5,000 bottles by operating an extended schedule and using extra human resources. ENPHO manufactures Piyush on demand, and can fill an order within a few days.

Household Water Treatment and Safe Storage Implementation Case Study: Piyush Chlorine

Piyush is sold by ENPHO through two distinct channels. First, about 40% of the product is sold in bulk directly to institutional buyers such as UNICEF, other NGOs, or community groups, for mostly emergency response. The 12 NRs (US\$0.15) wholesale price barely covers the cost of raw material and labour, with no profit margin.

The second channel is through pharmacies and retail shops. Prior to 2000, ENPHO sold Piyush directly to a few pharmacies. In 2001, ENPHO signed an agreement with New Loyal Medicine Distributor, one of the largest medical suppliers in Kathmandu, to exclusively sell Piyush through their network of regional distributors, and 800+ pharmacies and some retail shops within the Kathmandu Valley. The wholesale price from 2001 to 2009 was 12 NRs per bottle. The retail price during the same period had been 17 NRs per bottle. The 5 NRs profit margin is shared among the supply chain actors.

From 2009, ENPHO started to use Nepal CRS Company as a super-distributor because of its wider networks that can reach the entire country. To pay the extra transportation cost, Nepal CRS requires an 8 NRs margin to be shared among the supply chain, resulting in a standard 20 NRs cost to consumers across the country.

Monitoring and Improvement

ENPHO has an on-site accredited laboratory to test the chlorine solution to ensure product quality control, and to conduct research and product development.

Program Financing

ENPHO is dependent on external funding to support their promotion and education activities, and is vulnerable to funding fluctuation. They do not earn a profit margin from Piyush, and ENPHO is reluctant to raise the price due to intense competition from other chlorine products.

Competition

In 2005, Centres for Diseases Control (CDC) and Population Services International (PSI) of USA, introduced a rival chlorine solution, branded as WaterGuard in Nepal. WaterGuard is manufactured in Nepal by a

bottled water company, and is sold in 250 mL bottle at a retail price of 35 NRs.

During the first two years, PSI implemented a large-scale social marketing campaign. They used mass media communications (e.g. advertisements on TV and radio), put up billboards throughout the city, and gave away free samples of WaterGuard to both households and institutional buyers.

On the one hand, WaterGuard expanded the market and achieved remarkable sales of more than 500,000 bottles (including free distribution) during this time. On the other hand, WaterGuard took away some customers who previously purchased Piyush. In particular, during 2005-2006, institutional buyers did not purchase Piyush as they could obtain WaterGuard for free or at nominal costs. WaterGuard took 80-90% of the market share of chlorine solution sales in Nepal by the end of 2006.

Yet, ENPHO, as a local NGO, lacked the capacity and resources to compete with CDC/PSI. They responded by negotiating a short-lived strategic alliance with PSI to promote Piyush and WaterGuard in parallel. In 2007, funding to PSI was terminated, and the sales of WaterGuard decreased.

In 2008 and 2009, ENPHO obtained some funding from Academy for Educational Development (AED) to promote Piyush and to build up ENPHO's social marketing capacity. Together with the government's initiatives to promote HWTS in general, sales of Piyush surged to over 300,000 bottles by 2009. Their market share of chlorine solution improved to over 40%.

Challenges to Scale Up

1. Chlorine as medicine. Because Piyush is sold mostly through pharmacies, the product is often seen as a medicine to be used temporarily, during the rainy season when the water is visibly more dirty, or when episodes of cholera or other water-borne diseases are becoming prominent in the daily news.
2. Competition. Many types of water treatment options, such as WaterGuard, ceramic filters, SODIS, boiling, are readily available in the market.

Household Water Treatment and Safe Storage Implementation Case Study: Piyush Chlorine

3. Funding support. ENPHO is vulnerable to fluctuations in donor funding.
4. Low interest among shopkeepers to sell Piyush. Because the margins given to Piyush distributors and retailers are very thin and the sales volume are low (e.g. a few bottles per month per shop), some shops are not interested to carry Piyush, and many are reluctant to display Piyush at more prominent positions within the shops.
5. Lack of product certification. Despite asking for years, ENPHO has never been able to obtain government certification of the effectiveness of Piyush for water treatment (neither did WaterGuard). Some medical doctors and local professors in Nepal claim that chlorine causes cancer, so some people are scared of using the product. It is believed that certification can improve the image of Piyush among potential buyers (both households and institutional), and can assist ENPHO in attracting donor funding.



Piyush promotion billboards in Kathmandu city



ENPHO's Piyush bottle labelling

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Last Update: September 2010

Household Water Treatment and Safe Storage Implementation Case Study: *WaterGuard* Chlorine

POPULATION SERVICES INTERNATIONAL (PSI), MYANMAR

Introduction

PSI is a global health organization that targets reproductive health, malaria, child survival, HIV and safe water. Working in partnership with the public and private sectors, and using the power of commercial markets, PSI provides products, clinical services and behaviour change communications to empower the world's most vulnerable populations to lead healthier lives.

PSI/Myanmar was founded in 1995 with an early focus on HIV prevention that expanded into reproductive health and STI treatment. In 2001, PSI/M added malaria prevention products to its portfolio, which now also includes household water treatment.

PSI/M promotes *WaterGuard* chlorine solution with hygiene practices, such as hand washing and safe water storage.

Creating Demand

PSI/M's target population is children under the age of five and their caregivers.



They use social marketing, mass-media and mid-media communication campaigns, brand attachment, and health education to raise awareness at the village, small group and household levels.

Their Interpersonal Communicators (IPC), paid PSI/M staff, raise awareness in villages using communication sessions and

edutainment with mobile video units. Health education is targeted to small groups of 5-10 people in places of general community gatherings. Small group meetings are held at least once per year per township. Household visits are conducted once a month by PSI/M's community health promoters, known as Sun Primary Health Providers (SPH) who are selected members from the community.

They use a variety of education tools including flip charts, pamphlets, poster boards, vinyl posters, and promotional items related to diarrhea prevention (e.g. soap).

Because the media exposure of the target population is low, peer-to-peer recommendations and word-of-mouth have proved more effective in creating demand.

Supplying Products and Services

WaterGuard chlorine solution is locally manufactured and packaged in 250 mL plastic bottles by an outsourced supplier. PSI/M distributes it through the country using non-traditional and traditional markets.

The IPCs do direct sales to end-users and SPH sell *WaterGuard* to village level target groups. The SPHs earn 50 kyats (US\$0.05) per bottle of *WaterGuard* they sell.

PSI/M also acts as the national distributor for traditional outlets. Their sales team covers 640 retail outlets, such as betel nut shops and grocery stores. The franchising team covers 87 franchised clinics and SPH cover 130 outlets. The appointed national distributor covers approximately 357 outlets. Potential retailers learn about *WaterGuard* through mass media communication, sales calls, and merchandising materials.

To ensure that the products are consistently available for people to buy, PSI/M provides regular sales calls to the outlets. The shelf-life of the product is only one year, so PSI/M

Household Water Treatment and Safe Storage Implementation Case Study: *WaterGuard* Chlorine

staff also monitors the expiry date during market visits and sales calls.

Problems sometimes occur during product delivery since it is heavy and the bottles are breakable. They have also found that distributors are reluctant to stock large quantities of *WaterGuard* because of its limited shelf life.

Users pay variable prices for *WaterGuard* depending on whether they receive it through the IPC, SPH or a retail outlet. The end-user price through an IPC or SPH is 100 kyats (equivalent to 0.1 USD), which is 70% subsidized. The end-user price through retail channels is 350 kyats (equivalent to 0.35 USD), which covers the full cost.

Product prices are determined by the affordability of the product for specific groups. Direct sales channels, served by IPC and SPH, cater to users in rural communities that require greater subsidies to access the product. Retail channels target urban and peri-urban communities that can afford to pay slightly more. PSI/M does not mark-up on the product sales but they do offer a margin for retailers.

PSI/M has learned that when the price is subsidized in the direct sales channel, there is a slight increase in consumer demand, thereby linking lower price to higher demand. Nevertheless, they can not reduce the price too significantly in traditional sales channels, since the interest of wholesalers and retailers will decrease if they do not earn a profit from selling the product.

PSI/M also realized that free distribution of chlorine by other organizations reduces the willingness of consumers to pay.

The IPC and SPH use demonstrations to educate people on how to practice chlorination. The instructions are also clearly marked on the packaging, including illustrations for less literate populations.

Monitoring and Improvement

PSI/M provides the practices, guidelines, and necessary equipment to ensure quality control during product manufacturing. The finished product is kept in a quarantine room and inspected by PSI/M staff. Only products that have passed inspection are accepted for distribution into the market.

During monthly follow-up visits, PSI/M monitors the availability of the product, and whether caregivers are using the correct dose. PSI/M also conducts quantitative and qualitative research to better understand the demographics, psychology and product awareness of their target group.

Through their monitoring, PSI/Myanmar has determined that although IPCs and SPHs explain and demonstrate the mixing instruction of *WaterGuard* thoroughly, there is still some confusion amongst the target group with respect to correct dosage and mixing instructions. Some users also fail to read the instructions on the product.

Program Financing

International donor funding subsidizes manufacturing, distribution, retailing, promotion and education of *WaterGuard*, since the product price does not fully cover these associated costs.

The Myanmar government provides departmental (lower cost) rates for *WaterGuard* TV commercials.

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Household Water Treatment and Safe Storage Implementation Case Study: SODIS

EAWAG & INTERNATIONAL RELIEF AND DEVELOPMENT (IRD), LAO PDR

Introduction

SODIS is a HWTS method that was first developed and tested by Swiss Federal Institute of Aquatic Science and Technology (Eawag). They conduct projects in 24 countries in Africa, Asia and Latin America. Eawag's role is to provide technical assistance, on the ground support, and in some cases funding to its partners.

Since January 2009, Eawag has been supporting International Relief and Development (IRD), an international NGO based in the USA, in the implementation of a pilot project for the promotion of SODIS in rural areas of Laos. The project is in its second phase, starting from May 2010.

Phase I was focused on 20 communities in Khammouane Province, and Phase II is working with three pilot districts in three provinces (exact number of communities to be defined). The overall target is 1,200 households and 30 schools.

From the close collaboration with the National Centre for Environmental Health and Water Supply (Namsaat), Eawag expects indirect impact through progress towards the institutionalization of the SODIS method in the framework of integrated HWTS policies and programs of health and water supply authorities.

Creating Demand

The focus of the project is on raising awareness through promotional activities with households and schools. Namsaat trains provincial and district health staff who do most of the initial community/school training, capacity building among community promoters, and monthly follow up with the groups (with on-going support from IRD).

The health staff and community promoters use a variety of education tools and communication methods to reach the different target audiences. At health centres and schools, they set up tool demonstration

units (e.g. table for bottle exposure, banners, laminated sheets with information and instructions). Banners, posters and stickers are used to raise awareness in the communities. Community promoters also use role plays in schools to engage the students in learning about HWTS/SODIS and hygiene.



Community promoters (Village Health Volunteers or village representatives from the Lao Women's Union) are trained to support the district health staff by doing reminders and follow up visits with households/school groups. They attend a 2-3 day training session at the District Health Office to learn about drinking water quality, transmission pathways of pathogens, hygiene and the SODIS methodology. The community promoters volunteer their time and only receive compensation (e.g. per diem, travel, accommodation) for attending the training session. They report back to the health staff and IRD during field visits.

The pilot project has been effective in creating demand. A survey indicated that 44% of the people used SODIS, though not all of them may use the method regularly or exclusively (boiling is still practiced, and untreated water consumption is also likely). Actual SODIS use may only partly reflect the overall demand for HWTS since in some remote villages bottle availability limits SODIS use.

Household Water Treatment and Safe Storage Implementation Case Study: SODIS

Supplying Products and Services

The limited availability of plastic (PET) bottles needed for SODIS is still a major constraint for the majority of people in remote villages. However, community promoters believe if a household is really motivated to use SODIS, they can find bottles in markets they go to regularly. Bottle supply systems (e.g. a person collecting/buying bottles and transporting them to the village) have been discussed but has not been embraced by any entrepreneurs. Villagers dismissed most ideas for such supply systems as unlikely to be successful because no profit can be made unless bottles were sold at a price that users are not willing to pay.

In other villages that are closer to main roads, bottles seem to be more readily available. In one village, people managed to find around 200 PET bottles within a few days for SODIS treatment at the school.

A key lesson learned was that the initial free distribution of PET bottles created expectations for regular bottle supply through the project, which is not conducive to sustainable application of the method.

Monitoring and Improvement

Monitoring of the following indicators is done during household visits by community promoters and IRD staff:

- Number of SODIS users
- Number of bottles used
- Reasons for using / not using SODIS

Surveys are also conducted by IRD staff to collect information on water sources, treatment methods, hygiene behaviour, and diarrhea incidence.

The data analysis and final reporting is managed by IRD, and the results are shared with other organizations who participate in the training, and government staff (district,

province, national level) who are involved in the promotion activities.

The monitoring results show that more emphasis needs to be placed on discussing the issue of bottle sourcing in the communities when people in remote areas mentioned this as a major constraint.

Program Financing

Funding for awareness raising and education activities are provided by a private foundation based in Switzerland. Nam Saat contributes their staff time to do the community training and follow up in the framework of their regular activities.

The only cost to the household is the effort or money spent to collect PET bottles.

No income is generated in the pilot project through the sales of bottles that could allow cost recovery for the staff training, awareness raising, and education activities. Promotion through the private sector is not very likely since there is little opportunity for them to earn a profit.

Per family costs for SODIS/HWTS promotion are expected to significantly lower for scaled up implementation, i.e. when SODIS promotion is integrated into national government HWTS campaign, compared to the pilot project (Phase I: 20,000 USD for training of Nam Saat staff at district and province level, production of IEC materials, monitoring through IRD, dissemination workshop; Phase II: 30,000 USD).

References

Luzi, S. Personal communication, July 2010.

Further Information

IRD: www.ird-dc.org/

SODIS/EAWAG: www.sodis.ch