Global Household Water Treatment & Safe Storage Monitoring and Evaluation Project

Final Report Appendix

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The Global Entrepreneurship Lab (GLab) A-Team
Massachusetts Institute of Technology, Cambridge, MA
Shivani Garg
Geeta Gupta
Eswar Mani
Udit Patel

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Appendix A: Organizations Interviewed

		Company	Type	Supply Chain Position	Products	Technology	Location	Maturity
Phase 1	1	Eureka Forbes	Commercial	System Manufacturer	Multiple	Hybrid	India	Established
	2	Halo Source	Commercial	Component Manufacturer	Halo Pure Sport Bottle	Adsorption	USA	Start Up
	3	Hindustal Lever Ltd.	Commercial	System Manufacturer	Pure-It	Hybrid	India	Established
	4	Medentech	Commercial	System Manufacturer	AquaTabs	Disinfection	Ireland	Growing
	5	Potters for Peace	Non Profit	Component Manufacturer	Clay Pot Filters	Particle Removal	Nicaragua	Established
	6	Proctor and Gamble	Philanthropic	System Manufacturer	PuR	Hybrid	USA	Growing
	7	PSI	Non Profit	Distributor	Multiple	Multiple	USA	Established
	8	Pure Home Water	Non Profit	Multiple	Clay Pot Filters	Particle Removal	Ghana	Start Up
Phase 2	1	Ceramica Tamakloe	Commercial	System Manufacturer	Kosim Filter	Particle Removal	Ghana	Established
	2	EtMedix	Commercial	Distributor	AquaTabs	Disenfection	Ethiopia	Startup
	3	International Aid	Non Profit	Distributor	Biosand Filter	Particle Removal	Ghana	Growing
	4	International Rescue Commission	Non Profit	Distributor	Multiple	Multiple	Global	Established
	5	Kale Hewitt Church	Non Profit	Distributor	Biosand Filter	Particle Removal	Ethiopia	Established
	6	New Energy	Non Profit	Distributor	Multiple	Multiple	Ghana	Growing
	7	Precision	Commercial	Distributor	AquaTabs	Disenfection	Ghana	Startup
	8	PSI	Non Profit	System Manufacturer / Distributor	Water Guard PuR	Hybrid	Ethiopia	Established
	9	Pure Home Water	Non Profit	Distributor	Kosim Filter	Particle Removal	Ghana	Growing
	10	UNICEF	Non Profit	Distributor	Multiple	Multiple	Ethiopia	Growing
	11	UNOCHA	Non Profit	Distributor	Multiple	Multiple	Ethiopia	Growing
	12	Vesterguaard	Commercial	System Manufactuer	LifeStraw	Multiple	Ethiopia	Startup
	13	Water Healthcare	Commercial	Retailer	Multiple	Multiple	Ghana	Established
	14	WaterHealth	Commercial	Distributor	Community Water Treatment Systems	Hybrid	Ghana	Startup

Appendix B: Criteria Used to Identify Organizations to Interview

Phase 1 Organizations

Maturity: Organizations were selected to adequately represent different stages of the business life cycle. The maturity of the organizations selected varies from small startups such as HaloSource to large highly established organizations such as P&G and Unilever. This approach helps to clarify best practice metrics within and across different business life cycle stages.

Role in Supply Chain: Very few organizations own the entire supply chain for implementation of HWTS systems. A majority of these organizations play a specific role within the supply chain. Organizations selected represent different roles from component manufacturers (e.g., HaloSource) to system manufacturers (e.g., Medentech) to distributors (e.g., PSI).

Technology and Product Mix: Numerous HWTS products and technologies are currently available commercially. These range from simple clay pot filters to highly sophisticated and advanced filtering systems. The organizations selected represent the range of products identified by the WHO as core HWTS products. Core products include disinfection products such as chlorine or bromine-based solutions or tablets, filters such as candle filters, clay pot filters and cloth filters, coagulant/ disinfection products, such as PUR, and combined systems, such as Hindustan Lever's Pure-it product. In addition, these products represent the range of key commercial household water treatment techniques of disinfection, particle removal, adsorption and membrane processes.

Commercial versus Philanthropic: Organizations were selected to adequately represent both commercial organizations such as Hindustan Lever and Vestergaard Frandsen S.A. as well as philanthropic organizations such as Proctor & Gamble, as well as non-profit or religious organizations such as UNICEF, Potters for Peace or Kale Hewitt Church.

Geographic Coverage: HWTS implementation initiatives are scattered worldwide. Organizations were selected to represent a global footprint: where the organizations originate from (North America, Central America, Asia and Europe) and regions they operate in (Africa, Latin America and India).

Phase 2 Organizations

Presence in Ethiopia & Ghana: The three-week field study targeted companies and organizations in Ethiopia and Ghana. While there has been extensive HWTS research done in African nations like Kenya, research into HWTS

organizations within Ethiopia and Ghana is still quite limited. Both nations were chosen as locations for the field study because of the WHO Network presence. Ethiopia was chosen as a location where there is significant need for HWTS solutions and since it is an emerging market for a wide array of such technologies. In addition, it was the site of a recent WHO Network country conference in October 2007. The growing presence of organizations such as PSI and the pre-implementation efforts by manufacturers point to the growth in commercial HWTS businesses in Ethiopia. In Ghana, the number of HWTS organizations, combined with Susan Murcott's extensive experience in Ghana, led that West African nation to be an obvious choice for study.

Coverage of technologies: As briefly mentioned above, it was important for us to conduct our study in locations where a diverse array of HWTS technologies/solutions are being marketed and implemented. The commercial sustainability analysis was focused on the following HWTS technologies:

- BioSand filters
- Bromine-based solutions
- Chlorine-based filters
- Candle filters
- Ceramic pot filters
- Cloth filters
- Water disinfection tablets
- Water sachets

Coverage of supply chain: For analyzing commercial sustainability, organizations operating at different stages of the HWTS supply chain were targeted. While Phase 1 efforts was focused primarily on manufactures of HWTS technologies, Phase 2 efforts targeted social marketers, retail distribution channel operators and suppliers.

Appendix C: Business Sustainability Interviewing Guidelines

Pre-Interview

- Gather background information and business description of organization
- If possible, gather background on contact being interviewed
- Visit organization website (if available)

Interview Protocol

- Contact clients ahead of time to schedule call and provide a quick agenda.
- When client agrees to a call, try to gauge how much time they are able to spend ahead of time and tailor following set of questions.
- Ahead of the call, provide brief introduction of background of interviewers and reiterate aim/objective of interview and thank them for their time.
- Follow-up call with a thank you note and some follow-up questions.
- By end of November, we should contact these priority targets again to ask any remaining questions we have learned are important during the whole process.

Questionnaire:

Introductions (5 Minutes)

- Interviewer introductions
- Interviewee introduction
- Walk through agenda and provide quick overview of purpose

Product Description (10 Minutes)

- Can you briefly describe your product/technology?
- What are your goals and objectives for this product?
  - Market Control?
  - Profits?
  - Geographic reach?
  - Other?
- Who is your target customer base?
- Who are you key competitors? And what is your current share?
- What is your geographical reach, how long have you been doing businesses in these areas?

Business Sustainability Indicators (40 Minutes)

We are going to walk through a number of categories around business sustainability. Can you please let us know what metrics you use to assess the sustainability of your business within these categories?

1. **Financial/Profitability**
    - How do you measure profitability and financial success?
    - How do you price your product? Are your products subsidized?
        - How do you measure the affordability of your product
        - Do you segment your market and offer different prices to different segments?
        - Are any of your products given out for free?
    - How do you measure growth in sales?
        - E.g. % increase in sales overall
            - % increase in sales over time to target population
            - % increase in sales in other markets / populations
        - What is your current sales volume
    - What metrics do you use to track your costs
    - What are your sources of funding?
    - How profitable are you? What are your margins?
2. **Marketing**
    - How do you measure market penetration?
    - How do you measure the effectiveness/impact of these programs?
        - % of repeat customers
        - Growth in repeat customers
        - What is your marketing spend as a % of sales
    - What marketing programs do you have in existence today?
    - Do you offer educational or training programs
            - Repeat customers
            - Increased sales
    - What marketing channels do you use – Radio/fliers/websites/kiosks
            - People reached per channel
            - Costs per channel
            - Sales generated per channel
3. **Partnerships and Distribution Channels**
    - What kind of partnerships do you have?
        - How do you measure the success / impact of these partnerships?
    - What are your different distribution channels? Are these channels proprietary? How do you measure the efficacy of each?
        - Capabilities to reach target
        - % Sales per distribution channel
        - Costs per channel
        - Time per channel
        - Limitations
        - Capacity
            - Capacity utilization
        - Transportation breakage; loss ratio; how are costs assessed; reserves?
            - Order Delivery Rate
4. **Operational**

- What does your supply chain look like (from manufacturing process to final retail outlet)
- What metrics do you use to measure its efficiency?
  - Time from order being placed to arrival
  - Inventory Management
    - Inventory turnover
    - Service Level: Supply from manufacturer / demand from customers
    - Source of raw materials (locally available)
    - Production per day
    - Labor vs. technology for production
    - Shelf Life
- Where is your product manufactured?
  - Is skilled/unskilled labor available to locally manufacture your product
- How do you determine sales forecasts (forecasting methods)?
  - What metrics do you use to determine your forecasts?
    - Historical sales, demand growth, etc.
- What role (positive/negative) do Government(s) play in your product's success?
  - Do you incur/measure cost for compliance to environmental regulations (during and after production)?

5. Post-Purchase

- How do you measure customer service levels?
  - Complaints / customer
  - Do customers have access to the company for customer service issues?
  - Any indicators on after-sales services?
  - Maintenance of non-consumable products e.g. filters?
- Are complementary products available? How do you measure the retail reach of your product and its replacement parts? (e.g. candles for candle filters)
- How do you determine what maintenance needs are for the product?
- Whose responsibility is it to educate on maintenance: Manufacturer or Distributor?
  - How do you assess whether the instructions are well understood by the end-user?
  - Could you send us a copy of your product manual/brochure?
- Disposal mechanisms e.g. for sediments of flocculated water, used filter cartridges?

Appendix D: Aggregation of all M&E Metrics Identified During Data Gathering

Product Set

- Organization goals are set in line with MDGs, with metrics in line with MDGs (Procter & Gamble)
- Conversion rates of people using HWTS products i.e. % of target population that uses the product (Procter & Gamble)
- Longevity: number of years that product has been on the market in a country (Medentech)
- Percent of products directed towards sales to consumers, sales to organizations such as UNICEF and NGOs, and donated for emergency disaster relief
- % of subsidy given (if applicable)

Financial Performance

- Top line revenue (HaloSource, Eureka Forbes, HLL)
- Gross margin (HaloSource)
- Profit and profit margin (HaloSource)
- Break-even point for factory (Potters for Peace, Pure Home Water)
- Margins across supply chain (HaloSource, Medentech, PSI)
- Cost of manufacturing (HaloSource, Medentech, Procter & Gamble)
- A qualitative "feel good" factor assessed by employee satisfaction ratings (Procter & Gamble)
- Payment format to ensure easier access to pay (Procter & Gamble)
- Employee morale levels (Procter & Gamble)
- Customers:
    - Affordability (Medentech, Procter & Gamble, PSI)
        - Willingness to pay (Medentech, PSI)
        - Pricing based on reasonable daily expenditure / daily income (Medentech)
        - Prices of products sold in similar retail environments (PSI)
        - Price in line with other household goods - one egg, pack of cigarettes (Medentech, P&G, PSI)
- Retailers:
    - Willingness to stock (Eureka Forbes)
    - Salesmen salaries (PSI)
    - Retailer's margin (Medentech, Procter & Gamble)
    - Retailer shelf space allocation (Medentech)
    - Time product remains on shelf (Medentech)
    - Cost of dispenser and affordability to retail (all cash, no credit)

Marketing

- Target customer breakdown by segment (HaloSource)
- Competitor market share
- Market entry (HaloSource)
  - HWTS market size
  - Existing competitors in space
  - Technology that exists in market, especially beyond filtration
  - Market response
  - Water quality levels
  - Unmet consumer needs
  - Price points that exist in market, viable for future
  - Targets are bottom of the pyramid or top of the pyramid
  - Regulatory constraints that may pose barriers to entry or possible partnerships
  - Multi-national brands and how they are perceived
  - Trusted distribution channels exist
  - Types of organizations and fragmented
- Geographic scope (Medentech)
- Conversion from direct sale demonstrations (Eureka Forbes)
- Number of HH visited / direct salesman (Eureka Forbes)
- Number of units sold / channel / state (Eureka Forbes)
- Forecasted penetration (Medentech)
- Brand name recognition of marketing partners (Halo Source, Medentech)
- Scalability of markets (Medentech)
- Existence and effectiveness of point of sale material (Medentech)
- Existence and effectiveness of community programs (Medentech)
  - Local dialects and languages used
  - Location specific adaptation of program components and approaches

Distribution Channels and Partnerships

- Percent breakdown of distribution channel segmentation groups (HaloSource, Medentech)
- Brand name of distribution partners (HaloSource)
- Percent reliance on distribution partners to sell products to end customers (HaloSource, Medentech)
- Quality control levels ensured by exclusive contracts or open contracts (HaloSource, Medentech)
- Margins that distributors obtain for this product should be comparable to other products that are staffed (e.g., price of bag of water versus price of cigarettes as sold through distributors) (Medentech)
- Pricing model discussed with distributor: taxes, shipping, margins, etc. (Medentech)
- Pro-bono distribution vs. for-profit distribution (PSI)

Operational

- Units sold/produced a month (HaloSource)
- Install base (HaloSource)
- Number of beads/cartridge (HaloSource)
- Levels of facility requirements for production that are met (HaloSource)
- Manufacturing efficiency: (Procter & Gamble)
  - Plant utility versus plant capacity
  - Inventory build-up
- Production partnerships requirements: (Medentech)
  - Ambition
  - Commitment
  - Ability to produce surge capacity for emergency; not producing at 100% capacity
  - Production in area being sold into
- Break-even point for factory (Potters for Peace)

Post Sales Efforts

- % change in rate of complaints (HaloSource, Eureka Forbes)
- % replacement cartridges sold versus new cartridges produced (HaloSource)
- Compliance rate of timely replacement of cartridges (HaloSource, Eureka Forbes)
- Existence of flow meters, other signals to customers of replacement needs (HaloSource)
- Response Time per Complain (Eureka Forbes)
- Compliance levels (Procter & Gamble)
- Usage purposes (Procter & Gamble)
- Usage levels: daily, monthly, etc. (Procter & Gamble)
- Perception of water quality (Procter & Gamble)
- Perception of affordability and value of product post purchase (Procter & Gamble)
- Country visits to assess usage, post sale activity (HaloSource, Medentech, Procter & Gamble)
  - Focus group studies (HaloSource, Medentech)
  - Customer surveys (HaloSource, Medentech)
  - Retailer surveys (HaloSource, Medentech)

Appendix E: Criteria Used to Assess Business Sustainability

The following are the criteria used to assess business sustainability of organizations participating in the implementation of HWTS solutions. These criteria were compiled from a breadth of resources, both academic and professional. These criteria laid the foundation for the interview guide presented in Appendix B.

Financial Performance: Overall financial stability of an organization was assessed. This includes sales growth, profitability, pricing, generation of cash flows and overall cost structure.

Marketing: The presence of marketing initiatives to enhance brand equity and education of HWTS benefits amongst target users.

Distribution Channels and Partnerships: The presence of non-proprietary versus proprietary distribution channels and the existence of partnerships that aid in the distribution process.

Operational: Understanding and planning towards minimizing operational costs.

Post-Sales Efforts: Existence of product maintenance programs and provisions to assess customer service levels.

Social Impact & Scalability: A measurable social impact combined with the potential to achieve scale will provide the transparency that will enable further financing to enable greater potential social impact. Venture capitalists and other investors look to invest in companies that have true scalability potential and have transparency based on the company's track record of social impact.

Appendix F: Best Practice Validation Interviewing Guidelines

Field Visit Protocol

1. Get in touch with contact ahead of time to schedule meeting, if possible.
2. When contact agrees to a meeting, try to gauge how much time they are able to spend ahead of time and tailor the following set of questions.
3. Ahead of the meeting, confirm the date and timing and provide a brief background of the interviewers and reiterate aim/objective of interview and thank them for their time.
4. Within 3 days of meeting, follow-up with a thank you note and any follow-up questions.
5. By February, we should contact these priority targets again to ask any remaining questions that we have learned are important during the whole process.

Pre-Visit

1. Gather background information and business description of organization
2. If possible, gather background on contact being interviewed
3. Visit organization website (if available)

Questionnaire

Introductions (5 Minutes)

1. Interviewer introductions
2. Interviewee introduction
3. Walk through agenda and provide quick overview of purpose

Product Description (10 Minutes – if needed)

1. Can you briefly describe your product/technology?
2. What are your goals and objectives for this product?
    a. Market Control?
    b. Profits?
    c. Geographic reach?
    d. Other?
3. Who is your target customer base?
4. Who are you key competitors? And what is your current share?
5. What is your geographical reach, how long have you been doing businesses in these areas?

Best Practice Methods and Metrics (40 Minutes)

Method 1: *Develop strategic relationships with knowledgeable and respectable partners and distributors in local markets*

- How do you pick partners and distributors? What traits do you look for and evaluate when choosing your partner/distributor?
- Do you measure the sales generated across distribution channels? ***(metric)***
- Do you measure the sales across the channels used by your distributors? ***(metric)***
- Do you use these measures to evaluate the effectiveness of your distributors/partners?
- If not, how do you measure the effectiveness of your distributor/partner? ***(metric)***

Method 2: *Visit potential markets and analyze key market components prior to expanding into or entering new markets*

- How do you think about entering new markets? Do you have a formal market entry process that you follow?
- What metrics, measures, and information do you investigate?
- When do you decide to pursue new markets?

Method 3: *Understand customers' willingness to pay to determine optimal pricing and to assess feasibility of existing cost structure*

- How do you think about customers' willingness to pay?
- Do you try to assess customers' willingness to pay? ***(metric)***
- How is willingness to pay measured? Per unit, per week, per month etc.? ***(metric)***
- What tools do you use to gauge customers' willingness to pay?
- How frequently do you try to understand customers' willingness to pay?
- Do you use customers' willingness to pay to determine your price? Assess your cost structure?
- How do you price your product? (Ask if they don't track WTP)

Method 4: *Provide expiration dates or replacement indicators on products*

- Do your products communicate expiration dates and/or replacement needs?
- Are product expiration dates or replacement schedules conveyed during customer training?
- Do you monitor the number of replacement consumables sold? ***(metric)***
- Do you monitor the number of replacement consumables produced? ***(metric)***
- Do you track the compliance rate of timely replacement of consumables? ***(metric)***
- How do you track if customers are replacing the products in a timely manner?

Method 5: *Educate customer on the product at the time of sale or before sale*

- What formal educational programs, initiatives do you have in place?
- How do you educate your customer about the product?
- Do you show the customer how to use the product? When?
- How do you assess the effectiveness of the educational programs? ***(metric)***

Method 6: *Capture customer information at point of sale*

- How do you capture customer information? At point of sale, after?
- Do you track the average number of complaints per customer? ***(metric)***
- How do you track customer complaints? ***(metric)***

Other:

- Do you measure any of the following: ***(metric)***
    - Profit margin
    - Profit margin across all parts of the supply chain
- What do you infer from these measures?
- Do you measure the effectiveness of your marketing programs? **(metric)**
    - In particular, do you see what percent of your targeted population adopts your product?
- Do you perform break even analysis of your production? ***(metric)***
    - How do you use the result of the break even analysis?

What other best practice methods and metrics do you employ to assess the business sustainability of your organization?

Appendix G: Guidelines to Determine Best Practice Metrics and Methods

- Metrics and methods are upheld within an organization (e.g., through incentives)
- Metrics and methods are used by more than one organization, demonstrating potential for consistent usage
- Metrics and methods have stood up over time within an organization and are consistently reported on

Additional considerations that could influence the identification of best practices:

- Metrics used for business generated at the bottom of pyramid
- Financially stable organizations will be more likely to have best practice metrics, so those with positive cash flows, growth trajectories, and long term business plans should have good options for best practice metrics around business sustainability

Appendix H.1 – Tools and Indicators: Best Practice 1

Best Practice 1: Develop strategic relationships with knowledgeable and respectable partners and distributors in local markets

Factors to Analyze When Considering Potential Partnerships

Local Knowledge

- ☐ Partner has a desirable reputation in the intended market
- ☐ Partner is well-known in the local market
- ☐ Partner has distribution experience within the desired market
- ☐ Partner has established distribution network in the desired market

Financials

- ☐ Partner maintains up-to-date financial records
- ☐ Partner has good financial standing

Product Knowledge

- ☐ Partner has experience in distributing / selling / marketing fast-moving products

Attitude

- ☐ Partner has good recommendations from existing suppliers / customers
- ☐ Partner is enthusiastic about distributing your product
- ☐ Partner understands the impact of your product

Size

- ☐ Partner has enough time and employees to devote to your product
- ☐ Partner can provide the capacity required to distribute your product
    - In transportation
    - In warehousing

Credit Worthiness

- ☐ Partner has good credit history
- ☐ Partner can pay cash for the inventory they have the responsibility for distributing

Appendix H.2 – Tools and Indicators: Best Practice 2

Best Practice 2: Visit potential markets and analyze key market components prior to entering new markets

Factors to Analyze When Considering Market Entry

Market

- □ Evaluate the potential market size.
- □ Identify existing price points in the market.
- □ Understand potential market's water quality and compatibility with your product.
- □ Identify regulatory constraints that may pose barriers to entry or barriers for partnerships.

Competition

- □ Identify existing competitors distributing HWTS systems.
- □ Identify competing technologies, i.e. boiling, SODIS, doing nothing.

Customers

- □ Decide on target population; bottom or top of pyramid. (Bottom of the Pyramid is typically daily income of less than US$4
- □ Understand customer acceptance of brand acceptance.
- □ Seek customer perceptions and needs.

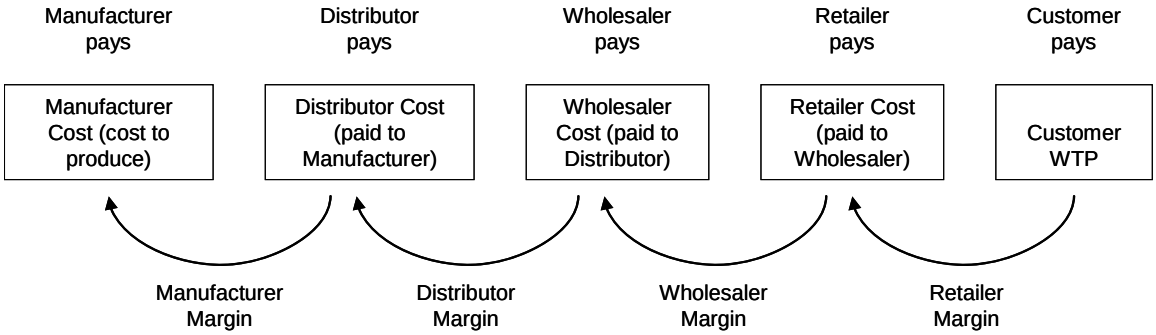
Partnerships

- □ Assess availability of potential partners
- □ Identify potential local partners with marketing and distribution expertise.

Appendix H.3 – Tools and Indicators: Best Practice 3

Best Practice 3: Understand customers' willingness to pay to determine optimal pricing and to assess feasibility of existing cost structure

Implementation model for determining intermediate margins



(all values Birr/per unit)

	Manufacturer	Distributor	Wholesaler	Retailer	Customer
Absolute margin on comparable fast moving product:		0.5	0.5	1	
Required margin:	n/a	0.5	0.5	1	n/a
Maximum price:	n/a	1	1.5	2	3
Manufacturing Cost per unit:	1.5	<-- value estimated from production facility			
Customer WTP per unit:	3	<-- value estimated through willingness-to-pay surveys			

Is cost structure feasible? **No, costs are too high for estimated WTP**

This is a simple model that can be used to understand if a manufacturer's production costs are too high to support the willingness-to-pay for the product in a given market. In the above example, we see that the distributor's maximum price, 1, is higher than the manufacturing cost per unit, 1.5, making the cost structure too high for this market.

The inputs in this model are highlighted in yellow. Notice that the required margin for each intermediary is derived from the margin on a comparable fast-moving product. Providing margins comparable to those of other fast moving products will encourage intermediaries to distribute and carry the HWTS product.

This model makes a simplifying assumption that each intermediary does not have any costs other than what is paid to the upstream partner. Other costs, which may include transportation and storage, may need to be incorporated into the model to ensure each intermediaries required margin.

Pertinent Indicators

1) Profit margin across all parts of the supply chain

Monetary profit is a tangible incentive for partners, distributors, retailers and other intermediaries in all markets. Monitoring the profit margin across all parts of the supply chain provides an understanding of this incentive as well as the possible commitment of the distribution partners.

Measurement of the margin for the retailer can also lead to an understanding of the retailer's willingness to stock the product as well as the amount of shelf space the retailer will allow for the product. If these margins are less than those of other popular products available at the retailer; eggs, cigarettes, etc, then the retailer will have less of an incentive to carry the HWTS, inhibiting the ability to reach the end user.

2) Customer's willingness to pay per unit

Affordability is a common metric used in developing markets to determine the end price for consumers. The G-Lab team believes that willingness to pay is the better metric to determine the end price for customers.

For example, the father in a particular family may be willing to go out and spend $1/beer a couple of nights a week, but the same family may not be willing to pay $1 for a household water treatment that could provide clean water to the whole family for one week. Here one can assume if the family can afford the beer they can afford the water treatment. When the same family does not purchase the water treatment system we see that the main issue is actually the willingness to purchase the system rather than the affordability of the system. The correct metric is therefore the willingness to pay rather than the affordability.

Another compelling reason to measure this metric may be the difference in willingness to pay across region. For example, rural customers may be more attracted to HWTS due to the high costs of medical treatment in rural areas. Therefore affordability may be lower but the willingness to pay may be higher for customers in rural areas than for customers in urban areas.

The above two metrics, profit margin across the supply chain and willingness to pay coupled together lead to another crucial number, the manufacturing cost per unit.

Appendix H.4 – Tools and Indicators: Best Practice 4

Best Practice 4: Provide expiration dates or replacement indicators on products

Pertinent Indicators

1) **Number of replacement consumables produced versus those that are sold**

The number of consumables produced over the number sold will measure the alignment of the manufacturer's perception of consumable replacement practices versus consumers' actual consumable replacement practices. If this number is far greater than one, it will indicate that either the manufacturer is incorrectly forecasting the replacement rate of replacement parts or consumables, or that customers are not replacing consumables when necessary. The first conclusion will lead to the necessity for better forecasting, the second will lead to the necessity for re-education of consumers. If the number is above one, then not enough production is taking place to meet the demand for replacement parts. Production levels will need to be increased as a result.

2) **Compliance rate of timely replacement of replacement items or consumables**

If the above metric is very far above one, the compliance rate will help indicate how many people are not complying with the replacement needs of products with replaceable consumables. This can help start investigations on whether the problem is linked to consumer practices or incorrect manufacturing forecasts. To ensure that compliance rate is accurately monitored, it is important to capture customer data of all customers as recommended in the previous section.

Appendix H.5 – Tools and Indicators: Best Practice 5

Best Practice 5: Educate customer on the product at the time of sale or before sale

Important marketing questions to consider

Penetration

- ☐ How many people will the message reach?
- ☐ Will the message reach the targeted people?

Cost effectiveness

- ☐ How much does the total marketing initiative cost?
- ☐ What is the ratio of (total marketing initiative cost)/(number of people reached)?
    - Is this ratio, cost/person, reasonable?

Message effectiveness

- ☐ How is the message delivered?
- ☐ Is the message delivered in person?
    - Who delivers the message, will the audience accept this person?
- ☐ Does the audience have to read the message?
    - What is the local literacy rate?
- ☐ Does the audience have to hear the message?
    - What language is it in?
- ☐ Is the message localized?
    - by religious culture
    - by gender
- ☐ Has this type of messaging been tried before?
    - Was it effective?

Pertinent Indicators

1) Conversion - Percent of targeted population that adopts the HWTS

In order to measure the success of any marketing initiatives, the team has identified conversion as the best metric. Conversion is measured as the percent

of the targeted population that is reached by the marketing effort that purchases the HWTS product and is calculated as follows:

$$\frac{\text{No. of people from targeted population that purchases the HWTS product}}{\text{Total target population that receives education}}$$

This metric not only helps to indicate the success of the marketing effort, but can also help indicate the fraction of people with access to safe drinking water. Combining educational programs with marketing efforts can be an effective tool to improve conversion.

Appendix H.6 – Tools and Indicators: Best Practice 6

Best Practice 6: Track customer complaints from household point of use to understand customer acceptance

Sample tool to organize and track customer complaint mitigation process

Date	Complaint filed by	Category	Description	Priority	Complaint recorded by	Status	Resolution Date

Date – the date the complaint was recorded

Complaint filed by – the customer, retailer, wholesaler or distributor complaining

Category – the category of complaint

- □ physical damage
- □ usage
- □ customer service
- □ other

Description – a detailed description of the complaint

Priority – priority of action required

- □ high
- □ med
- □ low

Complaint recorded by – the employee who is tracking the complaint

Status – the resolution status

- □ not begun
- □ in progress
- □ on-hold
- □ complete

Resolution date – the date the complaint was resolved

Pertinent Indicators

1) Average number of complaints per customer

The average number of complaints per customer will help indicate customer satisfaction. Customer satisfaction leads to repeat sales, word-of-mouth advertising, and a more sustainable business. Customer complaints also provide information on the performance of the product and can also be used to assess the effectiveness of training programs for sales and marketing staff.

Appendix H.7 – Tools and Indicators: Best Practice 10

Best Practice 10: Enforce limited stocking based on moving sales averages to allow intermediaries to experience "fast-moving" sales

Implementation model for 1.5x stocking rule

	Sales	4-Week Moving Average	Required Stock (1.5x Moving Average)	Current Stock	New Order (Required Stock - Current Stock)
Week -3	6	n/a	n/a	n/a	n/a
Week -2	8	n/a	n/a	n/a	n/a
Week -1	6	n/a	n/a	n/a	n/a
Week 0	7	7	11	2	9
Week 1	4	7	11	7	4
Week 2	5	6	9	6	3
Week 3	7	6	9	2	7
Week 4	5	6	9	4	5
Week 5					
Week 6					
Week 7					
Week 8					
Week 9					
Week 10					
Week 11					
Week 12					
Week 13					
Week 14					
Week 15					
Week 16					
Week 17					
Week 18					
Week 19					
Week 20					
Week 21					
Week 22					
Week 23					
Week 24					
Week 25					
Week 26					

This model allows each retail outlet to efficiently set its on-hand inventory. This example uses weekly sales. The first 3 weeks of inventory will have to be set off from other estimates, such as comparable outlet sales, or retailer knowledge. The model can also be implemented in other time increments such as bi-weekly or monthly periods.

Pertinent Indicators

1) Regularly recorded retail sales over consistent periods of time

It is essential to measure retail sales over consistent periods of time (such as weekly or monthly) in order to better forecast future sales. This measurement used with a moving average will predict future sales as well as ensure better stocking.

Appendix I: Phase 1 Interviews

Interview summaries

1. Prashant Mandke – Eureka Forbes
2. Duane Dunk – HaloSource
3. Nimish Shah – Hindustan Lever
4. Kevin O'Callaghan, Peter Edmondson – Medentech
5. Daniel Crapper – Populations Services International
6. Ron Rivero – Potters for Peace
7. Greg Algood – Procter & Gamble
8. Susan Murcott – Pure Home Water

Prashant Mandke – Eureka Forbes Aqua Sure
December 6
Interviewed by Udit Patel and Shivani Garg

Interviewee's Background

- Business Manager for Eureka Forbes' HWTS product – Aqua Sure

Key goals

- Provide affordable water purification system to the masses
- Spread awareness of clean drinking water

Product Background

- Pure-It, pore-through gravity device that works in environments where there is no consistent supply of electricity or running water
- "Do it yourself" product with minimum maintenance needs and no skill required to assemble
- As safe as boiled water, which is the substitute in India
- Available in two sizes: 18 and 25 liters
- 1 replacement part: Filtration cartridge
- 18 liter cartridge lasts for 4 months, 25 liter cartridge lasts for 6-8 months
- Primarily available in India

Financial/Profitability

- Price for product: Rs.1800/unit for 18 liters and Rs. 2750 for 25 liters, 2 cartridges free for first set
- Price for replacement set: Rs.300/18L set and Rs.450/25L set
- Replacement sets are subsidized by Eureka Forbes

Metrics:

- Sales growth / state
- Retail Sales Price/unit

Marketing/Partnership

- Target: lower middle class, mid 400 million population in India
- Hybrid sales model including both direct sales and retail sales
- Direct sales accomplished through network of door to door salespeople
  - Salespeople visit on average 20/30 HH per day
  - Each visit includes a full live demonstration of the product
- Door to door selling through "water zones"
  - 10-15 water zones in major cities
  - Presentations to HH clusters on education of water issues and product demos
  - Follow-up sales call after presentations

    - Goal: build awareness, which they believe will lead to sales
- Retail channel utilized in urban areas, products available through large supermarkets as well as smaller stores
- Promotions: TV, print, schools, colonies, van campaigns etc.
- Partner with self-help groups and NGO to spread awareness of water treatment, importance of clean drinking water and knowledge about waterborne diseases
- Also run campaigns to build awareness around air and water pollution

Metrics:

- Conversion rates from direct sales
- Number of HH visited/salesman
- Number of units sold / channel

Distribution and Partnerships

- Partner with distributors that have access to small urban retailers
- Partner with large urban stores and supermarkets
- Partner with organizations for filtration technologies e.g., HaloSource

Post Sales

- 1 main replacement part: purification cartridge
- Cartridge lasts 4 months (18L) and 6-8 months (25L)
- Track customer purchases through warranty cards
    - Not all customers mail in warranty cards
- Dedicated customer support service per state (telephone)
- Complaints categorized into types and tracked
- 48hr response time is set as a norm, complaints escalated if not responded within 48 hours

Metrics:

- Number of cartridges purchased per customer per year → Indicates usability of product
- Number of complaints per state → Indicates product performance / effectiveness of training
- Set response time for each complaint: 48 hours

Duane Dunk – HaloSource HaloPure
November 20
425.974.1935
Interviewed by Udit Patel and Shivani Garg

Interviewee's Background

Director, Global Drinking Water Markets

- Has been with HaloSource for 7 years
- HaloSource has a partnership in India, where they supply the cartridges for Eureka Forbes' AquaGuard product
- In the past year, Duane has made 20+ field visits to India to understand the use and sales process of Aqua Guard

Key goals

- Pursue revenue-generating opportunities to attain business sustainability
- Hope to look at bottom of the pyramid markets once they are positively revenue generating
- Have been in India for a year and are exploring expansion into China and Brazil

Product Background

- HaloPure cartridges with bromine disinfectant beads
- Bromine-based product seen as disruptive to traditional chlorine tablets, which release taste-eroding and potentially harmful levels of iodine
- Exploring ability to turn technology into tablet-forms, to avoid issues uncovered with replacement levels

Financial/Profitability

- A year into the Indian market, they have been able to capture (need to verify data with Udit) XX of the market
- Funding sources include Masdar (Abu Dhabi investment fund), Alex Houtton VC, Mars Corporation, Unilever, and a scale-up partnership with Auburn University
- Originally, investors saw HaloSource as a humanitarian and philanthropic investment, whereas today it is seen as more of a profit-generating investment

Metrics:

- Top line revenue
- Gross margin
- Profit
- Number of beads/cartridge
- Facility requirements to produce

Marketing/Partnership

- Currently in upper, urban market in India that targets the emerging middle class
- Seek out and leverage big name partners, such as Eureka Forbes for marketing and brand building efforts
- Their goal is to first build long-term business viability so that they can move into bottom of the pyramid markets
- In terms of competition, iodine resins are the closest competitor, but solutions built on this technology are dropping off due to dangers of iodine toxicity

Metrics: When entering a market, they first conduct user studies to determine acceptance and perspectives of the market. Some additional metrics looked at include

- HWTS household market size
- Existing competitors in space
- Technology that exists in market, especially beyond filtration
- Market response
- Water quality levels
- Unmet consumer needs
- Price points that exist in market, viable for future
- Targets are bottom of the pyramid or top of the pyramid
- Regulatory constraints that may pose barriers to entry or possible partnerships
- Multi-national brands and how they are perceived
- Trusted distribution channels exist
- Types of organizations and fragmented

Distribution and Partnerships

- In terms of existing channels/partnerships, they focus on high end niche players, dominant players in low-end mass markets, and well-known brand name multi-national corporations for mid market

Operational

Metrics:

- Units sold/produced a month
- Install base
- Number of beads/cartridge
- Facility requirements to produce

Post Sales

- Via extensive field studies in India, meeting and interviewing in-home and in-store customers, Duane was able to gather that many

customers were not replacing cartridges when needed. This also brought the understanding that there is no indicator on the filter for when the cartridges need to be replaced

- HaloSource is working with Eureka Forbes to address this situation given the financial upside of accurate cartridge replacement

Metrics:

- % change in rate of complaints
- % replacement cartridges sold versus new cartridges produced
- Compliance rate of timely replacement of cartridges
- Existence of flow meters, signal to customers of replacement needs

Nimish Shah – Hindustan Level Limited Pure-It
December 4
Interviewed by Udit Patel and Shivani Garg

Interviewee's Background

- Research and Development, Pure-It

Key goals

- Pursue revenue-generating opportunities across lower middle class in India
- Attention to affordability

Product Background

- Pure-It, pore-through gravity device that works in environments where there is no consistent supply of electricity or running water
- As safe as boiled water, which is the substitute in India
- 9 liters storage, lasts for 1500 liters of water
- 3 replacement parts : prefilter, chlorine cartridge, chlorine scavenger block

Financial/Profitability

- Price for product: Rs.1600/unit, replacement parts free for first set
- Price for replacement set: Rs.300/set
- 2004 launch
  - 500K units sold to date
  - Initially in South India
- 2007: expanded into major cities: Delhi, Pune, Bombay
- 2008: looking to expand to all major cities across country

Metrics:

- Price/unit

Marketing/Partnership

- Target: lower middle class, mid 400 million population
- Door to door selling through "water zones"
  - 10-15 water zones in major cities
  - Presentations to HH clusters on education of water issues and product demos
  - Follow-up sales call after presentations
  - Goal: build awareness, which they believe will lead to sales
- Promotions: TV, paper ads
- Water for Health general symposium - participants to build awareness as well

Metrics:

- Conversion rates from water zone presentations and demos
- Number of people brought into water zones
- Education and demo effectiveness, when some customers may not be able to read
  - Pictorial depiction
- Affordability: installment payment promotions

Distribution and Partnerships

- Water zones are sales and distribution channel
  - Managed by independent business people, like a franchise model

Post Sales

- 3 replacement parts: prefilter, chlorine cartridge, chlorine scavenger block
- Can last for 1500 liters of water, around 6 months
- Entire set sold as replacement pack
- "IT enabled" maintenance process
  - Centralized call-in number to register product, allowing Hindustan Lever to call customer when cartridge needs to be replaced
- Indicator also tells consumer when to replace cartridge
- Also have a product manual

Metrics:

- Average # of years cartridges are purchased

Kevin O'Callaghan, Peter Edmondson – MedenTech AquaTabs
November 28, 2007, 8am
+353 53 9160040
Interviewed by Geeta Gupta, Eswar Mani

Product Background

- Aquatabs: 20 years; principally for emergency relief
- Supplier to agencies; WHO, UNICEF, etc
- Defense market and retail (tourists)
- Haiti and Venezuela for 10 years and 15 years
- Strategy is to make product available in developing countries for those without access
- Particularly working on completely commercial models; full cost recovery
- C, D, E targets in developing countries (20L tablet $0.03)
- Profit for the whole chain including Medentech
- 85 people employed in total
- Sells also to hospital environment.
- Aquatabs essential to Medentech, a core brandname.

Financial/Profitability

- Pricing based on affordability and willingness to pay
- Compare with prices of everyday product within local kiosks (mom & pop shops)
- Price of bag of water, cigarettes
- Affordability of shop keeper
- Last year 50 M tablets x 20L
  - 1/3 Purely commercial through kiosks
  - 1/3 Institutional sales 50% purchased by consumers (Gov't, NGO)
  - 1/3 Emergency situations: 20 years with NGOs
- Customers-> shipping; local; Quite a few distributors within the chain; multiple distributions

Metrics

- Margins that distributors obtain for this product should be comparable to other products that are staffed

Market Entry

- Conduct focus group studies and customer surveys
- Strips of tablets are sold. Fears that strips would be cut and sold separately have been squashed.
- Aquatabs only as immediate part of emergency relief, so all are used. Commercially, since they buy it, they will use it.
- Private limited companies, Shareholders. For-profit company, no independent stakeholders

Metrics

Retailer surveys

- Willingness to stock and willingness to buy
  - how much they can afford to purchase
  - margins
  - how long will the product be on the shelf
- Cost of dispenser is affordable to retailer (Kiosks are all cash; no credit)

Partnership

- One partner in market for marketing and distribution; lot of time for due diligence of partner. Ambition and commitment
- Pricing model discussed with distributor, taxes, shipping, margins, etc.
- Creating sustainable partnerships locally for NGOs to facilitate navigations and discussions

Geographic Reach

- In 10 markets, pre-implementation stages in another ten. Ghana launch in January (Gov't support and NGO)
- 140M tablets in 2007 – only household water

Marketing

- No marketing front
- Feeding market with products
- Importer and Distributor invest, which shows their commitment
- Responsibility of Medentech is to get product at a certain price point to the market
- CHPs (Community Health Providers) – volunteers who go to households for disease checks.
- Agree a marketing plan up front and strategize with partner.
  - Point of sale material; what community programs are doing.
  - Local radio in local dialects are very successful
  - Depends on local citizens and independent research.
  - (In Ethiopia, coffee houses 1-2 hour chat on serious issues)

Sales Forecasting

- Hospital markets been done for 20 years so used with Partners.
- Fortnightly meeting with Aquatabs.
- Plan capacity accordingly to meet expectations; 6 months ahead (lead time).
- Scalability of markets → information barrier between markets. Across board integration.

Daniel Crapper – PSI
December 6, 2007
Interviewed by: Eswar Mani, Shivani Garg, Udit Patel, Geeta Gupta, Matt Stevenson

Interviewees Background

- Head of PSI, Ethiopia

Social Marketing

Project has to have a goal, a purpose and activities

- PSI: goal – is to reduce morbidity and mortality related to diarrhea
- Purpose to increase the consistent use of household water treatments and household water storage
    - Children under 5
    - Consistent use of Waterguard
- Social marketing is a mechanism they use to achieve consistent and correct use of Waterguard
    - 3 summarized determinants of behavior
        - Creating opportunities to use Watergaurd
        - Improving people's ability to use Waterguard
        - Effecting peoples motivation to use Waterguard (WTP)
    - 1 business metric for opportunity
        - Make product available – therefore put it through commercial markets at affordable prices
        - To measure affordability 2 surveys
            - Track survey
                - Asking consumers their WTP rather than ability to pay
                - Add increments to see what they are WTP to find the max price → this helps to create a demand curve
            - Poor people are able to pay more than they think
            - Map survey
- Most practical way to do social marketing is by starting in an urban area
    - Critical mass in urban area
    - Rural people always pay more for things
        - They cost more by the time they arrive in rural areas
        - People in rural areas may value these things more
        - The costs of seeking medical treatment are so much higher in a rural area that you are willing to pay more to avoid it
            - People have to sell cows, etc. just to pay for medical treatment
            - Therefore value of prevention is higher to you
    - In Ethiopia trying to encourage water committees
        - Rural areas in Ethiopia are dirt poor

        - Economic activities happen nonetheless
            - Father buys a bottle of beer for 1 bur, whereas water treatment will prevent sickness for 1 or 2 burrs/month → decision of what to spend money on =**WTP**
    - Presenting viable economic choices to help the community make better decisions
    - Social marketing is mostly for Waterguard, because PUR is so much more expensive

Metrics:

- WTP
- WTP across regions
- Prices of products sold in similar retail environments
- Sales per salesman

Distribution/Partnerships

- 10 or 15 key distributors
- Network of salesman that encourage retailers to stock the product
- Issued them with a GPS unit, building up a map of where they have outlets
- Map survey used to understand percentage of retailers that stock product
- Let the market determine how much to sell – manufacturer is making 10-15k/day
- Manufacturing for Waterguard is local – 3 bleach manufacturers, 1 was only at 10% capacity → this factory was turned to make Waterguard
- For Waterguard about 1/3 of the distribution is commercial, the rest is free
- ½ salary of salesman is in salary, the other half is in commissions

Metrics

- Salesman salaries
- Pro-bono distribution vs. for-profit distribution

Relationship with suppliers

- Ethiopian bleach factory
- Two mutually supported products → PUR is for higher turbidity water, Waterguard for low turbidity water.

Ron Rivera – Potters for Peace
December 5, 2007
Shivani Garg, Geeta Gupta

Background

- Doing this for 24 years
- After he discovered that this technology should be made locally
- His filter pots should remove micro-biological contaminants
    - colloidal silver on filters, and that works
- Potters for Peace is a smaller, microscopic NGO
    - 1 full-time employee + 1 half-time employee

Partnerships

- Partners in all these countries, that want to make Potters for Peace filters, they have to provide everything
- Potters for Peace only provides expert person for a limited amount of time to get factory up and running
- Developing a model that works
- Don't need to be 10M R&D like PUR to work
- Low-cost product in Cambodia $7.50 last for 3 years and remove 99+% bacteria
    - Guatemala $30
    - Price is dependent on countries
    - Price is based on cost of goods sold (all costs)
        - Filter pot $1.60-$2.60 – selling $4-5 making 100%
        - Mark-up vs. yield out of factory, the mark-up sometimes compensates for the low yield out of a factory

Social Franchise

- 3 week training course. Potters for Peace trains the existing pottery factory to transfer technology and begin making filters
- Ron has been training people how to make water filters for 14 years
- Have to make it a business in order for it to succeed
    - Last 7 years, 25 factories have gone up
        - Some are producing a lot of filters
    - Factory has to be sustainable
        - Has to get to break-even point
        - Work only with established pottery shops
        - Filter factories can't only make filters because of slumps in sales, therefore only work with established factories that already may pottery to fill the slumps

Metrics:

- Break-even point for factory

Potters & Franchisees

- Distribution, they either
    - Sell from the shop
    - Or through distributors
- Company in Cambodia started off with a $150,000 grant, with this money they started a development chain
    - Other people go to water fairs
    - NGO fairs
    - Text book distribution systems don't work because it increases the costs and therefore shoots the price up
        - Can't put marketing and promotion into the price of the filter
- Red Cross in Sri Lanka owns its own filter factory – therefore they can buy from themselves and sell to other people
    - NGO owns a private enterprise
- What makes the partnership successful? → understanding the customer
    - When there is a disaster, the companies make money
    - All of a sudden people want clean water and the business takes an upturn
    - Cambodia sold 6000 filters last year, that is incredible
    - Level of the turbidity of the water
        - Killing bacteria vs. wanting the water to look clean
- Only go to build a factory if they think it is going to be sustainable
    - Don't want them to go in as an NGO
    - Want them to make more money to produce a quality filter
    - They start with people who are already successful
        - They already have trained personnel
        - Already have infrastructure
    - Marketing and promotional activities should be subsidized by the government
    - Dialogue that helps them to understand if the factory will be sustainable
        - Measure demand for pots using MDGs
        - Figures from UNICEF and World Bank

Greg Algood – Procter & Gamble PuR
November 20, 11am
513-622-3292
Interviewed by Eswar Mani and Geeta Gupta

Interviewee's Background

Director of Children's Safe Drinking Water Program at P&G

- Focuses on providing technology for the Centers for Disease Control
- PUR is a not-for-profit business for P&G, sells at cost
- PUR is a philanthropy project, P&G has contributed philanthropy dollars to philanthropy partners
- In Ethiopia provided grant to PSI $0.5M to socially market PUR
  - Labeling in Amharic
  - Education in school
  - Etc.

Key goals

- Prevent diarrhea illness
- Relatively easy with PUR to understand how many liters of water
  - Make assumptions of how much diarrheal disease is reduced
  - Over next 5 years provide 2B liters of safe drinking water, save 10,000 lives
  - To accomplish, P&G has specific forecasts of how much water to provide each year and where
  - In Ethiopia provided 10M packets so far
  - P&G makes no margin on PUR, PSI makes small margin – PSI uses margin to continue social marketing etc.
  - PUR does not sell to end customer, to partners such as PSI, UNICEF, etc.

Product Background

- 20 partnerships in Ethiopia, not all through PSI
  - Save the Children is another partnership
  - These groups work with PSI to do the education training
- Have hard time keeping up with demand in Ethiopia, mainly due to incorrect forecasts and natural disaster in existing markets

Biggest competition for PUR is non-use

- Therefore don't really fight over market share or look at market share rather at penetration
- PUR has a specific niche, to identify that niche they look at different things:
  - What is the water source
  - Affordability
  - Target customers are based off of information collected

Do people purchase PUR because it is portable?

- PUR is more expensive per liter, but because you can buy one sachet at a time, the cash outlay is cheaper and therefore attractive to the end consumer
- (an analogy may be) it is cheaper to buy large bottle of shampoo, rather than sachet of shampoo
    - Water refill stations, have high penetration rate in Indonesia etc., but they are not something that has been tried in Ethiopia or Ghana

Financial/Profitability

- Costs taken into consideration
    - Cost of manufacturing because it's a philanthropy effort
    - P&G can make it for less and charge more to make a "profit" – but P&G is in this business for corporate reputation, doing work in low-income markets

So their "profit" is to show that they are committed to society and that they are sustainable in an environmental and social way

- Technology originally had a more traditional way manufacturing process where the costs were to high (they were 25 cents/sachet)

Now can provide for 6 -12 cents depending on the market

In Guatemala (the first market) research said 25 cents was not affordable

- Has to be the price of one egg, 1 quetzal

To bring down costs they used cheap packing machines – one dozen people in Pakistan

The social manufacturing impact is low (only a dozen people) the wealth creation is really for the people who sell it

- Pricing across markets:

Sell in the US for $1.50 – haven't done a lot of work on price elasticity

- Pretty elastic in developing countries
- In many places PUR and Waterguard are not affordable to the end- user
- In Congo the lowest form of payment is usually 50 Congolese Francs, therefore that is the price P&G sells for in Congo
- Will use profit from US to subsidize it elsewhere

To do business have to build relationships with local governments and NGOs to partner for distribution, PUR sachet business could survive by itself – but need P&G's philanthropy dollars to move faster

- Greg believes it doesn't need to be a self-sustaining organization

Metrics: PUR's profit is social impact:

- Don't have metrics – but wish they did
- Whatever few metrics they use mean very little compared to the gut feeling
- Measured employees' sustainability
    - Importance of employees to work for a company that supports sustainability

- But they felt P&G wasn't as good as they should be
- Or they just don't know what P&G is doing
- P&G shared the metrics: 760M liters of safe drinking water, 4000 saved lives, 31,000 days less of diarrhea, but the individual stories are a lot more meaningful

***numbers may not be accurate*

Marketing/Partnership

- Partnership with PSI is one of the most important. PSI creates brand equity in a country – uses commercial distribution system
- Other partnerships include; Save the Children, UNICEF, World Food Program, Village Health Shops, Red Cross
    - 70% of end-users are getting PUR for free, vs. 30% of the end-users are paying for it (Village Health Shops, PSI, Akakhan – partners who charge the end-user)
        - Where PUR has used a targeted approach for market entry, the end users value getting it for free

60% use-rate where they are buying it
90% where they are getting it for free
(use-rate means they use it and come back for it)

- The free distribution is highly targeted
- When Sustainability is the goal it makes sense to charge, when coverage is the goal it maybe does not make sense to charge
- To distribute product free have to do it correctly to make sure that people are not redistributing it to make money

Metrics: They have tried to measure what's happened but more qualitative information rather than quantitative

- Compliance
- Why are they using it
- How much do they use
- What do they think of the water
- Is it affordable

Operational

- Struggling to meet demand in Ethiopia
    - Experience told them 1-2 million sachets a year in Uganda therefore same number for Ethiopia, but PSI has done 10 million sachets already in Ethiopia
- In Ethiopia building up higher inventory
- Disaster creates more demand
- Delay start of social market – in order to ensure that they could re-supply
    - Started in Haiti, delayed 6 months
    - Pakistan waited 6 months after Tsunami

Metrics:

- For efficiency, they measure plant utility, plant running 24/7

- Forecasting uses the following parameters
    - What is the reach, what targets
    - Affordability
    - Turbid water areas
    - Likely penetration
    - But in Ethiopia they blew away the forecast

Susan Murcott – Pure Home Water
December 11, 11am
Interviewed by Udit Patel and Shivani Garg

Interviewee's Background

Susan Murcott is a Senior Lecturer in the MIT Civil and Environmental Engineering Department and founder of the NGO Pure Home Water.

Key goals

- Provide safe water to Northern Sector of Ghana (3 poorest and most water-challenged regions) and then move out to other regions
- BOP, those who lack access to safe water, unimproved water areas
- Over 30 districts: many of sources have dugouts for water access (dirtiest, contaminated water from local dams)
- Original goals to break-even in two years and distribute filters to people in need
- Threw out goal to break-even: lowered price, created two prices

Product Background

- Ceramic pot filter
- Biosand filters are coming in, although still uncertain how it will to handle higher levels of turbidity, such as from dugouts/dams

Financial/Profitability

- Break-even analysis
    - Accounting systems
    - Users manual for spreadsheet
    - Low math skills in Ghana
    - Accounts currently kept in excel
- Selling at $15 a filter, buying at $13 a filter, transportation at $1.50
- Local manufacturers would produce at a lower rate ($6)
- Could sell to rural areas at a lower cost → urban subsidize rural costs
- Foundation, privately, and self-funded

Metrics:

- Break even: costs/revenues
- Product margins
- filters sold/month

Marketing

- Sell to urban, rural, and hospitals/schools markets
- Urban market

    - Retail shops → retailer: e.g. Peace and Love beauty salon: $2 commission for every pot sold
    - $12/$10 → retailer gets $2/unit

- Rural market
    - Work through village chief and secretary: sales person makes contact, returns to do demo with all village gathered; demo water from dugout; Kosim Filter water → best water, clean water
    - Liaison (secretary) : becomes contact point in village and gets $1/filter sold
    - Should have order of at least 20 filters, in order to transport product
    - 57% of sales to rural areas in Year 2.
    - Poor rural people will buy filters
    - Agriculturists: not irrigated agriculture, so harvest time money come all at once per year
- Hospitals and schools
    - 100 for free → advertising
    - Teacher and/or nurse = sales person
    - Sales more at hospitals
    - Give away at schools

Metrics:

- Retailer margins
- Spread of sales across target segments

Distribution/Partnerships

- We have mastered not breaking filter during transport
- World Vision (15 years + Ghana)
    - Multimillion dollar budget in Ghana
    - Supported from Christian churches around world
    - World Vision support comes from Hilton Foundation as well, underwrites efforts
    - Has provided Pure Home Water with office space in Years 1 & 2, have an Memorandum of Understanding
- WAWI: West Africa water initiative
    - Collection of water NGOs in Northern Ghana
- Main manufacturer and distributor sells to PHW and Enterprise Works
    - Enterprise Works (NGO out of Wash DC, office in Accra) : another distributor of the ceramic pot filter
    - Business promotion of appropriate technology

Operational

- Most places produce at $6/filter (Cambodia and Nicaragua)
    - Need to get the filters from Accra to Tamale (12+ hour truck ride)

- Labor constraints with women employees not being able to go to villages and markets
- 2 full time staff
- Liaisons to villages with incentives to get collections in cash
    - Visit the shopkeepers
    - 33 villages total

Metrics:

- Manufacturing costs

Post-Sales

- Replacement taps taken care of during customer service calls
- Will replace if Pure Home Water is responsible for breakage of tap
- All communication takes place through liaison
- Pot lasts for 3-5 years

Appendix J: Phase 2 Interviews

Interview summaries

1. Tigistu kinfe Michael – International Rescue Committee
2. Tsegaye Gebre – Kale Heywet Church
3. Henock - Population Services International (PSI)
4. Tensai Asfaw - UNOCHA
5. Paul Deverill and Belinda Abraham - UNICEF
6. Menassie Kifle & Kassa – EtMedix / Medentech
7. Vestergaard Frandsen (Field Visit)
8. Nana Osei Mainoo – WaterHealth International
9. Jesse Jones Agbanya & Ebenezer Aidoo – Precision dx
10. Osman Sahanoon - New Energy
11. Peter Alhassan - Pure Home Water
12. Osman Mumuni – International Aid
13. Dodzi - Ceramica Tamakloe

Tigistu Kinfe Michael
International Rescue Committee
January 8th 2008
Addis Ababa, Ethiopia

Interviewee's role

- Field Engineer

Organization background

- NGO
- Key projects include
  - Distribution of biosand filters (funded by Samaritan's Purse)
  - Distribution of PUR and Waterguard for emergency situations
    - PUR to more turbid water communities where river or pond water is the water source
    - Waterguard for hand pump users where water is less turbid
  - Bore hole drilling – 23 projects totaling a 29M birr budget

Key takeaway

- IRC builds bore holes in communities where the final cost to the citizen will be *comparable* to whatever cost they are currently paying for clean water
- IRC faces challenges with awareness building as well as high operation costs
- IRC aims to build these systems and transfer ownership back to the community

Product background

- PUR and Waterguard are only distributed during disaster, IRC also trains the communities on the usage of these products during distribution
- Bore holes can be up to 500m deep, these bore holes require costly diesel powered pumps to retrieve water to the surface
- Projects are supposed to be completed and then handed over to the local government for control
- In order to identify where pumps should go IRC studies area characteristics including; willingness-to-pay, affordability, water shortage and water quality

Strategic relationships with partners and distributors

- IRC bears all costs for emergency situations, however works with PSI to secure PUR and Waterguard
- IRC works with local village governments to organize and train a water and sanitation committee on safe storage

- Each village has its own water committee and employs a cashier and operator to work the bore hole pump
- IRC partners with village to set price of bore hole water
- The end goal for the bore hole is to transfer its ownership back to the local government

Market entry and expansion

- IRC has recently began work on a 14km pipeline to help distribute safe water even further

Understanding willingness to pay (pricing / costs)

- The depth and structure of these bore holes can make them very costly to operate, operation costs include
    - Salaries for cashier, operator
    - Fuel costs
    - Maintenance
- After bore holes are dug and a retrieval point it placed near a village, citizens walk to the spigot and pay a fee to fill up their 20L jerry cans
- Fee is determined through a community agreement, sometimes it is also set as a fixed monthly fee
    - Fees can be ~ 20Birr cents a jerry can, or ~10 birr a month
- These prices are community specific and are determined by the community's wealth – bore holes are not created in communities that cannot afford to cover the operation costs of the bore hole
- Consider the costs of water to citizens before the bore hole

Metrics:

- Current price of safe drinking water

Customer education programs

- IRC works to build awareness of safe water and safe storage. They do this through trainings conducted through water committees
- A lot of the training is done during emergency situations, but IRC believes that some knowledge is transferred and a small percentage of people understand the importance of treated water and will begin to purchase the products after the emergency is over

Tsegaye Gebre
Kale Heywet Church
January 8th 2008
Addis Ababa

Interviewee's role

- Business Manager for water and sanitation

Organization background

- Type: Non profit
- Goal: To assist the poorest of the poor by providing safe drinking water as well as by promoting health, hygiene, sanitation and community empowerment
- Global membership
  - Over 5 million members
  - Over 4000 known churches
- Business model:
  - Free distribution of household biosand filter system
  - Focus on rural communities and customers that rely primarily on rivers, ponds, lakes etc. for their water
  - KHC accepts and evaluates customer application before providing filter
  - KHC provides subject matter expertise
  - Customers involved in setting up local manufacturing facility, educating local communities, delivering solution
- 8000 filters distributed to date

Key takeaway

- Free distribution model is more effective than commercial model
  - Permits significant elimination of operational costs (transportation, education, labor etc.)
- Empowering the community by including it in the manufacturing and post sales education processes helps to boost adoption and sustained use

Product background

- Modified biosand filter for household use

Strategic relationships with partners and distributors

- Relationship with Samaritans Purse who provides KHC's funding

Market entry and expansion

- KHC has well defined criteria to assess entry into a new community / market

Metrics:

- Potential of ground water supply: There is no ground water source in the vicinity of the community that could potentially be used in the future to provide clean water to the community via a bore hole technology or other mechanism
- Geological feasibility of ground water: There is no potential ground water source in the area due to the geography of the region
- Current source of water: River and pond water are the primary sources of water for the community
- Fetching the water: Amount of water fetched per household in the day and member of household that fetches the water

Understanding willingness to pay (pricing / costs)

- Free distribution so no need for a willingness to pay assessment
- Field visits however indicate that customers are willing to pay for the filter

Expiration dates and replacement indicators on products

- Product has shown a 8 – 10 year useful life so far so there is no need for expiration dates
- No replacement required
- Customers educated on maintenance (cleaning of top layer of sand)

Customer education programs

- Use documentary films, print media and focus groups to educate customer on the product and on health related issues
- Conduct four day training camp two times a year to train volunteers
  - Rely on volunteers to educate the rest of the community
- Strong focus on community empowerment
  - Requires community members to get involved in the manufacture, training and other processes associated with the product

Customer information capture

- Customer information is captured at the time of delivery
- Local community representatives serve as point people for customer complaints in a given community

Metrics:

- Number of user complaints

Other:

Monitoring and Evaluation

- Dedicated monitoring and evaluation staff comprised of permanent employees
- The staff comprises of one technician and one local community representative per 100 community members

- Community members are encouraged to pay the technicians
- Metrics monitored include:
    - Filter performance – physical attributes
    - Biological performance – water tests
    - Number of customer complaints
    - Purpose of using filter

Tensai Asfaw
Henock Gezahegn – Population Services International (PSI)
January 9th 2008
Addis Ababa

Interviewee's role

- Recently became Supply Chain Director, previously Sales and Marketing Supervisor

Organization background

- Non-profit organization for private sector tools
- Social Marketing Organization to make a health impact by changing behavior; changing behavior leads to business sustainability.
- PSI's program in Ethiopia largely focuses on mitigation of HIV/AIDS, malaria and enhancing the probability of child survival

Key takeaway

- WaterGuard is a self-sustaining business within PSI. Henock predicts that WaterGuard will be spun-off to a private company in the next 2 years.
- Uses Pareto Efficiency metrics to determine which outlets will provide most value to bottom line and also distributes to Equity outlets in order to enhance Health Impact.
- Main complaint is that it is tough to transition perception of a product disseminated for free by NGOs from an epidemic-related product to a life-style product.
- Each area of supply chain has its own turf, extremely territorial.
- PSI proud of hiqh quality assurance and monitoring of product

Product background

- PUR Purifier of Water since 2006
- WuhaAgar/WaterGuard safe water system since 2005
- SafeNite insecticide treated mosquito net (ITN) since 2004
- WobaGasha long-lasting insecticide treated mosquito net since 2004
- PermaNet long-lasting insecticide treated mosquito net since 2004

Strategic relationships with partners and distributors

- Trading terms and margins set up front; unintentional intermediaries raise prices of goods, so distributors will come to collect goods from PSI
- Disseminate recommended price through advertising, so retailers will adhere to one price rule
- Product distributed along major roads, lack of rural area dissemination due to high transport costs.

- Collaboration with other NGOs for disaster recovery; result is consumers perceive an epidemic as good.
- Many prospective wholesale distributors (like Coca Cola) see risk in associating with organizations like PSI.
- Salesperson has EST (Essential Core Task) protocol to follow when visiting retailers monitoring visibility, availability and price of product.
- DKD services its retail outlets every 15 days, Coca Cola, twice per week. PSI once per month.
- Salesperson visit lasts 7 minutes, per salesperson outlet calculated based on this.
- Pareto Efficiency Principle; 80:50:20 rule. Applies rule such that out of 114,000 outlets in Ethiopia, 80% of the value (profit/distribution capability) comes from 20% of the outlets.
- Identification of outlets through two methodologies
    - Every Dealer Service (EDS)
        - Expensive method of going to every single outlet and conducting an extensive survey
    - Free run
        - Kill two birds with one stone by going to each outlet, stocking them with product and returning after expected inventory cycle to see if they have sold well.
- Pareto Efficiency takes into account cost effectiveness, but does not prioritize health impact. Equity outlets targeted to provide people with 300m radius equal access to WaterGuard in a country where there is only 1 pharmacy for 27,000 people. Currently 6,000 Pareto outlets and expect 8,000 outlets.
- Currently only 5 sales people, but need 8 in total.
    - Primary push to 11 key distributors;
- If you create the appropriate culture, Equity outlet can become a Pareto outlet.
- Each area of supply chain has its own turf
- Account Development Program is how they monitor distributors
- Volume versus Margin trade-off, product needs to be fast-moving; more than 5 cartons entails discount.
- Sales people compensated on 60:40 rule, where 60% of salary is fixed and rest is incentive payment based on a stretch goal.

Metrics:

- 1.5 stocking rule: Inventory amount should be 1.5x sales.
- Focus on inventory turn and working capital analysis
- Sales people selection criteria:
    - Experience with fast moving product
    - Distribution and sales experience
    - Marketing and sales diploma
- Margins along Supply Chain:
    - 3% Key Distributor to Wholesaler; to grow from 11 to 115

    - 5% Wholesaler to Retailer; buy from KD or sales rep
    - 22% Retailers margin
- Key Distributor Selection Criteria:
    - Reputation: Ask outlets where they get products from
    - Attitude*: in line with Equity & Efficiency, will they proactively push the product into secondary channels
    - Size: if too big, margin unattractive; if too small, not enough reach
    - Credit: No credit-sales, all cash only.

Market entry and expansion

- If a product is not cost-effective, finds partner to subsidize
- When launching product range, goes through qualitative and quantitative tests; utilizes 4Ps + Packaging template
- Slight leakage of NGO products which would cannibalize commercial products. (Gov't officials store NGO related epidemic goods, until after epidemic then sells for street value). Possible to create two separate brands for epidemic vs lifestyle or ensure that labeling is slightly different.

Understanding willingness to pay (pricing / costs)

- LQS – rapid assessment survey using 19 samples

Metrics:

- Conducts in-depths survey asking focus group of (19) whether they would buy product at a relatively low price and keep increasing price by x% until they don't want to buy anymore.

Expiration dates and replacement indicators on products

- Product age monitoring: 12 – 18 months

Customer education programs

- TV Commercials to get merchants aware of products, while radio is utilized to enhance rural user awareness.
- PSI disseminates posters around villages and WoM tactic utilizing illustrations in a story-telling methodology to spread awareness about clean water and safe storage. The latter allows for discussions to spur, which is an affective means of behavioral change.
- Build awareness along supply chain.
- Main competitor is behavior

Metrics:

- Communication Channel Criteria:
    - Penetration
    - Effectiveness (Message)
    - Cost Effectiveness
    - Budget/Affordability

Customer information capture

- Customer information captured from pilot tests and customer response program instituted by Key distributors
- Voluntary internal audit twice a year.

Metrics:

- Complaint Assessment Methodology
  - Critical (24 hours response)
  - Major (5 hours response)
  - Minor

Manufacturing

- Keep excess capacity for emergency-related issues (even increasing capacity by 4-fold doesn't satiate demand)
- High quality water treatment best practice from Coca-Cola & UniLever; partner in production is Ghion

Metrics:

- High quality assurance is a best practice

Financials:

- Car $52,000
- Cost of Delivery is 15% (including commissions, bonus, fuel, repair & maintenance)
- Sales people $250/ month
- Aim to move per unit cost from 0.20 -> 0.16 through reduction in fuel or R&M
- PUR: 0.50 Buhr is price, cost to manufacture is 0.78 Buhr
- Donor focused business, unlike private shareholder focused.
- Business model allows for free distribution and free stocking.

Metrics:

- Per Unit Cost
- Budget Line (over spend and mover from one budget line to another)
- Cash burn rate – goal is to exceed 100%
- No need to focus on cash flows, inventory costs, etc.
- Distribution and stocking costs monitored
- ***If it were a private organization***
  - Cost consciousness
  - Invest in demand creation
  - Credit from supplier; working capital focus, depending on bargaining power
  - Need for escrow account (deposit) for credit buffer

Health Impact

- Equity outlet on top of Pareto Outlet
- Important to have good relations with the government in order to push goals out for similar organizations.

- PSI has been relatively poor in PR and has not pushed policy action regarding HWTS. Yet, pre-positioning of PSI product prior to AWD epidemic helped PSI gain brand awareness and government acceptance. *(Important to note that Acute Watery Diarrhea (AWD) was title given to cholera outbreak by the government in order to limit mass panic hysteria and to negate the need to declare a state health emergency.)*
- Adding government as a stakeholder in social marketing overall adds to credibility, as Ethiopians expect government to know what is best.
- Behavioral change model driven by OAM (Opportunity, Availability & Motivation)

Metrics:

- *DALY (Disability Adjusted Life Years)*: DALYs for a disease are the sum of the years of life lost due to premature mortality (YLL) in the population and the years lost due to disability (YLD) for incident cases of the health condition. The DALY is a health metric that extends the concept of potential years of life lost due to premature death (PYLL) to include equivalent years of 'healthy' life lost in states of less than full health, broadly termed disability. One DALY represents the loss of one year of equivalent full health. (WHO: http://www.who.int/healthinfo/boddaly/en/)
- OAM criteria:
    - Product appeal
    - Brand appeal
    - Social norm
    - Product attribute (if like attribute, they may change behavior)
    - Knowledge
    - Social support: info, emotional, instrumental support

Tensei Asfaw
UNOCHA
January 9th 2008
Addis Ababa, Ethiopia

Organization background

- United Nations Office for the Coordination of Humanitarian Affairs, UNOCHA is responsible for the overall coordination of relief
  - Funding for relief only comes with the declaration of emergency, OCHA has access to funds and can provide relief support without emergency declaration

Key takeaway

- Disaster relief forces a lot of immediate training on safe water

Strategic relationships with partners and distributors

- UNOCHA worked with PSI to distribute Waterguard during the outbreak of AWD (Acute Watery Diarrhea)
  - PSI does the monitoring and evaluation for Waterguard along with UNOCHA – M&E does not take first priority during disasters

Other

- The WHO's responsibility in Ethiopia is to provide technical support and surveillance to the government ministries.
- Their goal is to work closely with the Ministry and UNICEF to reach the EU 2021 water access target for Ethiopia

Paul Deverill and Belinda Abraham
UNICEF
January 10th 2008
Addis Ababa

Interviewee's role

- Paul Deverill: Engineer; Director of the Water, Sanitation and Hygiene Program
- Belinda Abraham: Program Specialist; Water, Sanitation and Hygiene Program

Organization background

- Type: Inter-governmental organization, UNICEF Ethiopia Organization
- Goal: Support in emergency relief programs related to water, sanitation and hygiene, includes helping/coordinating in distribution of HWTS products and education on benefits/needs

Key takeaway

- Exit strategy opportunity post emergency when distribution of emergency products ceases
  - Communities are left with no way to buy products after emergency, so there is a demand to assess and connect to appropriate marketing outlets
  - Phased approach through all emergencies to maintain and follow up with communication channels/materials throughout to make it easier to switch to paying for products once emergency supply stops
- Private/public partnerships are good in theory, necessary almost, difficult though in reality
  - In Ethiopia, acceptance of private sector will take time as recommending buying/using HWTS products indicates lack of clean water supply from government, which has a conflict of interest
  - Rural communities trust what government provides, so these trusted sources will be compromised if government says water needs to be treated
  - However, 28% samples from trusted sources are contaminated and 45% of water stored from these trusted sources are contaminated
  - Behavioral package necessary to help with double contamination and water systems
- Distribution costs to rural environments are very high and not seen as sustainable

Product background

- No product, provider of support and coordination for emergency relief efforts

- Focus on partnering with products that are commodities (purifiers) and devices (replacements, etc)
- Partner with product providers such as P&G's PUR, PSI's Water Guard, and Samaritan's Purse's Gambelo biosand filter introduction

Strategic relationships with partners and distributors

- Partnerships with government: for overall direction, alignment, and coordination, policy and advocacy work during emergency interventions
- Partnerships with NGOs: for purchase, distribution and education of HWTS solutions
  - Distribution costs to rural communities are very high and not seen as sustainable without aid
- Partnerships with private sector: for purchase of HWTS products

Metrics:

- Number of product units delivered to emergency area
- Number of people reached via emergency relief efforts

Market entry and expansion

- Based on emergency area and communities affected
- How isolated is the community

Metrics:

- Number of people affected by an emergency situation
- Number of women and children affected by an emergency situation

Expiration dates and replacement indicators on products

- Ask groups of women to get information/feedback on product as a way to get to truth in absence of existing relationships and built-up trust

Customer education programs

- Emergencies in Ethiopia happen so often that regular programming becomes difficult to execute when managing fires constantly
- There is a lack of understanding on policy and rights by rural community users
- Because government and NGOs provide a water supply (regularly) and access to HWTS products (during emergencies), customers don't understand why they have to pay for clean water when a) the government should be ensuring their water sources are clean/safe water and b) they have received HWTS products for free during emergencies

Other

- Will be looking at three measures in the future:
  - Use: how are HWTS products used, who uses, who doesn't, and why not: status, access, gender

    - Sustainability: business and people practices and effect on supply chain and business viability, perception of HWTS solutions, borrow from sustainability index created by the World Bank (Wittingten)
    - Impact: health, behavioral, related specifically to children and families
- Hand Pump metrics example: supply chain, demand side, and customer satisfaction need to be connected to measure sustainability
    - Water committee existence
    - Bank account with access to $ for those running it/committee
    - People available and trained on fixing product
    - Tools to fix
    - Customer satisfaction
    - Condition, installation
    - Contribution
- Best practice in Malawi
    - Showed stock solution to demonstrate value of solution and the result was a reduction in cholera versus just distributing the product without education
- Self supply of water would help mitigate government issues pertaining to private sector partnerships and coordination

Menassie Kifle – EtMedix
Kasa - Medentech
January 9th 2008
Addis Ababa

Interviewee's role

- Menassie – Program Manager for EtMedix
- Kasa – Africa representative for Medentech

Organization background

- EtMedix is a for profit importer and distributor of pharmaceutical products
- Pride themselves in the quality of their service and the products they deliver
- Exclusive distributors of Medentech Aquatabs in Ethiopia
- Product to be launched in mid February
- Working on completely commercial model - full cost recovery (no subsidies)
- Responsible for all operational expenses including – import duties, marketing, repackaging and logistics
- Goal is to be sustainable as well as to reach urban, semi-urban and rural regions

Key takeaways

- Focused on developing brand name through various campaigns prior to launch of the product
- Aiming to create a 'lifestyle product' mentality versus an 'emergency use' mentality – possibly restricting sale of products to NGOs that are looking to distribute the product for free. May consider sales to NGOs if they are operating in isolated regions.

Product background

- Aquatabs – effervescent chlorine tablet for household water treatment
- Tablet retains 50% of chlorine to allow for extended purification capacity in the event of recontamination
- Tablets available individually or in strips of 10

Strategic relationships with partners and distributors

- EtMedix is the exclusive distributor of Aquatabs in Ethiopia
- Three pronged distribution model:
  - Pharmaceutical: EtMedix → Wholesalers → Pharmacy
  - Retail: EtMedix → Wholesalers → Retailers
  - NGO – EtMedix → NGOs

- Pharmaceutical channel will leverage pre-existing relationships with distributors and pharmacies
- New retail distribution channel is being created
  - Network will comprise of 5 key distributors each serving an exclusive region
  - Distributors can sell to retailers either directly or via sub distributors

Metrics:

- Criteria used to select distributors:
  - Attitude – passionate about product, willing to push product down the chain, trustworthy etc.
  - Capacity – ability to stock product, size and extent of network, diversity in distribution channels
  - Feedback – feedback on distributors from pharmacies
- Sales generated per distributor
- Sales generated per distribution channel

Market entry and expansion

- EtMedix is focused on an extensive brand creation campaign prior to the official launch of AquaTabs
- Clear set of criteria identified for market entry

Metrics:

- Criteria:
  - Size of population in a particular market
  - Availability of water
  - Need for household water treatment solution
  - Affordability

Understanding willingness to pay (pricing / costs)

- Use in-depth willingness to pay assessment to determine price of the product
- Assessment is conduct through the use of customer surveys and focus groups
- Price of other consumables such as cigarettes, bottled water, eggs etc. are factored into the assessment
- Results of survey are used to determine end price to the customer and to assess appropriate cost structure needed to meet that price
- EtMedix controls the price to the customer and recommends appropriate margins to stakeholders across the supply chain

Metrics:

- Willingness to pay
- Profit margins at each point in the supply chain

Expiration dates and replacement indicators on products

- Expiration dates are printed on the package containing the strips of tablets and on the strips

- Distributors and retailers are liable to monitor expiration dates

Customer education programs

- Customer education / awareness progress are tailored based on regional cultures, languages
- Awareness programs focused to deliver the following messages:
  - Importance of drinking clean water daily (lifestyle use)
  - Benefits of Aquatabs
  - Usage of Aquatabs
- Different media used based on customer profile
  - TV
  - Radio
  - Posters
  - Focus groups
  - Billboards

Metrics:

- Percentage of target population that purchased the product

Customer information capture

- No formal process to capture customer information
- Reliance on supply chain stakeholders for post sales services including customer complaints and customer service etc.
- Plan to have multiple 'trade visits' to audit compliance of supply chain stakeholders

Metrics:

- Average number of customer complaints per customer

Other:

- EtMedix packaging bears reference to international partnership with Medentech - customers consider international brands more trustworthy and credible
- To promote a lifestyle use mentality amongst its customers EtMedix will try to limit (if possible) the amount of AquaTabs it sells to NGOs who plan to distribute the tablet for free

LifeStraw Field Visit
January 11, 2008
Derba (Outside of Addis Ababa), Ethiopia

Background

- A study being done by Vesteguard, the London School of Hygiene and PSI involving the distribution of Lifestraws to 150 households (~700 Lifestraws). These 150 households are the test group and another 150 households who will receive the Lifestraws at the end of the study are the control group
- Both groups are surveyed once every two weeks to understand any health issues they are experiencing
- 3 people have been stationed near the village and travel to the village everyday to survey and collect water samples of study volunteers

Observations

- Surveyors have spent enough time (~3 mos) in Derba that the citizens have now grown to trust them
- Initially individuals who received the Lifestraw complained
    - it was very difficult to drink from and gave them a sore throat
    - it caused stomach pains
    - the child version (which can be turned upside down and allow for gravity filtration) should be given to all children from ages 1-7 (not just 1-3)
- After using the Lifestraw for a few weeks individuals indicate their stomach is generally feeling better
- Pricing for the Lifestraw has not been discussed, the test group is happy with the product, but we are unsure whether they would purchase it

The field visit illustrated the importance of customer acceptance. Many HWTS should be considered as experience goods; individuals may not understand the positive effects of the product until after using it for a little while. Launch programs may want to consider strategies involved with other experience goods, such as free giveaways. Of course, this all must be carefully considered given the developing target population and the negative effects free distribution can have on people's perception of the product.

Nana Osei Maioo
WaterHealth International
January 14th 2008
Accra

Interviewee's role

- Working at WaterHealth International for a month as Project Engineer, sole employee in Ghana
- B.S. Chemical Engineering
- M.S. Resource Engineering??

Organization background

- Type: Private sector, California-based international company just starting up in Ghana, so most of the discussion surrounded expected and planned efforts
- Launched in 1 community in early January, plan for 5 in same district
- Goal: WaterHealth International as worldwide company focuses on the delivery of highly affordable, clean water to even the most remote, low-income rural communities. WaterHealth's business approach includes partnerships with commercial institutions as well as international agencies, local, state and central government officials and non-governmental organizations. This facilitates rapid deployment of the company's products and associated services on a truly global scale.

Key takeaway

- Remote management of a growing organization in a new country can be difficult to deal with/manage given the challenges with communication, differing goals and incentives, and limited resources

Product background

- Blue Revolution: pump water from a raw source, pass through filters (2 multigrain sand and carbon filters), then patented UV-ray filter
- Pump in overhead tanks and then sold; 3 stainless steel tanks are centralized for a community with 5 outlets/taps for access
- Employ 2 operators and 2 representatives per community, people are already queuing up for water supply

Strategic relationships with partners and distributors

- WaterHealth sources parts → contractor builds → WorldVision executes
- Partner with World Vision to manage operations of systems
- Partner with local contractors to set up and build systems
    - Influential in Ghana, based on previously relationships
    - Trained in India on borehole drilling
- Piping and other pieces imported from India, even though they are available in Ghana with knowledgeable technicians, costs could be

lowered, but due to relationships and history, India is still used to source parts
- WaterHealth manages financing of systems
- Leverage community representatives, traditional leaders, and youth leaders who are influential in community
    - WorldVision facilitates in selection of committee from community

Market entry and expansion

- Look for bigger rural communities of around 2K people
- Water quality study
- Willingness to pay study, probit model
- Need to have transparency and broad communication, as at the start there is no protocol (e.g., contractor says: $ at site, rural bank, accessible to community representative, community says: $ generated should be used to maintain system directly)
- In India, communities pay for system all up front, whereas in Ghana there may be "soft loans" until WaterHealth makes money back and then the system's $ can be used to maintain itself → model is still being defined for Ghana

Metrics:

- Market size
- Water liters sold/to be sold

Understanding willingness to pay (pricing / costs)

- Look at income levels to help balance willingness to pay and conduct rapid appraisals, where community itself came up with 5 pesewa for 18L, so went with that price
- Looking at comparables is the main process for WTP assessments
    - Currently people buy 18L (size of a bucket) of water at 15 Pesewa from Ghana Water Company Limited approved sites
    - WaterHealth is going to sell for 5 Pesewa, so they believe their product is very competitively priced
- Government recommends 2 pesewa per 18L, which is different from what comparable products sell at and what people report their willingness to pay to be
- During market entry analysis phase, look at a probit statistical model for compost WTP as a proxy for water WTP
- Plan to have standard prices for water within an area/district

Metrics:

- Price per liter

Customer education programs

- Awareness of water-borne diseases exists, but habit, perception of immunity exists

- Taste differences exist, where treated water does not taste as good as river water
- Lots of piggybacking on educational efforts from the 1980s
- Some difficulty in education efforts when conditions such as Buroli Ulcers (from the TB family) are transmitted from swimming in water rather than just ingested, people don't get better from treated water and think that the water is still unclean/unsafe
    - Need to focus on awareness levels of key community members, policy makers, and even board members to manage expectations

Other

- Various levels of activity in rural communities
    - PVC tanks and trucks that store and distribute water from tanks: 15 pesewa for 18L
    - Little kids with carts from raw water sources: 10 pesewa for 23L
    - Sachet water which is sold everywhere: 5 pesewa for 500 mL
        - No checks and balances around accountability of some sachet water
        - Plastic waste created as a result of all sachet water
- Government seems to put water as a priority, there is a perception that they are committed and trying to focus on it

Jesse Jones Agbanya & Ebenezer Aidoo
Precision
January 15th 2008
Accra, Ghana

Interviewee's role

- Jesse Jones - General manager
- Ebenzer Aidoo – Sales and marketing executive
- Both Jesse and Ebenezer joined precision in 2007 to work on the launch of AquaTabs

Organization background

- Precision is the sole importer and distributor of Aquatabs in Ghana
- AquaTabs currently has limited availability in Ghana through a direct relationship between Medentech and Water Health International (a retail store selling Aquatabs in Accra, Kumasi and Tamale) – Precision is now Medentech's partner in Ghana and will take over all importation and distribution of Aquatabs – their official launch is scheduled for February, 2008
- Precision's first business which started in 2006 was the distribution of mosquito nets

Key takeaway

- Medentech's partnership with the Ghanaian government and AED will has helped significantly to build awareness
- This has also taken away some of Precision's marketing and training costs
- Government endorsements help significantly

Product background

- Aquatabs is a water treatment chlorine tablet manufactured in Ireland by Medentech, it is currently available in the commercial market in other developing countries in Africa and Central America.
- 1 Carton = 12 dispensers
- 1 dispenser = 20 strips
- 1 strip = 10 tabs
- Aquatabs come in different strengths – the tablet discussed here treats 20L of water

Strategic relationships with partners and distributors

- UNICEF purchased Aquatabs directly from Medentech for flood relief during the fall of 2007 in Ghana
- Precision also partners with Guiness Ghana for emergency relief
- Precision has special prices for NGOs

- Precision's original timeline was to launch Aquatabs on Dec 12, 2007, however due to delays they will launch in Feb 2008 – they are hoping to launch around the WHO Network conference on household drinking water treatment and storage because of the press coverage they could receive
- Cape Coast region is their first launch area
- Medentech/Precision have developed a relationship with the government and with AED to help promote health
    - Precision will train government volunteers on the use of Aquatabs and these volunteers will train citizens on health
    - Users like that the product is endorsed by the government

<u>Distribution Channels</u>

- Distribution channels are:
    - Commercial: kiosks, table top vendors, pharmacies, supermarkets
    - Institutional: ministry of defense, health centers
    - Emergency: UNICEF etc.
    - Health Programs: AED

Commercial Channel

- Ghana has 10 regions – goal is to get at least one major distributor in each of the 10 regions (found initial distributors through advertisements in the newspaper)
- Criteria for major distributors includes:
    - Well defined distribution network, reach
    - In fast-moving consumable goods
    - Can buy on cash basis (at least for the first 6 mos)

→ Precision sells to Major Distributors for 3p/tab
→ Major Distributors sell to Retailers for 3.5p/tab
→ Retailers sell to consumers for 4p/tab

- There is sometimes a sub-distributor between the retailer and the major distributor the 0.5p margin is split amongst them

Precisions Profitability and Costs

- Precisions costs include –
    - sourcing the tablets from Medentech
    - Re-packaging (6%)
    - Customs (35%)
    - Advertising (18%)
- All costs are added together to arrive at a total COGS, Precision's markup on that COGS is ~44%, there effective margin considering fixed costs is ~33%

Metrics:

- Trade margin across all points in supply chain
- Stocking and sales at each distributor

- To understand what channels and distributors are the most effective, this process will also hopefully help define the key distributor partners

Market entry and expansion

- Jesse and Ebenzer began in July of 2007 by conducting a survey to better understand the market including aspects of:
    - Water source
    - Water treatments
    - Willingness to pay
- They looked at both urban and pre-urban areas

Metrics:

- WTP

Understanding willingness to pay (pricing / costs)

- Initial surveys asked individuals what amount they would be willing to pay for Aquatabs, as well as if they would purchase a strip or not
- They believe that the WTP per tablet is 5 pesewas but have decided to price at 4 pesewas to make it more affordable for others, a strip is about 40 pesewas (one table treats 20L)
- A bucket of water (~20L) goes for approximately 5-50pesewas (untreated)

Metrics:

- WTP
- Base cost of water

Customer education programs

- Aquatabs/Medentech has partnered with the AED top help develop educational materials
    - This partnership was initiated by Kevin O'Callaghan because it was essential for Aquatabs success
- Also part of the Ghana Sustainable Change Project

Customer information capture

- Research done by AED indicated that consumers preferred the taste of water treated with AquaTabs

Osman Sahanoon
New Energy
January 16th 2008
Tamale

Interviewee's role

- Research and development officer

Organization background

- Non-profit organization founded in 1994
- Present in 21 districts in Ghana
- Involved with three main areas of development
  - Water and sanitation
  - Energy and environment
  - Sustainable livelihoods
- 52 employees in total
  - 24 permanent
  - 28 part-time

Key takeaway

- Survey and findings from Osman

Product background

- Water and sanitation
  - Development of wells and dams
  - Mechanization of wells
  - Rain harvesting
  - Community water treatment solutions
  - Household water treatment solutions
    - Free distribution of Pure Home Water kosim filters
    - Distribution of AquaTabs
- Energy and environment
  - Promotion of liquid petroleum gas
  - Afforestation for wood fuel
  - Anti-bush burning campaigns
- Multifunctional projects
  - Collaboration between energy and environment and sustainable livelihood streams
  - Developed multifunctional machine for large rural communities
    - Machine can be fitted with auxiliary parts based on the needs of the community
    - Functionality includes – battery power generation
    - Communities are required to pay 25% capital upfront; capital could be a combination of cash and labor for setting up the machine

        - The remaining 75% is to be paid in monthly installments

Strategic relationships with partners and distributors

- Partnered with Center for Disease Control and Medentech to conduct 16 week long test program to assess the effectiveness of Aquatabs in reducing incidence of diarrhea
- Test comprised of two groups of 240 households each (approximately 2000 people)
- One group served as an intervention group and the other a placebo group
- Preliminary results indicated that the incidence of diarrhea decreased in both groups (difference between the two groups was marginal)
- Decrease in the placebo group was primarily attributed to the storage mechanism (jerry can) that was provided to the volunteers
- Results also showed a 98% acceptance rate for Aquatabs
    - User acceptance was tested by asking volunteers whether they had been using the product
    - If households confirmed the use of the product, a water sample was immediately chlorine tested to confirm use

Metrics:

- No. of households that use the product

Peter Alhassan
Pure Home Water (PHW)
January 17th 2008
Tamale, Ghana

Interviewee's role

- PHW's top sales person

Organization background

- PHW is a social enterprise and legally registered non-profit organization based in Tamale, Ghana founded in 2005 by Susan Murcott, together with local partners, with 2 years start-up funds from the C.N. Hilton Foundation.

Key takeaway

- Peter sells the Kosim ceramic pot filters to places where he has relationships, which is extensive given his father used to be his community's chief.
- Works with a variety of stakeholders to spread awareness and effectiveness of Kosim filters, including Peace Corps, Guinea Worm volunteers and village influencers.
- Do not sell clay pots on credit anymore; Villagers willing to provide advances for clay pots.
- Better to have control over factory so they can match demand with supply without depending on transport

Product background

- Sells Kosim clay pot filter to 45 different communities in rural region of Tamale in and around Tolon District

Strategic relationships with partners and distributors

- Peace Corps has a volunteer in each community on a 2 year rotation. Given Peter is a Peace Corps community volunteer, Peace Corps assists in building awareness of the Kosim filter product
- Works with Guinea Worm Volunteers to spread awareness
- Other stakeholders involved in the process are village chiefs and influencers
- Sales people seem to be inversely influenced by incentives; volunteers for Peter get no money, but supposedly do it for community well-being and retain good repertoire with customers, Shaq's volunteers get paid $1 incentive/filter and volunteers don't do that well.

Market entry and expansion

- .Selection of community is based on where relationships exist and where there is need.

- Pure Home Water then establishes its own volunteer in these areas.

Understanding willingness to pay (pricing / costs)

- No extensive study conducted; but the prices are different based on whether it is rural or urban.
    - $6 rural price
    - $12 urban market price
    - $17 cost of goods
    - Comparable goods; $0.2 for an egg, $1.5 for a soap
- Businessmen buy from Peter and resell for $7-8.

Customer education programs

- Works with Guinea Worm Volunteers to spread awareness
- Salespeople are responsible for taking the lead on customer education.
- Salespeople conduct 1-on-1 interviews with PHW village reps.

Customer information capture

- Harvest ends in December and planning starts in March; disposable income for community residents is higher in December and they use up most income by March/April.
- While there is 70% penetration rate in communities (filters/households), not a reliable figure given that many households have as many as five filters (in these communities, extended families live in households)

Metrics:

- Murcott conducting surveys through MIT M.Eng and G-Lab students.

Financial

- 400 filters sold on credit and 20% of these people have not paid.

Osman Mumuni
International Aid
January 17th 2008
Tamale

Interviewee's role

- Works for International Aid, POU efforts for plastic biosand filters created by Dr. David Manz

Organization background

- NGO focused on personal rural water access since end of 2006, implementing since late November 2007 through December 2007
- At a rural water fair in Accra in Nov 2006, IA displayed the biosand filters to attract NGOs to distribute the product, planned to train, supervise and sell to NGOs
- Have implemented 260 biosand filters across 3 different communities
- Goal is to have more than 2000 filters in the near future

Product background

- International Aid owns the patent for the plastic biosand filters they distribute, initially concrete
- Earlier water initiative in Dominican Republic indicated that plastic biosand filters were better than concrete ones

Strategic relationships with partners and distributors

- US plastic company used to create and manufacture plastic filters due to the high mold costs ($300K)
    - Because the mold is very expensive, it cannot be produced locally because local vendors won't be able to break even
- Hoped to partner with commercial implementers and enabling NGOs, per a study done by 2 Cornell grad students on commercial implementation of the filters
    - Neither commercial piece nor NGOs have been successfully secured
    - Initially went to local NGOs, but these are funded by International NGOs so need their approval and backing
    - International NGOs such as WaterAid and CARE were not interested, so none of the other NGOs at any level were interested
    - Partnered with Carter Center, who have a focus on Guinea Worm Eradication, however due to some confusion the Atlanta HQ of CC were not entirely on board with partnership
- Due to difficulty in getting a working partnership, IA is implementing on their own with the help of a few volunteers from Carter Center

- Train local people to carry out maintenance of filters with some monetary consideration

Market entry and expansion

- Conducting a year long health impact study with UNC, funded by Dow Chemical to determine and prove effectiveness of filters, helps demonstrate to the government and constituents the importance of the filter
    - Need 500 filters before April implemented as a part of the goal of this study
    - ADRA: Adventist Day & Relief Agency in Ghana will implement 500-750 filters and pay for cost of implementing, while IA will train and start implementation, as they have done already

Understanding willingness to pay (pricing / costs)

- First a market awareness is needed before understanding the WTP
- Original plan was to have sub-urban population help subsidize costs to rural population, but the market does not exist as yet, so there is no margin to play with in sub-rural environments
- Will collect 5 Ghana Cedi/household over time for filters via a WatSan committee in each town
- Would like to use the money to help provide safe storage containers to each household to avoid recontamination
- Plan to recover transportation and personnel costs from a 10 Ghana Cedi charge and then figure out if there is any money left over to enhance programmatic efforts, etc.
- If they move towards the commercial avenue, they would like to have women traders stock filters in every big city and once the local communities are educated, they can buy from these traders

Customer education programs

- Plan to use print, TV education to create market and build awareness
- Have signposts for every community using the filters to build awareness

Dodzi
Ceramica Tamakloe (CT)
January 21st 2008
Accra

Interviewee's role

- Office Manager of Ceramica Tamakloe
- Main office contact for sales and distribution to retail and wholesale

Organization background

- Type: Private sector, creator of clay products
- Started off as a producer of decorative ceramic products, currently produces roof and paving tiles,(main business) Kosim Ceramic Pot Filter (secondary business)

Key takeaway

- Extremely high transportation costs when sourcing raw materials; a concern for business sustainability.
- Kosim Filter is only a viable business when there are NGOs funding the gap between CT's sales price and community members' purchase price.
- Government, World Bank, and University endorsements are a useful marketing tool in building up a brand.

Product background

- The Kosim Filter utilizes the CT Filtron technology (clay pot filter) which is a low-tech, low-cost, colloidal silver-enhanced ceramic water filter. Started producing filters in Ghana in 2003.
- In addition to Kosim Filters, they produce tiles; they attempted to produce roof tiles in the past, but the margins did not outweigh benefits. Rooftiles margin less than 20% and produced between 2003 and 2004, where they tried to sell directly to high-income end consumers. In 2008, they are again in the rooftiles business.

Strategic relationships with partners and distributors

- Potters for Peace representative Ron Rivera coordinated with CT to introduce the current design of the Kosim Filter
- Their largest sales are to Pure Home Water and Enterprise Works which comprise 30% and 70% of Kosim Filter related revenues.
- Enterprise Works ordered 10,000 filters over the last year and pays on installments based on when they receive funding.
- CT largely sells to NGOs on credit, but generally takes a deposit that amounts to 20% of the purchase price in order to purchase raw materials for the production of the filtration systems.

- Plastic spigots are purchased from US (0.77) and China (0.20) via Tomlinson; Chinese versions are easily breakable, currently testing viability of the US.
- Silver used for colloidal ceramic water filter imported from Spain.
- Filters were sold to Pure Home Water (PHW) originally at 10, but prices were jacked up to 12 due to increase petrol cost that affected transportation costs and cost of plastic storage bucket.

Market entry and expansion

- Focused on NGOs to enter and penetrate Kosim filter market and to deliver final goods to those who need it most (rural areas).

Metrics:

- Looks at profit margin to determine attractiveness of venture.

Understanding willingness-to-pay (pricing / costs)

- No willingness-to-pay surveys have been executed.
- Pricing is backed out by taking approximately a 20 - 30% margin along value chain.
- Initially put recommended retail on advertising as 18GHC, then suggested it as 15GHC on TV; now does not aim to put recommended retail price, given that transportation cost varies and that affects final price.

Manufacturing/Supply Chain

- Plants utilized at 90% capacity
- Clay and Plastic both sourced from Ghana. Two clays used in one mixture and when adding sawdust and burning in a kiln ends up with a smooth surface.
- 1,000 claypots can be made through shipments of two types of clay, one that costs 55 GHC to procure (30 for clay, 25 for transport) and the other which costs 300 GHC to purchase (40 for clay, 260 for transport); Sawdust residue is procured for free and costs 26 for transport to create 1,000 pots.
- 2000 GHC for hydraulic press machinery can create 250 claypots per day, while manual labor only makes 50 pots/day. Two machines that simultaneously work create 400 per day.
- Factory costs are 0.20GHC (takes into account electricity, water and fire), while it takes 12GHC to fire up 100 pots in the kiln. Labor costs are approximately 0.50 GHC pot per labor
- Only test that is instituted is the acceptable flow rate, which is approximately 1.5 to 2.5 L per hour.
- In addition, it costs approximately 4.3GHC per plastic storage bucket and 4GHC for the manufacture of the claypot.
- Final product transportation from factory to distribution site is borne by PHW & EW. For PHW, which trucks the filters from Accra to Tamale - that costs 650GHC for 500 claypots which is 1.3GHC per pot.

- Water Research Institute is a government affiliate which tests for water purity. The ceramic pot filter was tested by them. It cost 100 GHC to do these tests, which were paid for by Potters for Peace. Testing usually happens after 2,000 to 3,000 filters.

Customer education programs

- TV advertisements were created making end-users understand the need for water treatment, yet merchants were targeted for bulk purchase at the end of advertisement.
    - 72 45-second TV spot advertisements were placed in 2006 alongside World Cup; yet not successful as most end users listened to radio rather than TV and the duration of the ad campaign was too short to create sustained awareness.
- Currently focusing on targeting end-users through advertisements on the radio and newspapers.

Finances

- $200,000 bank loan for roof tile machine was provided based on 1 year of Pier 1 orders; bank loans had interest of 18-23%.
- Workers create approximately 2,000 pots per month.
- Revenue is currently split 70/30 between filter and tiles. Yet, tiles business only started in September.