

**HWTS IMPLEMENTATION INDICATORS**  
**Susan Murcott's Comments on Indicators**  
**January 17, 2007**

In Table 1 below, I try to spell out the component parts of several indicators, which basically could serve as individual survey questions. Also, I give some simple equations, and propose some indicator names.

Elements that need definition and agreement:

- “Practicing effective household water management” – see long list of possible components in Table 1 below.
- “targeted households” - could be an entire country, region or a smaller unit such as a project area.
- Agreed time period - ( $t_0$ ), ( $t_1$ ) ( $t_2$ ) – do we like present, 1 month, 1 year, or do we prefer longer or shorter time periods?

Implementing organizations can be government, NGOs and religious charities or commercial enterprises. One way to broadly categorize the implementation indicators is to think in terms of the producer's side, the distributor's side and the consumer's side. The “volume of sales” indicator put forward in Orlando Hernandez's Discussion Paper belongs in the producer category. All the indicators below belong in the consumer category, as does Rochelle's “% of household practicing effective household management.” There are many other important indicators that I would put in the producer category that are not given below, which would include manufacturing and materials and quality control indicators, performance standards, etc. Water quality parameters are an entire other category of indicators that cut across the producer/distributor/consumer framework.

**TABLE 1 -- HWTS IMPLEMENTATION INDICATORS – CONSUMER CATEGORY**

|    | <b>Item</b>                                                                | <b>Equation</b> | <b>Example Value</b> | <b>%</b> | <b>Suggested Indicator Name</b> |
|----|----------------------------------------------------------------------------|-----------------|----------------------|----------|---------------------------------|
|    | POSSESSION OF HWTS                                                         |                 |                      |          |                                 |
| A  | # households having a HWTS product in their home                           |                 | 9,000                |          |                                 |
| B  | Total target households                                                    |                 | 20,000               |          |                                 |
|    | # households having a HWTS product in their home / total target households | A/B             | 9,000/20,000         | 45%      | % Possession of HWTS            |
|    | REGULAR USE PATTERN & TIME                                                 |                 |                      |          |                                 |
| C0 | # households who are regular users of HWTS at acquisition ( $t_0$ )        |                 | 8,000                |          | Regular users at present time   |
| C1 | # households who are regular users of HWTS at 3 months ( $t_1$ )           |                 | 7,500                |          | Regular users after 3mo.        |

|     |                                                                                                      |         |              |       |                            |
|-----|------------------------------------------------------------------------------------------------------|---------|--------------|-------|----------------------------|
| C12 | # households who are regular users of HWTS at 12 months (t <sub>2</sub> )                            |         | 7,000        |       | Regular users after 12 mo. |
|     | # households who are regular user at present time / total target households                          | C0/B    | 8,000/20,000 | 40%   | % Regular Users            |
|     | # households who are regular users of HWTS at 1 month (t <sub>1</sub> ) / total target households    | C1/B    | 7,500/20,000 | 37%   | % Adoption                 |
|     | # households who are regular users of HWTS at 12 months (t <sub>2</sub> ) / total target households  | C12/B   | 7,000/20,000 | 35%   | % Sustained Use            |
| Ci  | Irregular users at present time / total target households                                            | Ci/B    | 220/20,000   | 0.01% | % Irregular Users          |
| Cn  | Non-users at the present time / total target households                                              | CnB     | 780/20,000   | 0.04% | Non-use                    |
| Ct  | Total Users                                                                                          | C0 + Ci | 8,220        |       | Total use                  |
| E   | EFFECTIVE HOUSEHOLD WATER MANAGEMENT                                                                 |         |              |       |                            |
| E1  | # of households that:<br>- knows that water source is not safe for drinking                          |         |              |       |                            |
| E2  | - knows that safe water prevents diarrhea                                                            |         |              |       |                            |
| E3  | - agrees that water needs to be treated to make it safe for drinking                                 |         |              |       |                            |
| E4  | - agrees that the technology is effective in making water safe for drinking                          |         |              |       |                            |
| E5  | - agrees that chlorine-based or chemical additive treatment products are safe\                       |         |              |       |                            |
| E6  | - agrees that one can make the time to treat water at home                                           |         |              |       |                            |
| Etc | - agrees that water treatment is among the priorities at home                                        |         |              |       |                            |
| ... | - has confidence in treating household water for drinking                                            |         |              |       |                            |
|     | - likes the taste of treated water                                                                   |         |              |       |                            |
|     | - feels good about providing treated water for all members of household                              |         |              |       |                            |
|     | - thinks others in the community treat their water consistently                                      |         |              |       |                            |
|     | - report others have recommended to treat water at home                                              |         |              |       |                            |
|     | - advocates water treatment to others in the community                                               |         |              |       |                            |
| F1  | <b>Water Treatment</b><br># of households that report having treated water for drinking in the house |         |              |       |                            |

|      |                                                                                                                                                                                    |  |                                        |  |                                         |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------|--|-----------------------------------------|
| F2   | # of households that show treated water in the house                                                                                                                               |  |                                        |  |                                         |
| F3   | # of households with a negative E. coli test in their treated water                                                                                                                |  |                                        |  |                                         |
| ...  |                                                                                                                                                                                    |  |                                        |  |                                         |
| etc  | # of households with positive test for chlorine residual among self-declared chlorine users                                                                                        |  |                                        |  |                                         |
|      | <b>Water Storage</b><br># of households that store water in:                                                                                                                       |  |                                        |  |                                         |
| G1   | - narrow-mouth container, covered with a hard cap and with a tap or                                                                                                                |  |                                        |  |                                         |
| G2   | - wide-mouth container with a hard cover and a tap or                                                                                                                              |  |                                        |  |                                         |
| G3   | - jerry can with tap made out of hard material or same bottle used for solar disinfection                                                                                          |  |                                        |  |                                         |
| ...  |                                                                                                                                                                                    |  |                                        |  |                                         |
| etc. |                                                                                                                                                                                    |  |                                        |  |                                         |
|      | <b>Water Serving</b><br># of households serving water:                                                                                                                             |  |                                        |  |                                         |
| H1   | - directly from (proper) container                                                                                                                                                 |  |                                        |  |                                         |
| H2   | without using any device to draw water from container, or                                                                                                                          |  |                                        |  |                                         |
| H3   | - using a ladle or a cup with a handle without touching the water, and keeping water drawing tool covered from dust and hands and stored in a fixed place out of reach of children |  |                                        |  |                                         |
|      |                                                                                                                                                                                    |  | $\frac{[F(1-n) + G(1-n) + H(1-n)]}{B}$ |  | % HH practicing effective HH management |
|      | <b>FINANCIAL</b>                                                                                                                                                                   |  |                                        |  |                                         |
| I1   | Did you purchase vs. given for free                                                                                                                                                |  |                                        |  |                                         |
|      | If purchase, did you pay the full cost up front                                                                                                                                    |  |                                        |  |                                         |
|      | If purchase, did you buy on credit                                                                                                                                                 |  |                                        |  |                                         |
|      | [Implementing group needs to indicate if there was any subsidy and if so, how long the subsidy is in place]                                                                        |  |                                        |  |                                         |
|      | # users/# trained or reached or trained with awareness, education, social marketing and other promotional efforts                                                                  |  |                                        |  |                                         |

|  |                                          |  |  |  |  |
|--|------------------------------------------|--|--|--|--|
|  | ... OTHER CATEGORIES...<br>see Hernandez |  |  |  |  |
|--|------------------------------------------|--|--|--|--|

The effective household water management section of Table 1, with variables E, F, G&H are the part pertaining to Rochelle's indicator. I think this, or something similar to this, allows us to see the components which are implied by Rochelle's indicator, but which are not presently made explicit.

As an example of what these indicators will show you, you could imagine a charity giving out HWTS to everyone in a region (e.g. Guinea Worm Eradication Campaign giving out cloth filters), so their % possession could be excellent – say, 100% at the time of the donation. But if the donation is not valued by the user over time, that is captured by the % sustained use indicator which shows the fall-off in use after 1 year.

### **Market Penetration (Quick and Murcott)**

Rob and I had an extended email conversation in 2004 about how to capture one-time (ceramic filters, cloth filters, etc.) vs. recurrent purchase products (chlorine, PUR, coagulation products, LifeStraws, etc.), and the upshot, from my perspective was this:

- Market penetration (for one-time purchase HWTS units)  
=  $\frac{\text{total number of units of product sold or distributed}}{\text{total population (or target population) of the given country}}$
- Market penetration (for recurrent purchase HWTS products)  
=  $\frac{(\text{total \# units sold or distributed}) / (\text{total \# units for 1 year's safe water}^1)}{\text{total population (or target population) in the given country}}$

Example: Assume 1.8 M bottle of chlorine are sold in Zambia in 1 year. It takes 12 bottles per year to provide safe water for one household (based on volume of bottle, concentration, etc). Population of Zambia = 10 M, therefore:

$$\text{Market penetration} = \frac{1.8 \text{ M} / 12}{10 \text{ M}} = 0.015 = 1.5\% \text{ penetration}$$

I am sure that Rob has much more to say on this subject, so I will also cc him on this.

Rob's recurrent acquisition indicator really applies best only to the household chlorine sales of the safe water system, and I am sure Greg Allgood of Proctor and Gamble would have a different and better way of expressing market penetration for the PUR product.

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