Fall 2004 Activities of the Implementation Working Group
Progress Report
December 15, 2005

This report covers the following topics:

1. Fall 2004 activities of the Implementation Working Group (IWG)
2. Task Leaders
3. Update on Implementation Activity 1
4. Update on Implementation Activity 2
5. Update on Implementation Activity 3
6. Update on Implementation Activity 4
7. Update on Implementation Activity 5
8. Update on Implementation Activity 6

Three appendices A, B and C are also included at the end of this document = draft templates towards a Web database of HWTS technologies and implementation programs.

This mailing also includes the following Annexes as attachments:

Annex 1 – Nairobi Meeting Notes – Implementation
Annex 2 – Implementation Working Group Members
Annex 3 - Key Excerpts from WHO Guidelines for Drinking Water Quality- 3rd Edition
Annex 4 – Sobsey's "Managing Water in the Home" Section 7- Monitoring and Evaluation + 2 Summary Tables (section relevant for the Implementation Working Group)

These Annexes are essential "background reading" for this effort.

1. Activities of the Implementation Working Group during Fall 2004 have included:

- Write-up of the Nairobi IWG meeting as an article for the Network Newsletter. Publication of Newsletter on new WHO Household Drinking Water Web site http://www.who.int/household_water
- Participation by IWG members in the September 23, 2004 session on household water treatment at the IWA World Water Congress and meeting with Jamie Bartram by Network members after the session;
- October 19, 2004 Washington DC meeting between Implementation Working Group co-chairs John Borrazzo and Susan Murcott;
- Participation by IWG members in the November WASH Hand washing Conference in Dakar, Senegal;
- Parallel activities of IWG members in HWTS implementation.

2. Task Leaders

In email and telephone exchanges with various Network members during Fall 2004 and at an October 19, 2004 Washington DC meeting between Implementation Working Group co-chairs John Borrazzo and Susan Murcott, it was recommended that the following IWG activities be coordinated by the following task leaders. Task leaders would either take responsibility for the accomplishment of that task between now and the next Network meeting in June 2005, or would be responsible for soliciting interest and appointing an "Interested Member" willing to do that task. The current task leaders are listed below:

IMPLEMENTATION ACTIVITY	TASK LEADERS	INTERESTED MEMBERS
1a. Create Web-based tool for HWTS technology and program options, organized according to key parameters 1b. Create Web-based database of implementation experience of the Members	S. Murcott (MIT)	CDC, IDE, MIT, Ministry of Local Government-Kenya - City Council of Nairobi (CCN) (need more info Dr. Nynku), SANDEC (need more info), UNICEF, USAID, UNC IDE, MIT, Ministry of Local Government-Kenya -City Council of Nairobi (CCN), Medentech (provision of data), P&G, SANDEC (provide data), National Nurses Assoc. of Kenya (NNAK) (provide data), Nursing Council of Kenya (NCK) (need more info for final decision)
2a. Develop agreed common guidance and approaches for technology verification --- 2b. Create Web-based tool for sharing technology verification methodologies and results	B.Gordon (WHO)	Anglican Church, AIT, Bushproof, CDC, CAWST, IDE, LSHTM, MIT, MedAir, Practica, Samaritan's Purse, UNICEF, UNC --- CDC, Emory, IDE, MIT Ministry of Local Government-Kenya - City Council of Nairobi (consumer of this information), UNICEF, UNC
3. Develop agreed common guidance for evaluation, including both impact evaluation for health, water quality, and behavior/use	S. Murcott (MIT)	CDC, CAWST, Emory, IDE, KWAHO, JHU, LSHTM, MIT, Ministry of Health-Gov't of India, Ministry of Local Government-Kenya, City

as well as program implementation evaluation		Council of Nairobi-Kenya, DOH/MOPH-Thailand, MOH-Kenya, Nursing Council of Kenya (NCK) (behavior/use, program implementation, evaluation), Practica, Rotary, USAID, Water Resources Management Authority
4. Develop tool for formative research	J. Borrazzo (US AID)	IDE, JHU, LSHTM, National Nurses Assoc. of Kenya (NNAK), PSI, USAID, MIT
5. Develop tool for estimating programmatic costs	Rick Rheingans (Emory) and Tom Clasen (LSHTM)	CDC, Emory, JHU, LSHTM, USAID, WSP-Africa
6. Develop program and business development checklist	S. Murcott (MIT) – will solicit interest and appoint appropriate team leader(s) for this task.	CAWST, IDE, MIT, PSI, Practica, USAID

ABBREVIATIONS:

AIT – Asia Institute of Technology
CAWST – Centre for Affordable Water and Sanitation Technology
CDC – Centers for Disease Control
DOH-MOPH-Thailand: Department of Health/Ministry of Public Health-Thailand
IDE – International Development Enterprises
JHU – Johns Hopkins University
KWAHO – Kenya Water for Health Organization
LSHTM- London School of Hygiene and Tropical Medicine
MIT – Massachusetts Institute of Technology
PSI – Population Services International
P&G - Proctor and Gamble
SANDEC = EAWAG/SANDEC - Swiss Technical Institute – Water and Sanitation in Developing Countries Program
UNC – University of North Carolina
UNICEF- United Nations International Children's Emergency Fund
US AID – United States Agency for International Development

The remainder of this report will give an update on IWG Activities

3. Update on Implementation Activity #1 – Web Databases of HWTS and Implementation Programs

Web Host

Bruce Gordon has indicated that due to conflict of interest, WHO is not able to specify on its Web site HWTS technologies by manufacturer or programs by name. Instead, MIT will host the Web site for HWTS technologies and implementation programs and this will be linked to the WHO site. The MIT Web site: http://ceemeng.mit.edu/~water has been in the process of switching lockers in order to accommodate this commitment. The new URL is: http://web.mit.edu/watsan
Both URLs are and will remain in effect. Network related information on HWTS technologies, products and programs will be accessible through this site as well as information on the MIT Civil and Environmental Engineering Department's water/sanitation in developing countries projects. The Webmaster for this Network IWG site is Rob Dies <robdies@yahoo.com> (MIT, M.Eng'03)

Implementation Activity #1a (Create Web-based tool for HWTS technology and program options, organized according to key parameters) and Implementation Activity #1b (Create Web-based database of implementation experience of the Members)

On September 23, 2004, directly after the IWA-Marrakech session on household water treatment and safe storage, a meeting of Network members was held, with Jamie Bartram present. Susan Murcott circulated drafts of two templates (microbial and chemical) to be used for the Web technologies database. Jamie Bartram and Mark Sobsey both made the astute comment that we want to be quite deliberate in what data we are seeking to obtain before we simply go out and collect data (we all appreciate the "information overload" we experience these days). Jamie suggested that IWG members should be solicited as to: "What are the objectives of the Web database?" The templates should reflect these objectives. Another key observation made at this meeting relative to the IWG Web-related tasks is that it takes time and resources to collect and communicate this information, and we want to be sure as to exactly what information we are seeking

To that end, and in order to stimulate your thinking on this subject (but not to champion any particular themes or items for inclusion or exclusion), appended below are two templates (Appendices A and B) for your consideration:

1. HWTS technologies template (Appendix A)
2. HWTS Implementation programs/products template (Appendix B)

It is emphasized that these are an effort to provide a wide range of possible technology and implementation-related questions. This is NOT an exhaustive list, nor do we want to gather ALL this information. What we are trying to show here is a kind of "menu" of

possibilities. We welcome your comments, critiques, additions, deletions, new submissions

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PLAN OF ACTION!!!

December 15: Circulate HWTS Technologies and HWTS Programs/Products Templates to IWG Members.

December 30: Obtain 1 round of feedback by December 30.

December 31: Revise templates according to feedback from IWG Members.

January 2005: Field test templates on about 10 different HWTS programs/businesses In Kenya

February 2005: Revise templates again based on feedback from HWTS programs/businesses in Kenya and circulate to Network's HWTS programs/businesses.

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4. Update on Implementation Activity #2 (2a. Develop agreed common guidance and approaches for technology verification; 2b. Create Web-based tool for sharing technology verification methodologies and result)

Bruce Gordon has indicated that either a sub-group (or appropriate individuals) of the WHO Network will either give input to, or participate in, an expert group of the WHO Guidelines for Drinking Water Quality charged with developing protocols and evaluation criteria for technology verification. Web-based tools for sharing technology verification methodologies and results will come later.

5. Update on Implementation Activity #3 (Develop agreed common guidance for evaluation, including both impact evaluation for health, water quality, and behavior/use as well as program implementation evaluation)

The IWG's Action Plan, Activity 3 is to: "Develop agreed common guidance for evaluation, including both impact evaluation for health, water quality, and behavior/use as well as program implementation evaluation." This activity indicates 3 "targets:"
1. Health;
2. Water quality;
3. Behavior/use.

The new WHO Guidelines for Drinking Water Quality (GDWQ), 3rd Edition (2004) (See excerpt in Annex 3 for more detail on the GDWQ targets or see GDWQ on line at: http://www.who.int) presents 4 "health-based targets":

1. Health outcome
2. Water quality
3. Performance
4. Specified technology

"Behavior/use" is missing from the GDWQ list, but is a potentially valuable target in implementation evaluation. "Performance" and "specified technology" targets are missing from the IWG list. (See Annex 3).

According to the GDWQ:

Specified technology targets are most frequently applied to small community supplies and to devices used at household level. They may take the form of recommendations concerning technologies applicable in certain circumstances and/or licensing programmes to restrict access to certain technologies or provide guidance for their application. (GDWQ, Ch.3. p. 41)

Of course, private businesses that undertake HWTS implementation marketing and sales activities may have quite different targets. We need to capture those as well, both in our data collection on implementation activities an in evaluations.

Once the IWG concurs on draft templates for data collection on technologies and implementation programs/products, Susan Murcott's 2004-2005 MIT engineering/business/public health team can offer to field test these templates on about 15-20 HWTS organizations and businesses in Kenya during January 2005. Through this activity of research on a variety of HWTS implementation programs we may be able to get a better sense of how to proceed with Activity 3. Based on this field work in Kenya, one MIT Master of Engineering student together with one Harvard School of Public Health Masters student will work together to develop an evaluation tool for HWTS by the end of this academic year as part of their Masters thesis work. This will be done by May 2005. We are in touch with many of the organizations that participated, from Kenya, in the Nairobi WHO and CDC meetings, including the Ministry of Water, the Ministry of Health, Kenya Water for Health (KWAHO), Care-Kenya, CDC, PSI, P&G, Anglican Church, Samaritan's Purse, Bushproof, Oriang Women's Pottery Group, Society of Women with Aids (SWAK), and others.

A parallel activity to this that Murcott have been engaged in is to collect documentation on monitoring and evaluation from different HWTS organizations and agencies. To date we have info from the National Sanitation Foundation, the EPA, OCETA's Environmental Technology Verification Program for household arsenic remediation systems, West Africa Water Initiative (WAWI), CAWST, Intermediate Technology Development Group (ITDG), the American Chemical Society as well, a growing

collection of articles from individual programs. We invite and welcome IWG members to send Murcott <murcott@mit.edu> other evaluation tools of which they are aware. We are happy to include those on a "documents" section of our Web site.

6, Update on Implementation Activity #4 (Develop tool for formative research)

USAID, in October 2004, awarded a contract to the Academy for Educational Development (AED) to implement its Hygiene Improvement Project.(HIP). The HIP has among its objectives the development of formative research tools for behaviors related to household water quality, hand washing and sanitation During the 1st quarter of 2005, USAID, through the HIP, will engage other partners, including those who have expressed interest in this task who are members of the WHO Network's' Implementation Working Group (IDE, JHU, LSHTM, National Nurses Association of Kenya, PSI, MIT – see Annex 2 for "Abbreviations" of these organizations and the names of members associated with these organizations) to begin the process of developing and field testing the first of these tools.

Other interested people NOT included in this list should indicate their interest to John Borrazzo <jborrazzo@usaid.gov> as soon as possible.

7. Update on Implementation Activity #5 (Develop tool for estimating programmatic costs)

Tom Clasen has circulated the first draft of this tool ("Cost Assessment of Selected Household Water Treatment Interventions") to a limited number of Network members on December 5, 2004. Revisions will take place and a new version will go out shortly.

8. Update on Implementation Activity #6 (Develop program and business development checklist)

Appendix C is a draft program and business development checklist. Please give comments on this draft by December 31. Based on your comments, a new version will be generated and re-circulated.

APPENDIX A

DRAFT

Template for Household Water Treatment and Safe Storage (HWTS) Technologies for Microbial Contamination

December 2004

1 General Info

1.1 Name of person reporting this information on a HWTS technology:
Name:
Affiliation:
Address:
Email:
Telephone:
Fax:
1.2 Date submitted:
1.3 Web Site for this technology?

2.1 HWTS Technology Description

2.1 Technology Name:
2.2 Implementing Business, NGO, Agency, Government, Academic Institution, Other?
2.3 Brief (1-2 sentence) Technology Description
2.4 Technology Category:

1. Safe Storage
2. Sedimentation and other pre-treatment approaches
3. Coagulation/Flocculation
    Examples:
        * Iron Salts
        * Alum Salts
        * Natural polymers
4. Particle Filtration
    Examples:
        * Cloth
        * Ceramic water filters
        * Sand
        * Intermittent household slow sand filters
5. Absorption
    Examples:

* Granular activated carbon
* Activated alumina or other metals

6. Membrane Processes (microfiltration, ultrafiltration, electrodialysis, nanofiltraton, reverse osmosis)
7. Disinfection

Examples

* Boiling
* Chlorine and the Safe Water System
* SODIS
* UV Disinfection Systems
* Other disinfection methods

8. Combined (multiple process) HWTS Systems

Examples:

* Rough filter + granular activated carbon filter + chlorine disinfection
* Pur (iron sulfate + calcium hypochlorite + other)
* Ceramic candle + sand + chlorine disinfection

9. Other

2.5 Major Physical Components of the System:
2.6 Detailed HWTS Technology Description (Please provide photos and schematic if available)

3.1 HWTS Operational Monitoring

3.1 Please provide the operational monitoring parameters used to access system performance (e.g. pH, turbidity, chlorine residual, flow, etc).
3.2 Frequency of operational monitoring?
3.3 Record keeping or database of monitoring results?
3.4 Mechanism of feedback to users?

4.1 HWTS Process Validation[1]/Verification[2]

This section is to ascertain what technology validation and/or verification assessments have been performed.

This subject will be addressed in Activity Item #2 of the IWG Work Plan

[1] Validation is defined as "an investigative activity to identify the effectiveness of a control measure. It is typically an intensive activity when a system is initially constructed or rehabilitated. It provides information on reliably achievable quality improvement or maintenance to be used in the system assessment in preference to assumed values and also to define the operational criteria required to ensure that the control measure contributes to effective control of hazards". (WHO Guidelines for Drinking Water Quality, Ch. 4, p.67)

[2] Verification is defined as "the use of methods, procedures or tests in addition to those used in operational monitoring to determine if the performance of the drinking water supply is in compliance with the stated objectives outlined by health-based targets and/or whether the Water Safety Plan needs modification and revalidation.

5. Costs of HWTS Technology:

[See Clasen's "Cost Assessment for Selected Household Water Treatment Interventions TFC Draft Dec. 4. 2004]

6. Qualitative Comments

(These qualitative comments could be framed in many ways. Here is one way:)

6.1 Pros of this technology:

6.2 Cons of this technology:

6.3 Comments Pertaining to Social Acceptability/Customer Satisfaction

6.4 Comments Pertaining to Financial Viability/ Sustainability

6.5 Comments Pertaining to Economic Viability/Sustainability

6.6 Comments Pertaining to Institutional Viability/Sustainability

6.7 Comments Pertaining to Environmental Impact/Sustainability

7. Publications

7.1 Please List All References to Published Studies (s) Describing This Specific Technology: (please provide electronic or hard copy if possible):

7.2 Email address of corresponding study author:

7.3 Year of study

7.4 Country of study

7.5 Type of home water treatment and safe storage intervention

7.6 Period of intervention study (how long did the intervention study run for?)

APPENDIX B

DRAFT[3]

Template for Household Water Treatment and Safe Storage (HWTS) Implementation Programs/Products addressing Microbial Contamination December 2004

Please contact Susan Murcott (murcott@mit.edu) for draft of Appendix B.

[3] Apologies to the IWG readers. Due to cutting and pasting, the numbering in this section is somewhat random.

APPENDIX C

DRAFT
A business development checklist for implementing household water treatment and safe storage

by
Yann Le Tallec (for MIT Sloan Business School G-Lab/H2O-1B! Team)
June 2004

This summary proposes a general business methodology to foster good practices in the implementation of household water treatment and safe storage (HWTS).

1. Analyze the target country situation
   - Identify the water problems with their causes, localization and the associated health problems, and the water treatment needs.
   - Learn about the local economy and culture, especially how they define the social and household structure, the water and health related behaviors. Local specificities need to be integrated in the implementation of HWTS.
   - Review the objectives, actions and resources of the health and water-related actors, including government, NGOs, and industries.

2. Estimate population water needs and priority areas
   - Estimate the number of households affected by the target water problem (e.g. microbial, arsenic, fluoride, etc.)
   - Prioritize the regions that are most affected, most willing to adopt the water treatment and most convenient to implement in.

3. Assess the different technology options (not only household level)
   - ✓ Evaluate whether a technology is socially, technically, financially and economically sustainable (refer to WHO Network Implementation Working Group Plan for specifics on this assessment).
   - Pick the best technologies available and test them on the lab and field.

4. Estimate population resources and willingness to pay
   - Estimate the resources of the population needing HWTS.
   - Estimate the willingness to pay by the affected households for HWTS, as well as their future adoption rate provided the technology breaks through.
   - Investigate options for non-monetary contribution to the HWTS product
   - Develop a model for the needed subsidies based on Sections 3 and 4, such that the beneficiaries take ownership of the water treatment solution.

5. Identify efficient promotion channels
    - Identify the decision-makers and the end-users given the local household structure.
    - Find appropriate channels to promote the HWTS solution and to educate the target population (e.g. direct marketing, collaboration with other water supply implementers).
    - Define an efficient marketing message for the target population and share it among the different actors so that there is no contradictory effort in the field.

6. Establish a realistic business model
    - Set up a supply chain that can be implemented, controlled and developed in the future according to the initiative.
    - Prepare a comprehensive and sustainable financial plan integrating the subsidy model.
    - Outline business development scenarios.

7. Monitor the quality and the field usage of the technology
    - Monitor and evaluation the quality and effectiveness of the water treatment solution.
    - Sustain the education effort of the actual and prospective users. Some population categories might need particular attention, e.g. children, older people, etc.
    - Broaden the sense of responsibility of the population towards their water needs because a HWTS technology might mitigate a particular water problem but is probably not the long-term solution to water problems. Long term solutions would involve a piped supply for all users.