



National Household Water Treatment and Safe Storage Strategies and Integrated Household Environmental Health Interventions

**Report of a Workshop
for selected countries in East Africa**

Entebbe, Uganda

27 - 29 June 2011

**WHO/UNICEF International Network on Household Water Treatment
and Safe Storage (INHWTS)**

organised in collaboration with



the Water Institute at the University of North Carolina

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1. Executive summary

This report contains the proceedings of a workshop for selected countries from East Africa organised by the WHO/UNICEF International Network on Household Water Treatment and Safe Storage (the “Network”), in collaboration with the Water Institute at the University of North Carolina at Chapel Hill. The workshop was held in Entebbe, Uganda from 27-29 June 2011 with the aim of facilitating the development of action plans on integrated approaches to household water treatment and safe storage and other household environmental health interventions.

The workshop was hosted by the Government of Uganda with support from the World Health Organization (WHO) and the United Nations Children’s Fund (UNICEF). The local organising committee consisted of stakeholders from the Ministry of Water and Environment, Uganda, the Ministry of State for Health, Uganda, the Uganda Water and Sanitation NGO Network, WHO and UNICEF. Nearly 70 participants from eight countries attended the workshop, representing 40 different institutions.

At the workshop, stakeholders reviewed the status of country-specific progress in household water treatment and safe storage (HWTS) and identified strategies for addressing gaps in enabling environments for HWTS at the national level. The workshop provided examples and know-how on the integration of HWTS into household-level environmental health interventions and highlighted the importance of monitoring and evaluating its correct and consistent use.

Government officials, project implementers, community health care workers and researchers from Ethiopia, Kenya, Rwanda, Tanzania, and Uganda collaborated within national teams to develop national action plans for scaling up HWTS in their countries. On the final day of the workshop the teams presented their action plans and sought feedback from the other participants.

Key areas covered in these action plans included:

- increased advocacy of health benefits of HWTS (especially among vulnerable groups) within national governments and across ministries;
- integration of HWTS into ongoing national health programmes focused on child and household environmental health (i.e. malnutrition, child and maternal health, home-based care for individuals living with HIV/AIDs, improved cookstoves, malaria prevention);
- promotion of HWTS as a preventive measure in potential cholera outbreak areas;
- creation of national working groups to address key challenges relating to effective use of HWTS, financing and monitoring and evaluation and moving to scale.

At the conclusion of the meeting government officials were asked to revise their action plans based on the feedback received and then submit them to WHO and UNICEF, the co-hosts of the Network. Once received the two organisations would provide seed funding to support finalisation and initial steps for implementation of action plans and assist in further resource mobilisation.

As a result of the workshop, a number of programs, knowledge exchange initiatives and advocacy efforts being conducted by Network participants came to light and will be shared with the Network. In addition, participants expressed interest in establishing an East Africa Chapter of the Network for greater South-South collaboration, communication and information sharing among a peer group of countries. Officials agreed to share progress of their action plan implementation via the various Network communication media.

2. Background and introduction

The large burden of diarrhoeal diseases continues to drain important resources from developing countries. Approximately 88% of diarrhoea cases worldwide are attributable to unsafe water, inadequate sanitation, or insufficient hygiene. These cases result in 1.9 million deaths each year, the majority of which are preventable, mostly among children under the age of five¹. After pneumonia, diarrhoea is the second leading cause of death among children under five.² Drinking water contaminated by the bacterial, viral, or protozoan pathogens is one transmission route for diarrhoeal disease.

Low-cost interventions for household-based treatment of drinking-water and safe storage can significantly reduce the pathogen load in drinking-water and, thereby reduce the risk of diarrhoeal diseases. The 7-point strategy for comprehensive diarrhoea control, adopted by UNICEF and WHO in 2009,³ includes household water treatment and safe storage as a key proven method of primary prevention that also increases effectiveness of other interventions specifically aimed at reducing child mortality.

In recent years countries in East Africa have demonstrated strong interest and commitment to the formulation of national HWTS strategies and the implementation of HWTS activities. Network workshops held in Ethiopia (2007), Kenya (2007) and Tanzania (2009) provided an opportunity to develop the initial foundation for sound national HWTS strategies and share experiences in implementation. In order to build on these initial efforts on national HWTS strategies a workshop for selected countries from East Africa was held in Entebbe, Uganda on 27, 28 and 29 June 2011.

Recent evidence has illustrated the cost savings and health benefits of integrating HWTS with other household environmental health interventions, such as low-emission household cookstoves.⁴ Integration of such interventions can be facilitated by increasing linkages among existing national health programmes aimed at vulnerable populations, such HIV/AIDs prevention and care and child and maternal health programs. Such integration efforts are one of the strategic objectives of the Network's Phase II Strategy (2011-2016)⁵.

The workshop was organised under the auspices of the WHO/UNICEF International Network on Household Water Treatment and Safe Storage (the "Network"), in collaboration with the Water Institute of the University of North Carolina at Chapel Hill. The workshop aimed to facilitate the

¹ WHO. (2004). Global estimates of environmental burden of disease - 2004 data. Available at: http://www.who.int/quantifying_ehimpacts/global/envrf2004/en/index.html.

² Black, R.E., Cousens, S., Johnson, H.L., Lawn, J.E., Rudan, I., Bassani, D.G., Jha, P., Campbell, H., Walker, C.F., Cibulskis, R., Eisele, T., Liu, L., Mathers, C., Child Health Epidemiology Reference Group of WHO and UNICEF. (2010). Global, regional, and national causes of child mortality in 2008: a systematic analysis. *The Lancet*, (5)375:1969-1987. Available at: [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(10\)60549-1/abstract](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(10)60549-1/abstract).

³ UNICEF/WHO. (2009). Diarrhoea: Why children are still dying and what can be done. Available at: http://www.who.int/child_adolescent_health/documents/9789241598415/en/index.html.

⁴ Shaheed, A. & Nigel, B. (2011). Combined household water treatment and indoor air pollution projects in urban Mambanda, Cameroon and rural Nyanza, Kenya. Geneva: World Health Organization. Available at: http://www.who.int/household_water/resources/HWTSIndoorAirV3.pdf.

⁵ International Network on Household Water Treatment and Safe Storage. Strategy and Funding Proposal. March 2011. Available at: http://www.who.int/household_water/resources/en/.

formulation of action plans on integrated approaches to household water treatment and safe storage and other household environmental health interventions. In addition to work on national action plans, the workshop also provided a forum to share experiences regarding the integration of HWTS with other household environmental health interventions. The workshop's final programme is presented in Annex 1, and the opening remarks by the Hon. Dr Nduhuura B. Richard, Minister of State for Health are presented in Annex 2.

Participants came from Ethiopia, Kenya, Rwanda, Tanzania and Uganda. Nearly 70 participants attended from the five countries, from international organisations and NGOs, representing 40 different institutions. The list of participants is presented in Annex 3.

The workshop was hosted by the Government of Uganda with support from WHO and UNICEF. The organising committee consisted of stakeholders from the Ministry of Water and Environment, Uganda, the Ministry of State for Health, Uganda, the Uganda Water and Sanitation NGO Network, WHO and UNICEF. The active engagement of the WHO and UNICEF offices in Uganda and the efforts of local government officials Ms Lilian Idrakua (Ministry of Water and Environment), Eng Aaron Kabirizi (Ministry of Water and Environment) and Ms Julian Kyomuhangi (Ministry of State for Health) are gratefully acknowledged.

3. Objectives and workshop programme

The major aim of this workshop was to facilitate formulation of action plans regarding national strategies on HWTS with a particular focus on integrated household environmental health interventions.

Following are the specific workshop objectives:

1. Share approaches and discuss processes for including HWTS in national strategies and policies in the East Africa region;
2. Foster linkages between implementers and government;
3. Share lessons learned and develop regional HWTS nodes of information and resource sharing;
4. Serve as a case study for exploring synergies and integrated approaches between HWTS and other environmental health efforts focused at the household level; and
5. Develop national action plans for post-workshop strategy and implementation related activities.

Over the course of the three-day workshop, the following topics were covered:

Day 1

- Overview of evidence base, status and key challenges concerning HWTS.
- Update on Network Phase II Strategy (2011-2016) and key areas of work.
- Status of national HWTS strategies and policies, programmes and monitoring in East African countries.
- Successes and challenges of reaching vulnerable groups.
- Strategies and considerations for moving to scale.

Day 2

- Continuation of presentations and discussions on integration.
- Importance of an agreed framework and indicators for monitoring & evaluation of HWTS.
- Role of HWTS in emergency response and disaster preparedness plans.
- Group work on action plans in national teams.

Day 3

- Examples of integration of HWTS into national health and WASH programmes targeting vulnerable populations.
- Presentation of country action plans (Ethiopia, Kenya, Rwanda, Tanzania, Uganda).
- Discussion of action plans and feedback for national teams.
- Next steps, resource mobilisation, establishing/strengthening national and regional Networks, implementation of action plans.

4. Synthesis of discussions

The following sections summarise issues raised during panel sessions, speaker presentations and group discussions into a number of broader themes:

Scaling-up

East African nations have made encouraging progress in expanding coverage of HWTS and have connected to policy discussions on health and development. This has yet to be translated into clear ownership by one specific ministry; current fragmentation frustrates decision-making, planning and harmonisation of implementation and reporting. Still, enabling environments appear to be improving, through the gradual development of work plans for HWTS, collaboration with civil society, and an increase in local research capacity. These factors provide the impetus to move beyond task force discussions to action at the national level. Policy-makers acknowledge the importance of an enabling environment in facilitating resource mobilisation. For example, greater clarity on the regulatory framework and sector-wide planning may attract donor funds and private investment. Workshop participants committed to developing strategies for scaling of HWTS and greater communication among implementers to avoid duplication of efforts.

Integration

Although HWTS has been shown to effectively reduce the incidence of diarrhoea, when combined with other complementary interventions targeting vulnerable populations, such as young children or people living with HIV/AIDS (PLWHA), there is potential to realise greater cost savings and health benefits. For example, by integrating HWTS with other WaSH interventions, such as hand-washing and improved sanitation, multiple routes of disease transmission can be hampered or blocked. In addition, when HWTS is combined with other household environmental health interventions such as insecticide-treated mosquito nets and/or improved cookstoves, a number of other diseases can be addressed. Synergies in programme delivery and improved health outcomes can help to maximise limited resources of national health programmes. Workshop participants shared their experiences in this area, with particular focus on the integration of HWTS into programmes targeting malnourished children, PLWHA, or those affected by emergency or humanitarian crises.

Good practices and lessons learned

Implementers and policy-makers in East African countries shared practices, programmatic strategies and regional initiatives. Of particular concern was the effect of subsidies on the local commercial market for HWTS products. In this respect the discussion emphasised that the method, distribution strategy and ultimate cost to end-user should be culturally and contextually appropriate for the population at risk. In emergency situations or health-care settings use of subsidies may be necessary to reach those most at risk.

Leaders emerged from these discussions who expressed their readiness and willingness to help stimulate greater South-South dialogue and collaboration on these and other issues, and there was an in-principle agreement to look at forming an East Africa chapter of the Network. This is encouraging given the cultural and climatic similarities of the region's countries and the need to adapt "best practice" to purpose, local context and need. The Network can play an important role by acting as a communication hub and drawing as needed from the expertise of the WHO, UNICEF, and the Network's participant base of over 100 organisations globally.

Emergency response

HWTS has proven to be an effective response mechanism in emergency situations. It has played an important role in the efforts of WaSH cluster response in recent calamitous events in Haiti, Pakistan and the Horn of Africa. Challenges remain, however, regarding the deployment of HWTS in such situations. One major hurdle is the use of inappropriate methods or lack of training on the correct use of various methods. Due to time or resource constraints, monitoring and evaluation of these efforts is often not included in funding proposals or programme plans, undermining the ability to assess effectiveness and target specific areas for improvement⁶. Such evidence would not only be useful for enhancing preparedness, but would also improve accountability and potentially facilitate resource mobilisation for future response efforts. Other effective strategies that can bolster readiness and HWTS use are pre-positioning of stocks and education initiatives to inform the community about proper use in disaster or outbreak-prone areas prior to a crisis. For their part, governments should establish protocol and response strategies to guide and harmonise aid efforts.

5. Presentations and discussions

This section briefly summarises issues discussed during workshop presentations on a variety of topics. Please refer to annexes 4A and 4B for further information and links to download presentations.

⁶ Lantagne, D. and Clasen, T. (2011). *Project Report: Assessing the Implementation of selected household water treatment and safe storage (HWTS) methods in emergency settings*. London School of Hygiene and Tropical Medicine, London, UK. (Commissioned by UNICEF and OXFAM GB).

Session 1: International efforts and national needs

Daniele Lantagne, Harvard University

Dr Lantagne began by presenting evidence from a meta-analysis on the health impact of HWTS. The reduction in diarrhoea resulting from HWTS is similar to that obtained by hand-washing or sanitation interventions. However, she noted these figures may overestimate the health impact due to methodological issues in the studies such as biases in measuring diarrhoea through self-reporting. The data also does not provide clear guidance on which HWTS method is most effective or appropriate in a given economic, environmental or social context, a key challenge to scaling-up of programmatic work at the national level. Dr Lantagne also discussed other challenges such as the monitoring of correct and consistent use of HWTS, approaches for reaching vulnerable populations, and the development of strategies that ultimately lead to long-term and sustainable use in the communities served by programmes.

Michael Forson, UNICEF

Mr Forson presented on big picture issues that workshop participants should keep in mind when developing supportive strategies and action plans for HWTS. Perhaps the most important questions are to identify which national ministry or authority should take ownership of HWTS and what models can be used to involve the private sector. Ghana's efforts in HWTS since 2007 provide a useful case study example on how the conditions for scaling up of HWTS evolved in a five-step process. Mr Forson also discussed three environments needed for achieving scale: the enabling environment, the developing environment and the sustaining environment. This was cited as a key take-home message for many participants.

Maggie Montgomery, World Health Organization

Dr Montgomery provided an update on the Network's overall strategy and activities, including a focus on vulnerable populations and integration of HWTS with other environmental health household interventions. She discussed the Network's role in providing input to the research agenda for HWTS, facilitating collaboration and information exchange between Network stakeholders, guiding policy formulation, working to mobilise resources and representing the global strategy for scaling up of HWTS. Dr Montgomery cited the successful example of policy in paving the way for national needs assessments such as SANA reports⁷, justifying and supporting resource mobilisation and serving as a tool to coordinate action. She pointed to the two World Health Assembly resolutions adopted by the 64th WHA in May 2011, which highlight the importance of HWTS in preventing disease^{8,9} and the WHO publication, "Evaluating household water treatment options: health based targets and microbiological performance

⁷ SANA (Situation Analysis and Needs Assessment) reports were a result of the Libreville Declaration on Health and Environment in Africa (2008), following which guidelines for SANA reports were drawn up and began to be implemented by signatory countries. Completed SANA reports are available for download here: <http://bit.ly/plrEUp>.

⁸ WHO. World Health Assembly Resolution 64.24. *Drinking-water, sanitation and health*. May 2011.

http://apps.who.int/gb/ebwha/pdf_files/WHA64/A64_R24-en.pdf

⁹ WHO. World Health Assembly Resolution 64.15. Cholera: mechanism for control and prevention.

http://apps.who.int/gb/ebwha/pdf_files/WHA64/A64_R15-en.pdf.

specifications"¹⁰ as important efforts to build momentum for scaling up of HWTS and more effective enabling environments.

Session 2: Status of HWTS in East Africa

Waltaji Terfa, WHO Ethiopia

Ethiopia: Before 2006 there was very little practice of HWTS, however awareness increased during 2006-2010 due to an outbreak of acute watery diarrhoea. The 2007 Network workshop in Ethiopia was also very helpful in driving further momentum. Today, HWTS is included among common household interventions utilised by the “community health worker” network which is a nation-wide scheme aimed at improving health outcomes. HWTS also has high visibility at the policy level: it is mentioned in the Health Sector Development Program IV for 2010-2015 with a set target to increase the proportion of households using HWTS from 7% to 77% by the year 2015.

John Kariuki, Ministry of Public Health and Sanitation Kenya

Kenya: Approximately 45% of Kenyans are practicing household water treatment methods (mainly boiling and chlorination) according to the 2008/2009 Demographic Health Survey. The government is beginning to take a comprehensive approach to HWTS, and has formed a Technical Working Group to coordinate action by a range of actors. Kenya’s Ministry of Public Health and Sanitation also shared the HWTS work plan and timeline and agreed to make this information available to the Network.

John Paul Nsagiyaomba, City of Kigali, Rwanda

Rwanda: While there is no specific data on the use of HWTS throughout the country, the government has recently launched a national environmental campaign referred to as “clean and green”, which takes an integrated approach to environmental health at the household level, addressing issues such as indoor air quality, sanitation, hand-washing, and clean drinking-water. The most common HWTS methods in Rwanda are boiling and chlorination while a nation-wide ceramic filtration project is being implemented with government support.

Nadhifa S. Kenykimba, MoWE Tanzania

Tanzania: Promotion of HWTS has been gaining momentum in the government since 2008. However, there is still no policy guideline specifically addressing HWTS. The government is currently collaborating with the London School of Hygiene and Tropical Medicine on a project to research HWTS use and effective options in the Tanzanian context. This evidence will inform the formulation of a national HWTS action plan. Limited data on HWTS use in selected areas indicate that the majority of households do not treat their water, especially in rural areas. Of those that do treat, the most common methods are boiling, cloth filtration or WaterGuard (supported by PSI since 2002).

¹⁰ WHO. *Evaluating household water treatment options: health-based targets and microbial performance specifications*. Geneva, 2011. Available at: http://www.who.int/water_sanitation_health/publications/2011/household_water/en/index.html.

Z. Mukalere, Water School Uganda

Uganda: Government officials acknowledged that their work on HWTS is still at a very early stage; however, the concept is now being embraced by the government with plans to carry out research into appropriate technologies, and approaches to promotion, investment and uptake by users. The Minister of State for Health Dr Nduhura B. Richard provided a strong endorsement for HWTS in his opening remarks and instructed the Uganda delegates to take the necessary steps to move this cause forward. Several NGOs such as the Water School are operating their own programmes reaching households and schools and are working in collaboration with local health departments.

Session 3: HWTS and integrated household interventions

Dr Greg Allgood, Procter & Gamble; Dennis Kakooza, PACE; Dr Pasquine Ogunsanya, Alive Medical Services; Ronald Nyagol, Safe Water and AIDS Project

Participants gave examples of the integration of HWTS in schools, HIV/AIDS, WASH and nutrition programmes and highlighted a range of improved outcomes relating to health, development, education, the community and user experience. These programmes included the use of self-help groups, peer support, micro-finance, and *Education through Listening*.¹¹ An important point was that HWTS has been recognised as an essential component of a basic care package for people living with HIV/AIDS and that the cost of providing safe water is a fraction of the cost of care for a patient suffering from chronic water-related disease.

Heather Adair-Rohani, WHO

Ms Adair-Rohani provided an overview of health issues associated with household air pollution and mentioned promising interventions and solutions on the horizon such as biogas digesters and advanced biomass stoves. These are ideal for use in East Africa where over 85% of households are using solid fuels for cooking and in some areas, climatic conditions are ideal for digestion of organic material. Ms Adair-Rohani also discussed the potential cost savings of combining interventions addressing various diseases attributable to environmental determinants at the household and community level.

WHO and UNICEF are involved in a number of initiatives to support integrated interventions at the household level such as improved stoves to reduce household air pollution, household water treatment, insecticide treated mosquito nets, and hygiene and sanitation promotion. WHO will continue to support integrated work through technical documents, assessments of benefits and coordination of activity.

Session 4: Monitoring and evaluating HWTS

Jan Heeger, UNICEF East and Southern Africa Regional Office

Mr Heeger discussed the issues of HWTS in emergency response situations and the need for governments and aid agencies to coordinate standards on product choice, distribution, packaging, language issues, and large-scale storage of treated drinking-water that reflect local contexts and

¹¹ *Education Through Listening* is a CDC innovation designed for education of community health promotion workers. Learn more at: <http://cdc.confex.com/cdc/nphic10/webprogram/Paper24509.html>.

circumstances. Monitoring and evaluation can be used to assess the success of these strategies but is often ignored or forgotten in emergency situations due to obvious time constraints. Implementing stakeholders submitting funding proposals should generally include monitoring & evaluation activities where appropriate so as improve understanding of effective strategies in the context of emergencies. The WHO and UNICEF have a significant role to play in ensuring that information is shared and effective strategies, tactics and technologies are employed regarding the use of HWTS.

Peter Buyungo, PSI

Mr Buyungo spoke about the work of Population Services International and PACE in implementing HWTS using social marketing techniques. He discussed the tools that PSI uses to inform its programmatic planning and approach to monitoring and evaluation of behaviour change. The presentation included an overview of goals, outputs, indicators and process evaluation.

Daniele Lantagne, Harvard University

Dr Lantagne presented practical methods for monitoring and evaluating HWTS use. She gave specific examples of survey questions and indicators for measuring intervention or programme reach, correct use, reported use, reported current use and effective use. Questions should be combined with visual observations on presence of HWT devices, consumables and safe storage. She also spoke of simple, field testing kits to measure microbiological quality and residual chlorine levels.

Maggie Montgomery, WHO

Dr Montgomery described the recent development of a toolkit for monitoring and evaluation (M&E) of HWTS. The toolkit was developed to address a lack of consistent indicators on HWTS and aims to facilitate improved data collection and analysis of HWTS at a global level. The document builds upon previous M&E efforts by Network participating organisations and provides standardised, cross-cutting tools to more rigorously evaluate and justify investments in HWTS. The toolkit discusses: (1) assessing the role of HWTS within existing water, sanitation and environmental health contexts, (2) indicators for measuring program outputs and outcomes, (3) conducting field evaluations, (4) analysing and utilizing results. A toolkit appendix provides an overview of health impact assessment and using comparison groups.

Session 5: Identifying and addressing strategy and policy gaps

Panelists: John Kariuki, Ministry of Public Health and Sanitation Kenya; Alexander Doyen, Vestergaard Frandsen; Ronald Otieno Nyagol, Safe Water and AIDS Project Kenya; Daniele Lantagne, Harvard University; Waltaji Terfa, WHO Ethiopia

During this session, panel members discussed key gaps in strategies/policies, examples of how these can be addressed and collaboration/coordination among key ministries. They were also asked to share their thoughts on key issues for the working groups to take away and consider in the development of national action plans. One of the key themes that emerged was the importance of the enabling environment which includes but is not limited to technology guidelines, coordination through sector-wide approaches, greater collaboration with NGOs, and national standards bodies. Other themes included the importance of research in guiding decision-

making, government guidance on the use of subsidies, and the human right to water and sanitation. Participants were also asked to consider the identification of specific vulnerable groups and the overall enabling environment in their action plans.

Session 6: Examples of success

Daniele Lantagne, Harvard University

Dr Lantagne gave an overview of success stories of integration of HWTS into health programmes and development of national standards and policies. For example, the inclusion of safe water systems in the United States President's Plan for Emergency AIDS Relief (PEPFAR) guidelines on palliative care for HIV/AIDS patients has facilitated the integration of HWTS as a key component of national basic care packages. Other examples cited were water quality standards set by the Kenya Bureau of Standards, certification of Air Rahmat in Indonesia to address cultural concerns, government-funded community chlorination dispensers in Kenya, and a partnership between the CDC and the Haitian government to develop a strategy for HWTS. Dr Lantagne urged WHO and national governments to continue to provide funding support for national and regional workshops of this type, which help to advance the national framework of HWTS.

John Kariuki, Ministry of Public Health and Sanitation Kenya

Dr Kariuki provided a brief overview of the approaches the Kenya Government has employed in supporting the drive for HWTS by various national stakeholders. He noted that a critical first step for Kenya was deciding which national ministry would take ownership of HWTS. Given it is a health intervention, he encouraged that leadership be taken by the Ministry of Health. He also reported that a wide range of stakeholders were invited to form a Technical Working Group, with a clear process of collaboration between local authorities, faith-based organisations, NGOs and others. The Kenyan Ministry of Public Health and Sanitation also employs an active approach to promotion, taking advantage of occasions such as Global Handwashing Day and World Water Day to raise product awareness through demonstrations and fairs. Finally, the private sector is strongly encouraged to get involved and submit proposals for partnership directly to the Ministry of Public Health and Sanitation with importation waivers granted to manufacturers of proven technologies.

Session 7: Country presentations on action plans

J Otai, Uganda; M Swai, Tanzania; D Tadesse Ethiopia; T Omufwoko, Kenya; and G Musabyimana, Rwanda

Nominated representatives from each of the five country teams presented to the wider group on their draft action plans. These had been developed in successive national working group sessions during the previous day. Participants considered several questions to guide their development of a strategy for HWTS: 1) *What will be done?* 2) *Who will take action?* 3) *What activities will be involved?* 4) *When will it be done? (near and long-term)* 5) *What resources will be used?*

From the presentations that followed these discussions, several common themes emerged. The first was that increased advocacy of health benefits of HWTS, especially among vulnerable groups, is a necessary action within the Ministry of Health. Second, the importance of integrating

HWTS into existing national health programmes focused on child and household environmental health (i.e. malnutrition, child and maternal health, home-based care for individuals living with HIV/AIDs, improved stoves, malaria prevention). Third, in areas with potential for cholera outbreaks, promotion of HWTS should be planned in advance as a preventive measure, such that communities are aware of what steps to take to assure themselves of high drinking water quality in times of crisis. Finally, there was a commitment to the development of national working groups to address key challenges relating to effective use of HWTS, financing and monitoring and evaluation, all important issues which affect the extent of benefits realised through HWTS.

6. Workshop outcomes

The primary outcome of the workshop was the formulation of draft national action plans. These plans propose a range of activities to support the expansion of HWTS and other household environmental health interventions at the national level. A secondary outcome was the development of initiatives for continued knowledge and information exchange between Network participants.

National action plans

Government officials, project implementers, community health care workers and researchers from Ethiopia, Kenya, Rwanda, Tanzania, and Uganda collaborated within national working groups to formulate strategies and national action plans for scaling up HWTS in their countries. Team members identified the policy areas relevant to HWTS, assessed gaps, and identified areas for strengthening. On the final day of the workshop the teams presented their action plans and sought feedback from the other participants.

UNICEF and WHO committed seed money of US\$3000 to nationals to enable the finalisation and initial implementation of HWTS action plans developed at the workshop. Receipt of the seed money would be conditional on the draft national action plans being reviewed and discussed with relevant national stakeholders and formally submitted to UNICEF and WHO by the respective country representatives. Once finalised and submitted, the national action plans will be shared with the Network.

Knowledge and information exchange

As a result of the workshop, a number of programs, knowledge exchange initiatives and advocacy efforts being conducted by Network participants came to light. These include the HWTS Technical Working Group activities and draft monitoring and evaluation guidelines being led by the Ministry of Public Health and Sanitation in Kenya which has agreed to share this work with the Network.

In addition, participants expressed interest in establishing an East Africa Chapter of the Network. This effort would be in the vein of establishing greater South-South collaboration, communication and information sharing among a peer group of countries that have similar challenges. The Network Secretariat is ready to provide support to regional leaders who would like to take this initiative forward.

All those at the workshop also signed up for the Network listserv and officials agreed to share continued progress of action plan implementation via the Network communication media.

Annex 1 – Final programme

Monday 27 June 2011

8.00 – 9.00 Registration of Participants

Workshop Start

09.00 – 09.10 Welcome Remarks & Introductions
E Bwengye, UNICEF Uganda
C Badloe, UNICEF Uganda

09.10 – 09.20 Objectives of the Workshop
C Mwesigye, WHO Uganda

Session 1: International Efforts and National Needs

09.20 – 09.50 Overview of HWTS and current challenges
D Lantagne, Harvard University

09.50 – 10.10 HWTS: From technology to policy
M Forson, UNICEF New York

10.10 – 10.30 International Network Phase II Strategy
M Montgomery, WHO Geneva

10.30 – 11.00 Tea/Coffee Break

Session 2: Status of HWTS in East Africa

11.00 – 11.20 Status in Ethiopia
W Terfa, WHO Ethiopia

11.20 – 11.40 Status in Kenya
J Kariuki, MoPHS Kenya

11.40 – 12.00 Status in Rwanda
JP Nsagiyaomba, City of Kigali, Rwanda

12.00 – 12.20 Status in Tanzania
N Kenykimba, MoWE Tanzania

12.20 – 12.40 Status in Uganda
Z Mukalere, Water School Uganda

13.00 – 14.00 Lunch Break

Opening Ceremony

14.00 – 14.10 Opening Remarks
C Mwesigye, WHO Uganda

14.10 – 14.20 Opening Remarks
C Badloe, UNICEF Uganda

14.20 – 14.30 Opening Remarks
F Adongo, MoWE Uganda

14.30 – 14.40 Official Opening
Honourable Nduhuura B Richard,
Minister of State for Health for Uganda

Session 3: HWTS and Integrated Household Interventions

15.00 – 15.15 Global and regional perspective of integration
G Allgood, Procter & Gamble USA

15.15 – 15.30 HWTS and HIV/AIDS
D Kakooza, PACE Uganda

15.30 – 15.45 HWTS and nutrition
P Ogunsanya, Alive Medical, Uganda

15.45 – 16.00 Tea/Coffee Break

16.00 – 17.30 Discussion (Moderated by Chairperson)

Cocktail at Hotel from 18.30

Tuesday 28 June 2011

08.00 – 08.30 Registration of Participants

08.30 – 09.00 Recap and Hanging issues from Day 1 R Rowe, Water Institute at UNC

Session 3: HWTS and Integrated Household Interventions, Continued

09.00 – 09.15 Status of stoves, health and global guidance H Adair-Rohani, WHO Geneva

09.15 – 09.30 HWTS and stoves in Kenya RO Nyagol, SWAP Kenya

09.45 – 10.00 Discussion (Moderated by Chairperson)

10.00 – 10.30 Tea/Coffee Break

Session 4: Monitoring and Evaluating HWTS

10.30 – 10.45 Monitoring HWTS in the field P Buyungo, PSI Uganda

10:45 – 11:00 Role of monitoring in emergencies J Heeger, UNICEF ESARO

11:00 – 11.15 Common indicators & monitoring frameworks M Montgomery, WHO Geneva

11.15 – 11.30 Discussion (Moderated by Chairperson)

Session 5: Identifying and Addressing Strategy and Policy Gaps

11.30 – 13.00 Moderated roundtable addressing key gaps in strategies/policies and greater coordination
J Kariuki, MoPHS Kenya
A Doyen, Vestergaard Frandsen
R Nyagol, SWAP Kenya
D Lantagne, Harvard University
W Terfa, WHO Ethiopia

13.00 – 14.00 Lunch Break

Discussion and Action Plan Development in Country Groups

14.00 – 16.00 Break out in national groups and discuss how to address data/technical needs, resource needs and other issues as appropriate.

16.00 – 16.30 Tea/Coffee Break

Summary of Group Work and Evening Assignment

16.30 – 17.00 Brief summary from each of teams

Evening assignment

17:30 – 18.30 Facilitators/Chairpersons meeting

Wednesday 29 June 2011

08.00 – 08.30 Registration of Participants

08.30 – 09.00 Recap and Hanging issues from Day 2

R Rowe, Water Institute at UNC

Session 6: Examples of Success

09.00 – 09.30 PEPFAR and other cases

D Lantagne, Harvard University

09:30 – 10:00 Kenya – an HWTS case study

J Kariuki, MoPHS Kenya

Discussion in Country Groups

10.00 – 12.00 Group work on national action plans

Working tea/coffee break

12.00 – 13.00 Lunch Break

Session 7: Country Presentations on Action Plans

13.00 – 15.00 Presentations from each of 5 countries addressing priority actions, timeline of actions, key responsible individuals, feedback to region and Network.

J Otai, Uganda

M Swai, Tanzania

D Tadesse, Ethiopia

T Omufwoko, Kenya

G Musabyimana, Rwanda

15.00 – 15.15 Tea/Coffee Break

Action Plan Implementation

15.15 – 16.00 Moderated discussion with all addressing next steps, formulation of national networks, reporting back to workshop

Closing Ceremony

16.30 – 17.00 Closing Remarks

C Badloe, UNICEF Uganda

Closing Remarks

C Mwesigye, WHO Uganda

Closing Remarks

J Kyomuhangi, MoSfH for Uganda

Closing Remarks

A Kabirizi, MoWE Uganda

17.00 – 17.30 Group Photographs

Annex 2 – Opening remarks by Minister of State for Health for Uganda



THE REPUBLIC OF UGANDA

**OPENING SPEECH AT THE INTERNATIONAL HOUSEHOLD WATER TREATMENT
AND STORAGE WORKSHOP 27TH - 29TH JUNE 2011**

AT

IMPERIAL BOTANICAL BEACH HOTEL

BY

HON. DR. NDUHUURA B. RICHARD

MINISTER OF STATE FOR HEALTH – GENERAL DUTIES

Distinguished guests,
Workshop Delegates,
Ladies and gentlemen.

I wish to take this opportunity to welcome you all to Uganda for this important meeting on household treatment and safe storage of drinking water. This is in line with the Global Policy of Primary Health Care and fits in well within the Ministry of Health's call for "Making health at home and only repairing it in the health centres / units"

In the same vein I would like to thank all delegates from different countries and organisations attending this workshop and especially World Health Organisation and UNICEF for supporting and choosing Uganda to host this important workshop.

Uganda like her sister developing countries continues to struggle to increase access to safe water to households and communities. According to the Water Supply Sector Performance Report in June 2010, the national safe water coverage for rural water supply was estimated at 65%, giving an average of 302 persons per improved water point across rural Uganda.

Despite the above gains Uganda periodically experiences, water borne disease outbreaks such as cholera, hepatitis E and not mentioning the endemic ones such as typhoid and diarrhoea diseases. This exerts a high death toll to human life, especially children under 5 years of age. In addition to suffering and death of children, the disease burden strains household resources, as money is spent on treatment and days spent on taking care of the patient instead of in gainful employment, leading to loss of individual and household income.

In the past, Uganda promoted boiling water before drinking but this has its own limitations especially fuel for boiling the water and subsequent environmental degradation. There are several excuses among the communities for not boiling their drinking water. Quite often, they say, they have no fuel for boiling water, no storage containers for the boiled water, no container big enough for storing the water. The list is endless. As a result, no water is boiled and consumption of untreated water continues

When there is no improved source available, water is likely to be unsafe due to pollution and faecal contamination. Contamination also occurs between collection and consumption of water. Even when water is drawn from an improved, uncontaminated point source such as protected borehole; it is very often re-contaminated due to unhygienic transport and home storage practices. From the available information, it is clear that when households are empowered to make water safe at the point of consumption it is a relatively more effective strategy for preventing contamination and therefore reducing water borne diseases. This workshop on

Household Water Treatment and Safe Storage (HWTS) is therefore timely especially for Uganda.

I understand that the goal of this workshop is to support the creation of an enabling environment towards reducing the burden of water-borne diseases in countries in East Africa, build capacity in the water and health sectors through the refinement and further development of draft Household Water Treatment and Storage (HWTS) national strategies, policies, integration of HWTS with other household environmental health interventions and building on and scaling-up existing household water management activities. This is in line with the Uganda Government plan to carry out more research of appropriate technologies (e.g. rainwater harvesting) and approaches (e.g. self-supply), with a particular emphasis on promotion as well as investment and uptake by users.

Household Water Treatment and Storage is not about technology alone but to reliably improve drinking water quality, – and ultimately reduce water borne disease such as diarrhoea. Technologies must be used correctly and consistently. Users must be knowledgeable and skilled, and have the motivation and funds to purchase products and consumables throughout the year. This in turn means that HWTS programmes are successful only when technologies are affordable, available and become desirable through effective marketing. I wish therefore, to challenge the Ugandan participants to come up with robust and low cost means of making water safe at the point of consumption. I am tasking my Ugandan team to come up with viable and effective strategies for promoting household water treatment.

HWTS should not be carried out in isolation. It should remain one part of a comprehensive water supply, sanitation and hygiene programme. Protected water sources continue to be of critical importance to communities: for health, for education, for gender equality and for poverty reduction. The transmission of faecal contamination can never be stopped without adequate sanitation unless people habitually wash their hands with soap at critical times (i.e after visiting latrine, before and after eating/serving meals and after cleaning children's' buttocks).

The governments and donors should not stop funding new community water supply sources, sanitation and hygiene promotion on pretext that the household water treatment is feasible and effective.

The responsibility for public water supplies rests largely with governments, and even though they are cash-strapped, many countries are managing to fulfil this responsibility. The developing world as a whole is on track to meet the MDG target for water supply. However, most of the systems constructed are communal sources that involve transporting water and thus they carry the risk of water re-contamination. At the same time, the number of people without any improved water supplies at all is over 800 million, to them, HWTS is an important option.

Communities need to put in place sustainable mechanisms to operate and maintain WASH facilities that have been established. But while they wait, people should also be given the option

to protect their health and the health of their children through Household Water Treatment and Storage.

The Ministry of Health in Uganda is fully committed to saving lives through the promotion of low cost technologies that will improve quality of water at point of consumption and thus improve health status, reduce morbidity and mortality of especially women and children. The health workers especially health inspectors, Health Assistants and Community Development staff should be fully involved in mobilising communities and providing guidance to promote Household Water Treatment and Storage in a more sustainable manner.

With those few remarks, I declare this International Workshop on Household Water Treatment and Storage officially open.

“For God and my Country”

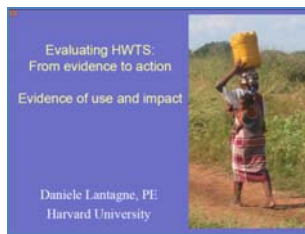
Annex 3 – List of participants

	Name	Country	Organisation
1	Yonatan Sani Abegal	Ethiopia	Ethiopian Kale Heywet Church
2	Desefu G. M. Chemeta	Ethiopia	Ethiopian Kale Heywet Church
3	Dagnew Tadesse Abey	Ethiopia	Ministry of Health
4	Zewditu Yilma	Ethiopia	Ministry of Water & Energy
5	Waltaji Terfa	Ethiopia	World Health Organization
6	Francis Kage	Kenya	Kenya Water for Health Organisation
7	Catherine Mwango	Kenya	Kenya Water for Health Organisation (KWAHO)
8	Nelly C.K. Mkocho	Kenya	Lake Victoria North Water Services Board
9	Dr John G. Kariuki	Kenya	Ministry of Public Health and Sanitation
10	Tobias Omufwoko	Kenya	Ministry of Public Health and Sanitation
11	Kimanthi Kyengo	Kenya	Ministry of Water and Irrigation
12	Turi Omollo	Kenya	PATH
13	Ronald Otieno Nyagalo	Kenya	Safe Water and AIDS Project (SWAP)
14	Samuel Gitahi	Kenya	UNICEF
15	Alexandre Doyen	Kenya	Vestergaard-Frandsen
16	Jan Heeger	Netherlands	UNICEF East and Southern Africa Regional Office
17	J. Paul Nsagiyaomba	Rwanda	City of Kigali
18	Eugene Nanigzumuremyi	Rwanda	Ministry of Infrastructure
19	Gedeon Musabyimana	Rwanda	UNICEF
20	Heather Adair-Rohani	Switzerland	World Health Organization
21	Dr Maggie Montgomery	Switzerland	World Health Organization
22	Mary Swai	Tanzania	Ministry of Health and Social Welfare
23	Nadhifa S. Kenykimba	Tanzania	Ministry of Water & Irrigation
24	Dr M. Mwanjali	Tanzania	Population Services International
25	Dr Adebisi Ogunsanya	Uganda	Alive Medical Services
26	Dr Pasquine N. Ogunsanya	Uganda	Alive Medical Services
27	Sekadde Robert	Uganda	Association François-Xavier Bagnoud (FXB)
28	Marion Kyomuhendo	Uganda	Consultant
29	Ruganzu Bruno	Uganda	Ecoart Uganda
30	Diana Bwengye	Uganda	Ecoart Uganda
31	Kyasanku G. Katweele	Uganda	Ecoart Uganda
32	Okauja Paul	Uganda	Ecoart Uganda
33	Jaana Misibera	Uganda	Health through Water and Sanitation (HEWASA)
34	Ahimbisibwe Annet	Uganda	HEFA Uganda
35	Busiku Martin	Uganda	Joint Effort to Save the Environment (JESE)
36	Nanyubuga Immaculata	Uganda	Katosi Women Development Trust
37	Namugga Vaal B.	Uganda	Katosi Women Development Trust
38	Rosemary Nalwanga	Uganda	Makerere University
39	Minister of State for Health, Dr. Nduhuura B. Richard	Uganda	Ministry of Health
40	Julian Kyomuhangi	Uganda	Ministry of Health
41	Otai John Justin	Uganda	Ministry of Health
42	Eng. Aaron Kabirizi	Uganda	Ministry of Water and Environment
43	Idrakua Lilian	Uganda	Ministry of Water and Environment
44	Florence Grace Adongo	Uganda	Ministry of Water and Environment
45	Muheirwe Robinath	Uganda	Ministry of Water and Environment
46	Constance Kaggwa	Uganda	Ministry of Water and Environment
47	Mwesigwa Stephen	Uganda	Noah's Ark School
48	Dr Susan Mukasa	Uganda	PACE

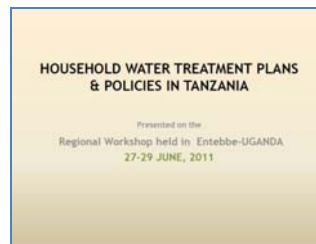
49	Peter Buyongo	Uganda	PACE
50	Dennis Kakooza	Uganda	PACE
51	Grace Mortensen	Uganda	PROTOS
52	Asaba Stephen Irumba	Uganda	Samaritan's Purse
53	Agondua Joseph	Uganda	School of Hygiene Mbale
54	Bateganya Patrick	Uganda	Uganda Nurses and Midwives Union (UNMU)
55	Josephine Mugala	Uganda	Uganda Water and Sanitation NGO Network
56	Josephine Mugala	Uganda	Uganda Water and Sanitation NGO Network
57	Prakash Raj Lamsal	Uganda	UNICEF
58	Chander Badloe	Uganda	UNICEF
59	Edward Bwengye	Uganda	UNICEF
60	Samuel Madul Anyiezhgai	Uganda	UNICEF
61	Harriet Kajubi	Uganda	UNICEF
62	Butika Marie	Uganda	Water God's Way
63	Zephaniah Mukalere	Uganda	The Water School
64	Collins Mwesigye	Uganda	World Health Organization
65	Mary Jelek	United States	Alive Medical Services
66	Dr Daniele Lantagne	United States	Harvard University
67	Dr Greg Allgood	United States	Procter & Gamble
68	Michael Forson	United States	UNICEF
69	Ryan Rowe	United States	Water Institute at the University of North Carolina

Participant email addresses are available upon request to hwwater@who.int or hwtsnetwork@unc.edu.

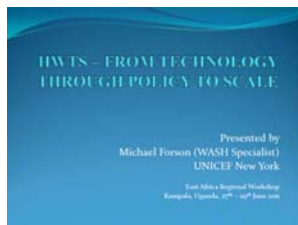
Annex 4A – Presentations (Day 1)



Evaluating HWTS: from evidence to action, by Daniele Lantagne



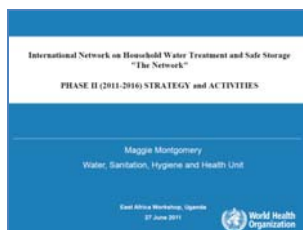
Household water treatment plans & policies in Tanzania, by Nadhifa S. Kenykimba – Ministry of Water & Irrigation Tanzania



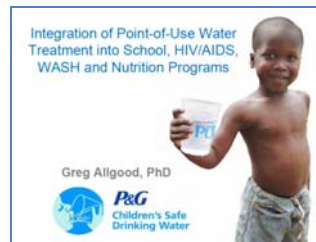
HWTS: From technology through policy to scale, by Michael Forson – UNICEF



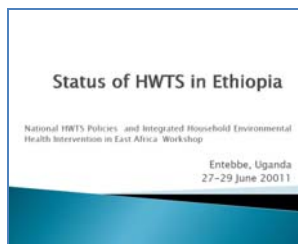
The Water School Program, by Zephaniah Mukalere – The Water School



HWTS Network, Phase II (2011-2016) Strategy and Activities, by Maggie Montgomery – WHO



Integration of point-of-use water treatment into schools, HIV/AIDS, WASH and nutrition programs, by Greg Allgood – Procter & Gamble



Status of HWTS in Ethiopia, by Waltaji Terfa – WHO Ethiopia



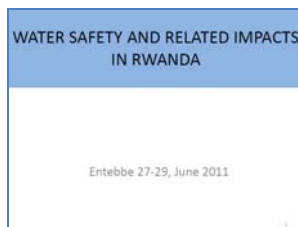
Household water treatment & storage among PHAs, by Dennis Kakooza – PACE



Status of household water treatment and safe storage in Kenya, by John Kariuki – Ministry of Public Health & Sanitation Kenya



Presentation to the Regional HWTS Workshop by Pasquine Ogunsanya – Alive Medical Services



Water safety and related impacts in Rwanda, by J. Paul Nsagiyamba – City of Kigali

All presentations are available by download from the Network's event website at: <http://waterinstitute.unc.edu/hwts>

Annex 4B – Presentations (Day 2 & 3)

Day 2



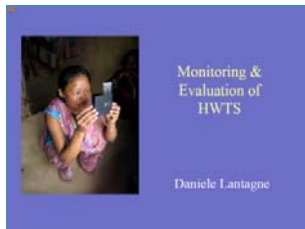
Status of stoves, health & global guidance, by Heather Adair-Rohani – WHO



Integration of household water treatment, storage & indoor air quality, by Ronald Nyagol – Safe Water and AIDS Project Kenya



Monitoring HWTS in the field, by Peter Buyungo – PACE



Monitoring & evaluation of HWTS, by Daniele Lantagne

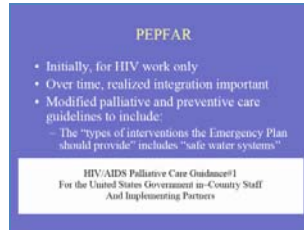


HWTS in emergencies, by Jan Heeger – UNICEF East and Southern Africa Regional Office



Towards common and credible HWTS monitoring indicators and frameworks, by Maggie Montgomery - WHO

Day 3



PEPFAR and other cases, by Daniele Lantagne

All presentations are available by download from the Network's event website at: <http://waterinstitute.unc.edu/hwts>

Annex 5 – Group photograph



Workshop participants with Minister of State for Health for Uganda, the *Honourable Dr Nduhuura B. Richard* (front row, center)