Household Water Treatment and Safe Storage in Malawi

Report on the 18 April, 2013 Stakeholders' Consultative Workshop on the Development of a National Action Plan

July 2013

UNC WATER INSTITUTE

Government of Malawi
Ministry of Health

This document was prepared by The Water Institute at UNC in collaboration with the Ministry of Health in Malawi as part of HWTS Technical Assistance supported by a gift from Procter & Gamble's Children's Safe Drinking Water Program.

The Water Institute at UNC
Gillings School of Global Public Health
The University of North Carolina at Chapel Hill
Rosenau Hall, CB #7431
135 Dauer Drive, Chapel Hill, NC 27599-7431
Phone +1-919-966-7302
Fax +1 -919-966-7911
http://waterinstitute.unc.edu

Author:
Ryan Rowe

Photo acknowledgement:
Page 18, Appendix 3 – Photo of participants at the Stakeholders' Consultative Workshop, Pacific Hotel, Lilongwe, Malawi. Credit: Ryan Rowe.

This document can be downloaded from: http://waterinstitute.unc.edu/hwts/events/2013_malawi.

Please use the following reference when quoting this document:

Rowe, R. (2013). *Household Water Treatment and Safe Storage in Malawi: Report on the 18 April, 2013 Stakeholders' Consultative Workshop on the Development of a National Action Plan*. The Water Institute at UNC, Chapel Hill, North Carolina, USA.

2013MalawiReport 7/8/2013 11:24:28 AM

About The Water Institute

The Water Institute at UNC provides international academic leadership at the nexus of water, health and development.

Through ***research,*** we tackle knowledge gaps that impede effective action on important WaSH and health issues. We respond to the information needs of our partners, act early on emerging issues, and proactively identify knowledge gaps. By developing local initiatives and international ***teaching and learning*** partnerships, we deliver innovative, relevant and highly-accessible training programs that will strengthen the next generation's capacity with the knowledge and experience to solve water and sanitation challenges. By identifying or developing, synthesizing and distributing relevant and up-to-date ***information*** on WaSH, we support effective policy making and decision-taking that protects health and improves human development worldwide, as well as predicting and helping to prevent emerging risks. Through ***networking and developing partnerships***, we bring together individuals and institutions from diverse disciplines and sectors, enabling them to work together to solve the most critical global issues in water and health.

The vision of The Water Institute at UNC is to bring together individuals and institutions from diverse disciplines and sectors and empower them to work together to solve the most critical global issues in water, sanitation, hygiene and health.

About the Sponsor

The **P&G Children's Safe Drinking Water Program** (CSDW) is a non-profit initiative that has provided more than six billion liters of clean drinking water to people in need since 2004. CSDW has partnered with a diverse network of organizations to help distribute water purification packets in developing countries. To learn more about the P&G CSDW Program, and see how water purification packets work, please visit www.csdw.org**.**

About the Author

Ryan Rowe is a Household Water Specialist at the Water Institute at UNC. Since 2010 he has led communications activities for and provided technical assistance to the International Network on Household Water Treatment and Safe Storage, a global alliance led by the WHO and UNICEF of over 150 institutional stakeholders working to improve access to safe drinking water. His prior professional experiences include advising the Ministry of Health and Ministry of Water in Malawi, directing an NGO in the United Arab Emirates, and establishing a Middle East-focused infrastructure investment fund for the Macquarie Group. Ryan holds an MBA from the Schulich School of Business at York University in Canada and an MPH from the Gillings School of Global Public Health at the University of North Carolina at Chapel Hill in the USA. He can be contacted at ryanrowe@unc.edu.

Acknowledgements

The efforts of the Government of Malawi to develop a national strategy on household water treatment and safe storage would not be possible without the tireless commitment of Humphreys Masuku and Young Samanyika with the Ministry of Health and McLawrence Mpasa with the Ministry of Water Development and Irrigation. The author wishes to express his deep appreciation for the opportunity to collaborate in their efforts to increase access to safe drinking-water for the people of Malawi. The Stakeholder's Consultative Workshop documented in this report was organized and hosted by the Ministry of Health's Department of Preventive Health Services in Lilongwe. Funding for the workshop was provided by UNICEF Headquarters in New York and facilitated by Michael Forson (UNICEF). The Water Institute at UNC's support for this work was funded by Proctor & Gamble's Children's Safe Drinking Water Program. The author is grateful to Joe DeGabriele (SAFI Water Treatment Solutions), Kristen Downs (The Water Institute at UNC) Humphreys Masuku (Malawi Ministry of Health) and Maggie Montgomery (World Health Organization) who commented on drafts of this report, and to Eric Adler (Freelance editor) for proof-reading. Finally, the author wishes to extend thanks to the individuals listed in Appendix 2 for taking the time to participate in the Stakeholders' Consultative Workshop and for contributing their expertise and opinions to the discussions.

Table of Contents

Index of Tables

Abbreviations and Acronyms

AIDS – acquired immunodeficiency syndrome

GoM – the Government of Malawi

HIV – human immunodeficiency virus

HWTS –household [or, point-of-use] water treatment and safe storage

JMP – the WHO and UNICEF Joint Monitoring Programme for Water Supply and Sanitation

M&E – monitoring and evaluation

MBS – the Malawi Bureau of Standards

MoH – the Ministry of Health

MWDI – the Ministry of Water Development and Irrigation

NAP – National Action Plan

NGO – non-governmental organization

PLHIV – people living with HIV

PPP – public-private partnership

UNC – the University of North Carolina at Chapel Hill

UNICEF – the United Nations Children's Fund

WaSH – Water, Sanitation and Hygiene

WHO – the World Health Organization

1 Executive Summary

On 18 April, 2013, in Lilongwe, the Ministry of Health hosted a Stakeholders' Consultative Workshop on the Development of a National Action Plan on Household Water Treatment and Safe Storage in Malawi with the following objectives:

- to identify ideas and issues relating to scaling up HWTS;
- to establish activities that would address those ideas and issues and
- to assign responsibilities for the recommended actions.

Stakeholders in Malawi from organizations involved in health and development efforts discussed these strategic areas: enabling environment, public-private partnerships, inter-sector coordination, implementation, advocacy, integration, promotion, monitoring and evaluation and research. The following 16 recommendations for further action by MoH, MWDI, NGOs and private sector emerged from the discussions:

1 **MoH** should take action in the areas of product standards, import duties, tariffs and taxes.
2 **MWDI** should respond to the suggestion to compare Malawi Drinking Water Guidelines with the WHO Drinking Water Guidelines.
3 **MoH** should establish an inter-ministerial task force on HWTS.
4 **MoH** should establish a HWTS stakeholders' committee.
5 **Non-government stakeholders** should contribute, when possible, to the delivery of health services, regularly updating MoH and MWDI on activities and lessons learned.
6 **Private sector stakeholders** should consider establishing an association to hold members to good practices.
7 **MoH** should strengthen stakeholder capacity through training programs.
8 **MoH** and **MWDI** should update stakeholders on the progress of the NAP at regular intervals.
9 **MoH** should circulate a copy of Bill No. 13 of 2011: Public-Private Partnership to all workshop attendees.
10 **MoH** should seek input on the NAP from social marketing organizations.
11 **MoH** should assemble and disseminate a compilation of evidence and support for the integration of HWTS.
12 **MoH** should review all HIV policy and guidelines to ensure HWTS is integrated in accordance with good practice.
13 **MWDI** should include HWTS on the agenda at the next Joint Sector Review.
14 **MoH** should monitor the integration of appropriate HWTS within HIV programming.
15 **MoH** should share the chlorine stock solution evaluation protocol with the Secretariat for the International Network on Household Water Treatment and Safe Storage for feedback.
16 **MoH** should identify important research questions for investigation by research organizations.

The Ministry of Health has committed to reviewing the feedback and recommendations outlined in this report, and to revising the National Action Plan accordingly. Stakeholders are invited to continue their dialogue with government officials on the continuing development the National Action Plan.

2 Background

In Malawi, diarrhea is a leading cause of death among children under the age of five (UNICEF 2012). Although the country is set to achieve the Millennium Development Goal targets for access to improved water and sanitation, at least 16% of the population still consumes water from "unimproved sources" (WHO & UNICEF Joint Monitoring Programme for Water Supply and Sanitation [JMP], 2013).[1] Countless more collect water from "improved sources" which may be unsafe due to sanitary risks in the environment and unhygienic practices during collection, transportation and storage in the home. These circumstances place them at risk of water-related diseases, such as cholera.

Beyond improving access to water, three key practices reduce the burden of diarrheal disease: hand washing with soap, the safe disposal of human feces and the treatment and safe storage of household drinking water. Household water treatment and safe storage (HWTS) is any method that aims to improve or maintain the quality of drinking water at the point of use or prior to consumption, normally at the household level. Households can use simple, low-cost methods such as chlorination, filtration and solar disinfection to improve and maintain drinking water quality and reduce the risk of contracting diarrhea by as much as 47% (Fewtrell *et al.* 2005; Clasen *et al.* 2006; Waddington *et al.* 2009). Still, despite the compelling health benefits, at most about 32% of Malawian households treat their drinking water (GoM 2010).

The Government of Malawi (GoM) recently developed national strategies on hand washing and sanitation, leaving the absence of a strategy on HWTS a gap to be addressed. In 2012, the Ministry of Health (MoH) and Ministry of Water Development & Irrigation (MWDI) began developing a National Action Plan (NAP) to scale up the practice of HWTS in Malawi. The first outline of the NAP was developed at a policy workshop in Mozambique in June 2012. Subsequently, MoH and MWDI commissioned a preliminary consultative study on the status of HWTS in Malawi. The study was completed in January 2013 (Rowe 2013), providing findings and recommendations as the basis for the NAP. This report documents a Stakeholders' Consultative Workshop (the Workshop), hosted by MoH in April 2013, to gain further feedback on the NAP.

3 Objectives of the Workshop and of this Report

The Workshop took place at Pacific Hotel in Lilongwe on 18 April, 2013, and was attended by 25 individuals representing a range of stakeholders from the WaSH, health and development sectors in Malawi. MoH's Department of Preventive Health Services hosted the workshop, with funding from UNICEF. The Water Institute at UNC provided communications and facilitation support, including the preparation of this follow-up report.

---

[1] According to JMP, unimproved sources of water include unprotected dug wells, unprotected springs, a cart with a small tank or drum, tanker trucks, or surface water sources (*e.g.*, a river, a dam, a lake, a pond, a stream, a canal, and an irrigation channel). Improved sources include a public tap or standpipe, a tube-well or borehole, a protected dug well, a protected spring, and rainwater collection.

The purpose of the Workshop was to assemble stakeholders and seek their views on the development of the NAP, which is currently in draft stage. The goal of the NAP is to "contribute to the reduction of diarrheal disease in populations which lack access to safe drinking water" (GoM 2013, 5), especially vulnerable groups and the poor, by creating the conditions to scale up the practice of HWTS in Malawi. The NAP is being developed to "promote activities, regulate technologies, promote coordination among stakeholders and improve knowledge and skills in extension workers on HWTS" (GoM 2013, iv). The document will also be used to aid in resource mobilization from donors and development partners.

The Workshop had three main objectives:

- to identify ideas and issues relating to scaling up HWTS;
- to establish activities that would address those ideas and issues; and
- to assign responsibilities for the recommended actions.

The purpose of this report is to record the contributions and discussions from the Workshop and to summarize its proceedings in accordance with the above objectives, and to outline the actions to be taken. A draft of this report circulated amongst Workshop attendees and other important stakeholders prior to publication to ensure that it accurately reflects the proceedings and perspectives.

Appendices include: the Workshop program (Appendix 1), a list of all participating stakeholders (Appendix 2), a group photo of the workshop participants (Appendix 3), and the list of Workshop working groups and their respective members (Appendix 4).

4 Overview of Workshop Proceedings

The Workshop began with a review of the objectives and the program of activities. Participants were encouraged to share their views openly. MoH committed to reviewing the feedback and to revising the NAP accordingly.

Proceedings opened with three presentations. The first provided an overview of the burden of diarrheal disease in Malawi, the second a report of the current status of HWTS in Malawi and the third an outline of progress to date on the drafting of the NAP. Participants had opportunities to pose questions, to discuss pertinent issues and to contribute ideas arising from the presentations.

Participants then viewed brief minute demonstrations of two HWTS technologies approved by MoH: LifeStraw, a membrane technology, and Tulip Filter, a ceramic filter with silver and activated carbon components. One of the demonstrators noted that two other products are currently under review by the MoH: Silverdyne, a colloidal silver solution, and Aquaprove, a chlorine dioxide solution. In addition to these, two chlorine-based products have been available in Malawi for a number of years: WaterGuard solution and Waterguard powder (also known as *Wa Ufa* or P&G Purifier of Water). Participants then posed questions to the exhibitors about the science, their costs and other issues relating to their manufacturing and marketing.

Following the technology demonstrations, the workshop facilitators assigned most participants to thematic working groups, while some participants preferred to join a group related to their expertise or preference. These groups reflected the strategic areas of the NAP (Table 1).

Table 1. Working Group Discussion Topics

Group No.	Strategic Area in the National Action Plan
1	• Enabling environment • Public-private partnerships
2	• Inter-sector coordination • Implementation
3	• Advocacy • Integration
4	• Promotion • Monitoring and evaluation • Research

See Appendix 4 for a list of the working group members.

Group members were provided with structured worksheets and asked to consider whether the strategic areas made sense, were important, how they might be improved or replaced, how progress might be measured, what outputs to expect, and by when. Following the group work, participants reconvened, presented their observations and accepted comments from other participants.

The Workshop concluded with closing remarks and words of prayer.

5 Summary of Discussions

This thematic summary of the Workshop presentations and discussions is organized according to the strategic areas set out in the NAP draft. Each strategic area is numbered as it is in the NAP draft. Some areas received more attention than others due to the unstructured discussion format. The summary outlines issues and ideas expressed by presenters and participants on the strategic areas.

Strategic Area 4.1 – Creating an enabling environment for scaling up HWTS

The term enabling environment is used in the NAP to refer to policies, regulations, factors and conditions necessary to facilitate scaling up HWTS. Malawi has a policy framework that is broadly supportive of HWTS and assigns clear responsibility for national coordination of HWTS to MoH (Rowe 2013). Although some gaps remain, the country has a solid foundation to build on. The Malawi Demographic and Health Survey reports that about one-third of Malawian households use an appropriate form of HWTS (GoM 2010), suggesting that there is relatively high public awareness of the need for and the benefits of intervention. This may be due to previous nationwide social marketing efforts, the government-supported chlorine stock solution program and the recurring issue of cholera, factors that may also help to secure public support for the development and funding of the NAP.

However, the absence of a comprehensive and transparent national regulatory framework may impede investment from the private sector. A Workshop participant noted that no national standards exist with which to regularly monitor the performance and quality of HWTS

technologies imported, produced, assembled and/or marketed in the country. It is also unclear whether Malawi is in line with international guidelines on drinking water quality and a participant suggested that the government review and compare its national guidelines. Another participant commented that products are currently approved on demand through direct communication with MoH and/or MWDI. Some participants suggested that products should have standing certificates of approval and be subject to regular audits, inspections and a requirement to re-certify at reasonable intervals, in order to protect both consumers and *bona fide* suppliers from counterfeit and ineffective products.

Some participants complained that duties and taxes on products imported into Malawi are not applied uniformly. Duties and taxes vary depending on the class of product, the status of the importing party and any value-added activities that occur following the product's importation (Rowe 2013). Workshop participants noted that this increases the cost of doing business, which leads to a higher price for the consumer.

There was general agreement that MoH should address these issues as a top priority in concert with stakeholders such as Malawi Bureau of Standards, the Pharmacy, Medicines and Poisons Control Board, Malawi Revenue Authority, WHO and others.

Strategic Area 4.2 – Strengthening inter-sector coordination and collaboration

The MoH said that there is both a desire and a need to find ways to collaborate with civil society and the private sector to deliver health services to all Malawians, particularly the most vulnerable groups. Several participants noted that health workers are an important part of the solution, yet face many challenges – such as heavy workloads, low compensation and lack of access to transportation. One participant asked whether nurses and other health workers could sell HWTS products on commission. However, this presents a conflict of interest. In response, the MoH encouraged stakeholders to contribute to implementing the country's health strategies (including activities to support health workers) and to keep officials apprised of the lessons learned from their work and evidence on the cost-effectiveness of successful approaches.

One participant asked how to maintain the momentum of the Workshop and enabled continued learning by all. Another participant noted the challenge of establishing the institutional memory of the process, including the documentation of its outcomes and the sharing of its outputs. Yet another participant suggested establishing desk officers in partner ministries, as well as forming and periodically convening an inter-ministerial task force or stakeholders' committee on HWTS to discuss HWTS-related issues and make recommendations to the government. The task force should report to the already-existing national coordination body on water-related issues to avoid duplicating efforts and creating parallel decision structures. These groups would aim to improve information sharing, coordination and stakeholder mobilization, and they would be similar to the Sub-Committee on Safe Motherhood, an MoH-chaired stakeholders' group tasked with a similar mandate. Other participants endorsed the idea and suggested that meetings could be held on MoH or UNICEF premises.

A participant noted the value of sharing new technologies with Malawian consumers and organizations and of explaining how they work. It was proposed that the private sector should lead the organization of an annual exhibition, but that there should be some government oversight or self-governance to ensure that only those products meeting national and/or international standards are included. Another participant suggested creating an association of private sector organizations that could hold members to certain standards and ethical practices in respect of production and marketing of HWTS.

Strategic Area 4.3 – Building implementation capacity of stakeholders for HWTS

Participants suggested that the NAP should address traditional water-related hygiene practices – such as boiling, the use of *moringa oleifera* seeds as a flocculent (known locally as *Chamwamba* or *Nsangowa*), hand washing and straining with a cloth – all of which are established habits for many in Malawi. Participants agreed that building on local cultural practices is important, especially as a variety of barriers (purchase cost, stock-outs of basic commodities and the inherent challenges of sustaining behavior change) may make it difficult to promote new practices. Training programs to improve the capacity of implementers in these areas are needed, an activity which has been identified in the NAP. MoH may wish to use materials currently under development by The Water Institute at UNC to train stakeholders in improving monitoring and evaluation (M&E) of HWTS. In addition, one participant noted that the preliminary consultative study includes a brief stakeholder analysis and identification of some training and capacity strengthening needs (Rowe 2013, 12).

Strategic Area 4.4 – Advocating and lobbying with donors and local stakeholders to support HWTS

Participants felt strongly that the development of the NAP should be supported by a communications plan to ensure engagement and feedback from stakeholders. Progress indicators were suggested to measure the number of stakeholders reached, the number of stakeholders' consultations held and the amount of feedback received. These indicators would show whether outreach is being conducted consistently and in a way that generates genuine interest, engagement and feedback. Key questions were suggested to guide the monitoring efforts, including: Are people aware of the NAP?; Have ICT materials been developed? and Has the media been engaged effectively? This way, as people recognize that their comments are taken into account, they will become aware of the progress, leading to their engagement and a sense of ownership. Key partners should be aware of the NAP and see it as a guiding document for actions.

Strategic Area 4.5 – Fostering public-private partnerships:

Public-private partnerships (PPP) could be one mechanism for stimulating private sector investment in the sector. Participants suggested PPPs could aid in areas such as increasing the number of products on the market, reducing costs and emergency responses. In 2011, GoM approved Bill No. 13 on Public-Private Partnerships, which creates a framework for private sector participation in the delivery of government of services (Nyasa Times 2011). The terms of

the law may shed some light on possible models for cooperation. The MoH was requested to share a copy of that document.

Strategic Area 4.6 – On strategies for HWTS promotion:

Participants noted that the strategic area does not mention urban populations, a group which may have increased financial capacity to participate in the commercial market and should not be neglected. Messages on HWTS should emphasize correct and consistent use, and be disseminated through multiple channels, such as entertainment performances, business meetings, radio and television advertising, printed leaflets and flyers and SMS messaging. Private sector participants should align their promotional strategies with those of MoH and non-government stakeholders in order to reinforce the importance of correct and consistent use.

Strategic Area 4.7 – Promoting integration of HWTS into existing programs:

Although diarrhea prevention may be seen to be competing for scarce resources with higher-profile issues such as malaria or HIV, evidence shows that the integration of HWTS with long-lasting insecticide treated bed nets can actually improve the health of people living with HIV (PLHIV) and is cost-effective (Walson *et al.* 2013). Moreover, diarrhea is common among PLHIV and can be fatal (Katabira 1999; Mönkemüller *et al.* 2000). Various national and international authorities include HWTS in their HIV prevention and care guidelines (Government of Kenya 2002; Government of Uganda 2010; US Agency for International Development [USAID] & WHO 2010; WHO 2008). However, policy-makers and practitioners should note that chlorine-only HWTS options are *not appropriate* for this group, since they do not remove the diarrhea-causing pathogen *Cryptosporidium* (Peletz *et al.* 2013). Appropriate options for this population must meet at least the "protective" performance threshold outlined in the WHO document on evaluating HWT options (WHO 2011). Thus, policy-makers and implementers must be well-briefed on the technical considerations.

The Malawi Growth and Development Strategy includes goals on HIV, child mortality and other health outcomes (GoM 2009), providing a case for situating HWTS within national priorities and targeting specific vulnerable segments of the population. Against this backdrop, MoH and MWDI should review and consider implementing the Integrated Global Action Plan for the Prevention and Control of Pneumonia and Diarrhoea (GAPPD) by WHO and UNICEF. The GAPPD is an important platform that includes HWTS in the wider suite of WaSH and indoor air pollution interventions, vaccines, nutrition and curative solutions.

The Malawi Sector Performance Report 2011: Irrigation, Water and Sanitation recommends using HWTS in combination with low-cost options for rural water supply (GoM 2012), but one participant noted that the recommendation has not yet been taken up by government officials. This participant requested that the government follow up on this at the next Joint Sector Review. Another recommended the integration of HWTS within schemes to improve water supply and water safety, such as Water Safety Plans. Another participant suggested generating additional evidence and improving the dissemination of existing evidence in order to aid in

efforts to advocate for the inclusion of HWTS in other health and WaSH efforts, such as hand washing and the inclusion of HWTS on the school curriculum. This evidence and its implications for Malawian health sector policy and implementation should be shared with donors, NGOs and district-level health officials in Malawi in a form that can stimulate uptake.

Strategic Area 4.8 – Strengthening monitoring & evaluation of HWTS:

Developing an effective national HWTS M&E scheme for Malawi is a necessary and important component of the NAP in order to ensure that HWTS is implemented effectively and by those in need. However, there are challenges to overcome.

Firstly, although access to improved water is relatively high in Malawi in comparison to other African countries, a UNICEF report showed that as many as 55% of rural water sources are contaminated during the wet season (Taylor *et al.* 2012). Studies from other countries show that unhygienic practices during collection, transport and storage in the home can also impact water quality (Trevett, Carter and Tyrrel 2005). Research recently published by The Water Institute at UNC suggests that the population in need of safe drinking-water is likely much greater than that suggested by JMP (Onda, Lobogulio and Bartram 2012). Participants suggested that the government should reach out to stakeholders and to key partners to explore additional sources of data to collect and aggregate.

Secondly, the GoM has insufficient laboratory capacity and lacks the human and financial resources to monitor source water quality and to identify which communities' drinking water was or is compromised (Rowe 2013).

Thirdly, without an accurate baseline, it may be difficult to set targets to scale up the use of HWTS, against which progress can be measured and with which to understand whether populations in need are being reached. These factors could undermine a national M&E plan, which should focus on "effective use" and not on health impact. Effective use considers: 1) whether the HWTS method in use is contextually appropriate; 2) whether it is used by a population group that is vulnerable and/or in need; and 3) whether it is used correctly and consistently so that it improves water quality (WHO & UNICEF 2012).

In light of these challenges, one participant suggested that the first step in monitoring HWTS ought to require government- and NGO-implemented HIV prevention and care programs to ensure that HWTS is included in standard implementation, and then subject them to audit. The data could be used to infer the number of people living with HIV who are being reached with HWTS products and messages. The MOH should also seek to tie M&E for HWTS to Malawi's new M&E framework for the WaSH sector to avoid duplicating efforts.

Related to M&E is the recurrence of cholera and the continuing high burden of diarrheal disease in Malawi. Although no cases of cholera have been recorded so far within the epidemiological year beginning November 2012, there is no evidence to suggest that this is due to any particular prevention and control strategy. Therefore, one must assume that cholera could re-emerge in the future. The chlorine stock solution program primarily targets cholera-affected regions and is one of the only known examples of government-supported HWTS on a

national scale in a developing country. However, not much is known about the effectiveness of the program's implementation. MoH is currently developing a protocol to evaluate the chlorine stock solution program, but it lacks funding. MoH asked the Secretariat of the International Network on Household Water Treatment and Safe Storage to provide input to the protocol and to make suggestions as to possible sources of funding for the evaluation.

Strategic Area 4.9 – Promoting research on HWTS to ensure evidence-based decision-making

Participants agreed with the research areas identified in the NAP. MoH was identified as the lead institution for identifying important research questions relevant to scaling up HWTS, and the Centre for Water and Sanitation at Mzuzu University and WASHTED at Polytechnic University were nominated to provide support.

6 Recommendations

The discussions detailed in Section 5 yielded a number of specific actions and ownership for those activities, and similarly, are organized thematically in line with the strategic areas set out in the NAP draft. The discussions did not yield clear progress indicators and timelines for each of these actions. Generally speaking, participants noted that many policy-level changes might need to be reviewed and approved through parliamentary mechanisms. Most activities were assigned to the MoH and participants tended to specify timelines of 2-3 months, which may not be realistic given limited funding and human resource capacity. Participants suggested measuring the progress or success of the actions using output and outcome indicators such as the number of meetings held to discuss an activity, trainings funded, or simply categorically assessing whether a recommendation has been acted upon and completed.

Strategic Area 4.1 – Creating an enabling environment for scaling up HWTS

The Ministry of Health should lead a dialogue with relevant authorities (the Malawi Bureau of Standards, the Pharmacy, Medicines, and Poisons Control Board and the Malawi Revenue Authority) on the topics of product standards, import duties, tariffs, and taxes in developing a national regulatory framework.

The Ministry of Water Development and Irrigation should respond to the suggestion to compare the Malawi Drinking Water Guidelines to WHO Drinking Water Guidelines (WHO 2011).

Strategic Area 4.2 – Strengthening inter-sector coordination and collaboration

The Ministry of Health should establish an inter-ministerial task force on HWTS to review and implement policy decisions in a coordinated fashion across multiple government agencies.

The Ministry of Health should establish and chair a stakeholders' committee on HWTS.

Non-government stakeholders should contribute, when possible, to the delivery of health services, and should keep the MoH updated on their activities and the lessons they have learned.

Private Sector stakeholders should consider establishing an association to hold its members to good standards and practices, and should conduct joint marketing activities and, if agreed, should nominate a firm to lead this effort.

Strategic Area 4.3 – Building implementation capacity of stakeholders for HWTS

The Ministry of Health should strengthen the capacity of researchers and implementers through training programs on important topics such as M&E.

Strategic Area 4.4 – Advocating and lobbying with donors and local stakeholders to support HWTS

The Ministry of Health and the Ministry of Water Development and Irrigation should circulate the developing National Action Plan draft to international donors and local stakeholders at regular intervals for their information, to receive their feedback and to monitor their engagement.

Strategic Area 4.5 – Fostering public-private partnerships:

The Ministry of Health should circulate to workshop attendees a copy of Bill No. 13 of 2011 on PPPs for review and feedback on how it may be conducive to facilitating PPPs for HWTS.

Strategic Area 4.6 – On strategies for HWTS promotion:

The Ministry of Health should seek input on the NAP from social marketing organizations with prior experience marketing HWTS products in Malawi.

Strategic Area 4.7 – Promoting integration of HWTS into existing programs

The Ministry of Health should assemble and disseminate existing evidence and support for the inclusion of HWTS in other health and WaSH efforts, in line with Malawi's national priorities.

The Ministry of Health should conduct a review of all national HIV policies and guidelines to ensure that HWTS is integrated in accordance with good practices.

The Ministry of Water Development and Irrigation should include HWTS on the agenda for discussions at the next Joint Sector Review, highlighting the issues set out in this document.

Strategic Area 4.8 – Strengthening monitoring & evaluation of HWTS

The Ministry of Health should monitor the integration of appropriate HWTS within HIV programming efforts using surveys, field visits and other mechanisms to verify compliance with guidelines.

The Ministry of Health should share the chlorine stock solution evaluation protocol with the Secretariat for the International Network on Household Water Treatment and Safe Storage for feedback.

Strategic Area 4.9 – Promoting research on HWTS to ensure evidence-based decision-making

The Ministry of Health should outline important research questions and encourage local and international research organizations to provide support.

7 Next Steps

The Ministry of Health noted that all comments and suggestions from the group would be recorded in the workshop report and circulated for comment, following which steps would be taken to update the NAP and to take action on stakeholders' recommendations. Stakeholders were invited to continue submitting comments with the goal of advancing the NAP until a reasonable first draft circulates officially. MoH implored the group to continue reviewing the document and providing feedback, and noted that this is the beginning of a process of collaboration, not the end.

8 References

Clasen, Thomas, Laurence Haller, Damian Walker, Jamie Bartram, and Sandy Cairncross. (2007). Cost-effectiveness of water quality interventions for preventing diarrhoeal disease in developing countries. *Journal of Water and Health*, 5(4):599-608. Available at: http://www.ncbi.nlm.nih.gov/pubmed/17878570.

Fewtrell, Lorna, Rachel B. Kaufmann, David Kay, Wayne Enanoria, Laurence Haller, and John M. Colford Jr. (2005). Water, sanitation, and hygiene interventions to reduce diarrhoea in less developed countries: A systematic review and meta-analysis. *The Lancet Infectious Diseases,* 5(1):42-52. Available at: http://www.ncbi.nlm.nih.gov/pubmed/15620560.

GoM. (2009a). Malawi Growth & Development Strategy: From Poverty to Prosperity 2006-2011 – Revised Edition (2009) – Nine Key Priority Areas – Summary. Lilongwe, Malawi, Ministry of Development Planning and Cooperation, Government of Malawi. Available at: http://300in6.org/wp-content/uploads/2013/02/2.-Malawi-Growth-Development-Strategy-2006-2011-SUMMARY-by-GoM-20091.pdf.

GoM. (2010). *Demographic and Health Survey*. Zomba, Malawi, National Statistical Office, Government of Malawi. Available at: http://www.measuredhs.com/pubs/pdf/PR4/PR4.pdf.

GoM. (2012). *Sector Performance Report – Final Draft June 2012*. Lilongwe, Malawi, Ministry of Water Development and Irrigation, Government of Malawi. Received by email from Joseph DeGabriele on 15 June 2012.

GoM. (2013). National Action Plan on Household Water Treatment and Safe Storage: From 2013 to 2018 (*draft version under revision*). Lilongwe, Malawi, Ministry of Health, Government of Malawi. Received by email from Young Samanyika on 26 May 2012.

Government of Kenya. (2002). *National home-based care programme and service guidelines*. Nairobi, Kenya, National AIDS/STD Control Programme, Ministry of Health, Government of Kenya. Available at: http://www.ilo.org/aids/legislation/WCMS_127536/lang--en/index.htm.

Government of Uganda. (2010.) *UNGASS Country Progress Report Uganda: January 2008-December 2009*. Uganda AIDS Commission, Government of Uganda. Available at: http://www.unaids.org/en/dataanalysis/monitoringcountryprogress/2010progressreportssubmittedbycountries/uganda_2010_country_progress_report_en.pdf.

Katabira, Elly T. (1999). Epidemiology and Management of Diarrheal Disease in HIV-Infected Patients. *International Journal of Infectious Diseases*, 3(3):164-167. Available at: http://www.sciencedirect.com/science/article/pii/S1201971299900401.

Mönkemüller, Klaus E., Stephanie A. Call, Audrey J. Lazenby, and C. Mel Wilcox. (2000). Declining Prevalence of Opportunistic Gastrointestinal Disease in the Era of Combination Antiretroviral Therapy. *American Journal of Gastroenterology*, 95(2):457-462. Available at: http://www.nature.com/ajg/journal/v95/n2/full/ajg2000113a.html.

Nyasa Times. (2011). "House passes public-private partnership law." *Nyasa Times*. November 16, 2011. Available at: http://www.nyasatimes.com/2011/11/16/house-passes-private-public-partnership-law/.

Onda, Kyle, Joe LoBuglio, and Jamie Bartram. (2012). Global Access to Safe Water: Accounting for Water Quality and the Resulting Impact on MDG Progress. *International Journal of*

Environmental Research and Public Health, 9:880-894. Available at: http://www.mdpi.com/1660-4601/9/3/880.

Peletz, Rachel, Thomas Mahin, Mark Elliott, Margaret Montgomery, and Thomas Clasen. (2013). Preventing cryptosporidiosis: the need for safe drinking water. *Bulletin of the World Health Organization*, 91(4):238-238A. Available at: http://www.who.int/bulletin/volumes/91/4/13-119990.pdf.

Rowe, Ryan. (2013). *Household Water Treatment and Safe Storage in Malawi: A Preliminary Consultative Study*. 300in6 and Aqua for All, The Hague, The Netherlands. Available at: http://300in6.org/platforms/malawi/.

Taylor, Huw, Geoffrey Chavula, James Ebdon, Richard Phillips, and Owen Kapudzama. (2012). *Assessment of Drinking Water Quality for Low-cost Water Options in Rural Malawi*. An unpublished report commissioned by UNICEF Malawi and the Ministry of Water Development and Irrigation. Presented at a dissemination workshop on 22 August 2012 at Crossroads Hotel, Lilongwe, Malawi. Received by email from Henk Holtslag on 21 August 2012.

Trevett, Andrew F., Richard C. Carter, and Sean F. Tyrrel. (2005). Mechanisms leading to post-supply water quality deterioration in rural Honduran communities. *International Journal of Hygiene and Environmental Health,* 208(3):153–161. Available at: http://www.ncbi.nlm.nih.gov/pubmed/15971854.

UNICEF. (2012). A Promise Renewed – Under-five mortality dashboard - Malawi. Available at: http://www.apromiserenewed.org/Dashboard.html.

Waddington, Hugh, Birte Snilstveit, Howard White, and Lorna Fewtrell. (2009). *Water, Sanitation and Hygiene Interventions to Combat Childhood Diarrhea in Developing Countries.* London, International Initiative for Impact Evaluation. Available at: http://www.3ieimpact.org/en/evidence/systematic-reviews/details/23/.

Walson, Judd, Laura R. Sangaré, Benson O. Singa, Jacqueline Mulongo Naulikha, Benjamin K.S. Piper, Krista Yuhas, Frankline Magaki Onchiri, Pheigona A. Otieno, Jonathan Mermin, Clement Zeh, Barbra Ann Richardson, and Grace John-Stewart. (2013). Evaluation of long-lasting insecticide-treated bed nets and a point-of-use water filter on HIV-1 disease progression in Kenya. *AIDS*, 27(9):1493-1501. Available at: http://www.ncbi.nlm.nih.gov/pubmed/23324658.

WHO. (2011). *Evaluating household water treatment options: Health based targets and microbiological performance specifications.* Geneva, Switzerland, World Health Organization. Available at: http://www.who.int/water_sanitation_health/publications/2011/household_water/en/index.html.

WHO. (2011). Guidelines for drinking-water quality: Fourth edition. Geneva, Switzerland, World Health Organization. Available at: http://www.who.int/water_sanitation_health/publications/2011/dwq_guidelines/en/index.html.

WHO & UNICEF. (2012). *Toolkit for monitoring and evaluating household water treatment and safe storage*. Geneva, Switzerland, World Health Organization. Available at: http://www.who.int/household_water/resources/toolkit_monitoring_evaluating/en/.

WHO & UNICEF. (2013). *Ending preventable child deaths from pneumonia and diarrhoea by 2025: The integrated Global Action Plan for Pneumonia and Diarrhoea*. Geneva, Switzerland, World Health Organization. Available

at: http://www.who.int/maternal_child_adolescent/documents/global_action_plan_pneumonia_diarrhoea/en/.

WHO & UNICEF JMP. (2013). Malawi: estimates on the use of water sources and sanitation facilities (1980 - 2011). Available at: http://www.wssinfo.org/documents-links/documents/?tx_displaycontroller[type]=country_files.

Appendix 1. Programme

Household Water Treatment and Safe Storage
Stakeholders' Consultative Workshop on the
Development of a National Action Plan
18th April, 2013
Programme

Time	Activity	Facilitator
08:00 – 08:30	Registration and Introductions	
08:30 – 09:00	Welcome Remarks and Opening	Noah Silungwe, MoH
	Agenda/Objectives	Hudson Kubwalo, WHO
09:00 – 09:15	Diarrheal Disease Burden in Malawi	Maurice Mbang'ombe, MoH
09:15 – 09:30	Current Status of HWTS in Malawi	Ryan Rowe, The Water Institute at UNC
09:30 – 09:45	Introduction of the National HWTS Plan	Young Samanyika, MoH
09:45 – 10:00	Explanation of Group Work Assignment	Young Samanyika, MoH
10:00 – 10:15	Group Photo and Break	
10:15 – 10:30	HWTS Technologies Exhibition	Edward Djanzalimodzi, Vestergaard-Frandsen / Joe DeGabriele, SAFI
10:30 – 12:30	Group Work	All
12:30 – 13:30	Plenary (10 minutes max. per group)	Group Representatives
13:30 – 14:00	Way Forward and Closing	Noah Silungwe, MoH
14:00 – 15:00	Lunch	

Appendix 2. List of Participating Stakeholders

Name	Designation	Organization
Jim McGill	Coordinator, Water & Sanitation	CCAP: Livingstonia Synod
Geoff Chipungu	Laboratory Adviser	CDC Malawi
Dr. Golden Msilimba	Director	Centre of Excellence, Mzuzu University
Gunda Andrews	Programme Manager	Clinton Health Access Initiative
Sam Madongo Chirwa	Environmental Health Officer	Lilongwe DHO
Alfred Mologo	Quality Monitoring Services officer	Malawi Bureau of Standards
Charles M. Nyirenda	District Project Officer (Dowa)	Malawi Red Cross Society
Hendrick Sauzande	Administrative Manager	Malawi Revenue Authority
Virginia Kachigunda	Principal Nutrition and HIV & AIDS Officer	Ministry of Education, Science & Technology
George Mkamanga	Director of Community Development	Ministry of Gender
Maurice M'bang'ombe	Epidemiologist	Ministry of Health - Epidemiology
Young Samanyika	Principal Environmental Health Officer	Ministry of Health - Preventive Health Services
Noah H. Silungwe	Principal Environmental Health Officer	Ministry of Health - Preventive Health Services
Synoden Kautsi	Civil Engineer	Ministry of Water Development & Irrigation
Lucy Mwase	Programme Development Officer	Pump Aid
Joseph DeGabriele	Director	SAFI Water Treatment Solutions
Lydia Jolofani Tembenu	Programme Assistant	SAFI Water Treatment Solutions
Timothy Kachule	Chief of Party	SHOPS
Innocent Mofolo	Executive Director	UNC Project
Tabitha Mkandawire	WASH Officer	UNICEF
Dr. E.P. Dzanjalimodzi	Country Representative	Vestergaard-Fransen
Ryan Rowe	Household Water Specialist	Water Institute at UNC
Harold M. Chirwa	Technical Service Director	WES Management
Hudson Kubwalo	Health Information Officer	World Health Organization
P.A. Matipwiri	Country Manager WASH Programs	World Vision

Participant emails available upon request to hwtsnetwork@unc.edu.

Appendix 3. Group Photo of Workshop Participants

Appendix 4. Workshop Working Group Members

Group 1 – Enabling environment, Public-private partnerships
Harold M. Chirwa, Technical Service Director, WES Management
Joe DeGabriele, Director, SAFI Water Treatment Solutions
Edward J Djanzalimodzi, Representative, Vestergaard-Frandsen
Lydia D Jolofari Temberu, Programme Assistant, SAFI Water Treatment Solutions
Charles M Nyirenda, District Project Officer – Dowa, Malawi Red Cross Society
Alfred Mologo, Quality Monitoring Services Officer, Malawi Bureau of Standards
Hendrick Sauzande, Administration Manager, Malawi Revenue Authority

Group 2 – Inter-sector coordination, Implementation
Uliziwa Kachingunda, Ministry of Education Science and Technology
Synoden Kautsi, Civil Engineer, Ministry of Water Develop and Irrigation
Sam Madongo Chirwa, Environmental Health Officer, Lilongwe District Health Office
Timothy Kachule, Chief of Party, SHOPS
Noah Silungwe, Principal Environmental Health Officer, Ministry of Health

Group 3 – Advocacy, Integration
Tabitha Mkandawire, WASH Officer, UNICEF
Gunda Andrews, Programme Manager, Clinton Health Access Initiative
Peter Matipwiri, Country Manager WASH Programme, World Vision
Innocent Mofolo, Executive Director, UNC Project
Lucy Mwase, Programme Development Officer, Pump Aid

Group 4 – Promotion, Monitoring and evaluation, Research
Geoff Chipungu, Laboratory Adviser, US Centers for Disease Control & Prevention - Malawi
Maurice Mbang'ombe, Epidemiologist, Ministry of Health
Jim McGill, Water/Sanitation Coordinator, Church of Central Africa, Presbyterian: Livingstonia Synod
Golden Mslimba, Director, Centre of Excellence in Water and Sanitation at Mzuzu University

Facilitators
Young Samanyika, Principal Environmental Health Officer, Ministry of Health
Ryan Rowe, Household Water Specialist, The Water Institute at UNC