



Government of Malawi

**Household Water Treatment and Safe Storage in Malawi:
A Preliminary Consultative Study**



**Ministry of Health
Department of Preventive Health Services**

**Ministry of Water Development and Irrigation
Sanitation & Hygiene Unit**

November 2012



Acknowledgements

This preliminary consultative study was initiated with support from 300in6, and was co-funded by Aqua for All of The Netherlands.

The document is authored by Ryan Rowe, an independent consultant, based on the terms of reference prepared jointly with the Government of Malawi (Ministry of Health and the Ministry of Water Development & Irrigation), 300in6 and Aqua for All.

During the preparation of this report, the author sought input and feedback from a range of experts, practitioners and stakeholders for which he is very grateful. These individuals include:

Eric Adler, Editor
Joseph DeGabriele, Independent consultant
Lorelei Goodyear, PATH
Henk Holtslag, Connect International
Hudson Kubwalo, World Health Organization
Jim McGill, Church of Central Africa, Presbyterian: Livingstonia Synod
Maggie Montgomery, World Health Organization
Luisa Ryan, Independent consultant
Marcel Schreurs, Aqua for All
Monica Villanueva, United States Agency for International Development
Roselyn Vusia, Independent consultant

In addition, the author expresses deep thanks to the many stakeholders who agreed to contribute their knowledge, expertise and perspectives via email communications and personal interviews. The list of stakeholders consulted during the preparation of this report is detailed in Annex 1.

Finally, this exercise would not have been possible without the time, dedication, guidance and input provided by Humphreys Masuku and Young Samanyika at the Ministry of Health and McLawrence Mpasas at the Ministry of Water Development & Irrigation. The author greatly enjoyed collaborating with the Government of Malawi and looks forward to future collaborations to help increase access to safe water for the people of Malawi.

Cover photo: A bottle of chlorine stock solution distributed by community health workers in a lakeside community in Mangochi District, Malawi. (Credit: Ryan Rowe, July 2012.)

Abbreviations

AIDS	Acquired immunodeficiency syndrome
CCAP	Church of Central Africa Presbyterian
CDC	US Centers for Disease Control and Prevention
CHAI	Clinton Health Access Initiative
CMS	Central Medical Stores
COMESA	Common Market for Eastern and Southern Africa
CPC	Customs Procedure Code
CSS	Chlorine stock solution
DHS	Demographic and Health Survey
EHP	Essential Health Package
GoM	Government of Malawi
HIV	Human immunodeficiency virus
HSA	Health Surveillance Assistant
HSSP	Health Sector Strategic Plan
HTH	High-Test Hypochlorite
HWTS	Household [or, point-of-use] water treatment and safe storage
JMP	Joint Monitoring Programme for Water Supply and Sanitation
LWB	Lilongwe Water Board
MBS	Malawi Bureau of Standards
MDG	Millennium Development Goal
MGDS	Malawi Growth and Development Strategy
MK	Malawian Kwacha
MoF	Ministry of Finance
MoH	Ministry of Health
MWDI	Ministry of Water Development and Irrigation
NGO	Non-government organisation
NWP	National Water Policy
PATH	Program for Appropriate Technologies in Health
PLHIV	People [or, persons] living with HIV
PMTCT	Prevention of mother-to-child transmission
PSI	Population Services International
SADC	Southern Africa Development Community
SWAP	Sector-wide approach
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USD	United States Dollars
VAT	Value-added taxes
WASH	Water, sanitation and hygiene
WESNET	Water and Environmental Sanitation Network of Malawi
WHO	World Health Organization
WMS	Welfare Monitoring Survey
WTO	World Trade Organization

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1 Executive summary

In Malawi, diarrhoea is the fifth leading cause of death among children under the age of five. Although the country is set to achieve the Millennium Development Goal targets for access to water and sanitation, 17% of the population still consumes water from unsafe sources, placing them at risk of water-related diseases.

Three key practices can reduce the burden of diarrhoeal disease: hand washing with soap, the safe disposal of human faeces and the treatment and safe storage of household drinking water. The Government of Malawi recently developed national strategies on hand washing and sanitation, leaving the absence of a strategy on household water treatment a key gap to be addressed.

There are simple, low-cost methods that households can undertake to improve and maintain drinking water quality such as chlorination, filtration and solar disinfection, reducing the risk of contracting diarrhoea by as much as 47%. Still, despite the compelling benefits for personal health, at most only 32% of Malawian households treat their drinking water appropriately.

At a recent policy workshop, the Government of Malawi commissioned this report to review policies relating to HWTS, identify key stakeholders, assess baseline use, understand current production and marketing practices and distinguish the primary challenges and opportunities involved with increasing the use of HWTS in the country. This report aims to supply the Ministry of Health and the Ministry of Water Development & Irrigation with crucial data that should enable them to make decisions about the development of a national strategy to scale up HWTS. The methods used in the preparation of this report include interviews, a literature review and two opportunities for stakeholders' feedback.

Malawi has a policy framework that is broadly supportive of the prioritisation of HWTS and its integration into national water, health and development programmes and strategies. Despite gaps in implementation, Malawi's main achievement is the free distribution of chlorine stock solution in cholera-affected areas. However, the broader commercial environment for HWTS is weak and disorganised. In order to improve access to safe water by the most vulnerable groups and reach a national scale, the sector needs further regulation, guidelines, capacity building and resource mobilisation.

This report recommends five key actions in order to enable scaling up HWTS. First, the government should finalise its national strategy on HWTS declaring its key priorities for guiding stakeholders and mobilising resources. Second, HWTS should be integrated with key national platforms; health services for pregnant women are a particularly viable option. Third, institutional support and sector coordination can be improved by harmonising existing policy, developing implementation guidelines and formulating product standards. Fourth, the implementation of the national chlorine stock solution programme needs to be strengthened.

Fifth, efforts should be made to increase public awareness, while continuing consulting with stakeholders on how to further integrate HWTS.

In August 2012, a draft of this report was presented, as both a discussion and a printed document, to the Ministry of Health, the Ministry of Water Development and Irrigation, the World Health Organization, the United Nations Children’s Fund and others. It was subsequently finalised.

2 Introduction

In Malawi, diarrhoea is the fifth leading cause of death among children under the age of five (UNICEF, 2012). Although the country is “on track” (UNICEF & WHO, 2012, p11) to achieve the Millennium Development Goal¹ target for access to drinking water, 17% of the population still consumes water from unimproved sources (WHO & UNICEF Joint Monitoring Programme for Water Supply and Sanitation [JMP], 2012)², placing them at risk of water-related diseases. Countless more collect water from so-called “improved sources”³ and may contaminate their water due to unsafe practices during its collection, transport or storage in the home. Cholera, a particularly deadly diarrhoeal disease, occurs regularly and is a major concern for health officials.

Three key practices can reduce the burden of diarrhoeal disease: hand washing with soap, the safe disposal of human faeces and the treatment and safe storage of household water. Over the last twelve months, the Government of Malawi has undertaken various efforts to promote these practices. In November 2011, it launched a National Hand Washing Campaign (Malawi Environmental Health Association, 2011), and in December, finalised the Open Defecation Free Malawi Strategy (Institute of Development Studies, 2011). Nevertheless, household water treatment and safe storage remains a deficiency and requires attention.

There are a variety of simple, low-cost and effective methods that households can undertake to improve drinking water quality prior to consumption, such as chlorination, filtration and solar disinfection. These household water treatment and safe storage (HWTS) methods reduce the risk of diarrhoea by as much as 47% (Fewtrell et al, 2005; Clasen et al, 2006; Waddington et al, 2009) and may cost as little as US\$0.02 a day (Clasen et al, 2007). Integrating HWTS methods with other water, sanitation and hygiene (WASH) interventions addresses a range of risk factors for diarrhoeal disease. Both the United Nations Children’s Fund (UNICEF) and the World Health Organization (WHO) recommend HWTS as part of a strategy for comprehensive

¹ In 2000, 189 countries declared their commitment to free people from extreme poverty, poor health and deprivations of water, sanitation and education. This pledge became eight Millennium Development Goals. Learn more at <http://www.undp.org/content/undp/en/home/mdgoverview.html>.

² According to the WHO & UNICEF Joint Monitoring Programme (JMP), unimproved sources of water include an unprotected dug well, an unprotected spring, a cart with small tank or drum, a tanker truck and a surface water source (e.g., river, dam, lake, pond, stream, canal, irrigation channel).

³ According to the JMP, improved sources of water include a public tap or standpipe, a tubewell or borehole, a protected dug well, a protected spring, and rainwater collection.

diarrhoea control (UNICEF & WHO, 2009). It is also considered an essential intervention in HIV/AIDS prevention and care (WHO, 2008) and safe drinking water is an important complement to food in assuring the healthy nutritional status of children. Still, despite the compelling benefits for personal health, at most only 32% of Malawian households (across rural and urban settings) appropriately treat their drinking water (Government of Malawi [GoM], 2010a).

In June 2012, the Ministry of Health (MoH) and the Ministry of Water Development & Irrigation (MWDI) of the Government of Malawi attended a policy workshop in Mozambique. The workshop, hosted by the WHO & UNICEF International Network on Household Water Treatment and Safe Storage, aimed to provide a forum in which to share lessons learned and discuss strategies for improving the policy environment and implementation of HWTS.

During the workshop, the government, along with stakeholders from the private sector, academia and non-government organisations (NGOs), developed the initial outline of a draft for a national action plan to scale up the use of HWTS in Malawi. Among the initial actions envisaged was the preparation of this preliminary consultative study to outline the current status of HWTS and identify key challenges and opportunities, and to provide decision-making data to the MoH and the MWDI. The MoH and the MWDI identified several desired topics to cover in the study, namely:

- (1) national-level policies relating to HWTS;
- (2) key stakeholders and the descriptions of their roles;
- (3) current practice of HWTS;
- (4) current production and marketing practices;
- (5) key challenges and opportunities; and
- (6) recommendations for subsequent action.

With financial support and guidance from 300in6, a Netherlands-based platform for enabling access to safe water, and Aqua for All, a Netherlands-based non-profit foundation focused on increasing access to safe water, the Government of Malawi agreed to commission the preparation of this preliminary consultative study as a first step in the development and implementation of the national action plan.

3 Methods

The various methods used in the preparation of this report include unstructured interviews with key informants, a literature review and two opportunities for comment and further feedback from stakeholders.

Between June and August 2012, informal interviews were conducted for this project with 32 individuals representing a range of stakeholders from government, NGOs, the private sector,

academic research institutions and international agencies. The complete list of individuals consulted is detailed in Annex 3.

During the same timeframe, a number of publications were reviewed, including 15 government-related documents. The literature reviewed was selected from desktop Internet searches and informal searches of databases such as PubMed and Google Scholar, as well as when identified in conversation and email correspondences with stakeholders. The complete list of documents reviewed and cited in this report is provided in the References section of this document. The key government-related documents reviewed are listed in Annex 4.

During the months of August and September, draft versions, or excerpts, of this report were shared with stakeholders by email or in personal meetings to ensure that it accurately reflects a range of perspectives.

Where not available in a published document, stakeholder feedback received and included in this report is footnoted with references to personal communications.

4 Policy environment

This section provides an overview of national-level policies that were identified as relevant to the topic at hand and perceived to be providing political or institutional support or creating barriers to scaling up HWTS. Three main areas of interest were identified:

- policies and national strategies developed by government authorities;
- product regulations which consist chiefly of standards set by national authorities; and
- duties and taxation policies established by the government.

Where possible, stakeholders were asked about the extent of implementation of these policies but such claims have not been corroborated through direct observation.

4.1 Policies and national strategies

National Decentralisation Policy

In the late 1990s, the Government of Malawi decided to decentralise many government services to district-level authorities – including health, education, water and sanitation – while holding them accountable for the implementation of these services in accordance with national policy (GoM, 1998). The aim of the policy was to facilitate community participation in decision-making and service delivery, reduce costs by devolving power to local governments, encourage an integrated service offering and promote accountability and good governance at a level much closer to the constituency. Local governments were given the authority to plan, budget for and implement local infrastructure, primary school education, health care service delivery and emergency response – sectors and activities in which HWTS often plays a role. Local authorities

and community governance structures, such as District Assemblies, District Health Offices and Village Water Committees would become the crucial decision makers.

Decentralising HWTS is like a double-edged sword. On the one hand, it would empower District authorities to tailor a national strategy in ways that take account of localised nuances relating to water such as access, quality and behaviour, while avoiding the common pitfall of trying to find a “blanket solution”⁴ for HWTS. On the other hand, Districts’ capacities for service delivery vary and even though the decentralisation policy passed in 1998, some sectors (such as health) have completed the process sooner than others (such as water and sanitation).⁵ Districts submit annual “sector investment plans” detailing their proposed budgetary needs. Districts face competing priorities and the availability of funding, the local burden of disease and capacity for implementation, factors which may affect their decisions. This report did not include a review of how central government monitors implementation or holds Districts accountable for service delivery.

Malawi Growth and Development Strategy 2006-2011

In the mid-2000s the Government of Malawi set out its overall development philosophy in the Malawi Growth and Development Strategy (MGDS). The first MGDS was issued for the period of 2006 – 2011 and identified nine priority areas, one of which relates to public health, sanitation and HIV/AIDS management (GoM, 2009a).⁶ In this area, HWTS can play a key role in several expected outcomes and thus, supported by appropriate lobbying efforts, HWTS could be positioned as a national priority. The most relevant outcomes desired of the MGDS are:

- increased utilisation of the Essential Health Package;
- reduced under-five and infant mortality rates;
- improved maternal health;
- improved health status or extended life of people living with HIV (PLHIV); and
- increased knowledge and provision of HIV/AIDS-related nutrition interventions.

National Water Policy

The National Water Policy (NWP) articulates the government’s position on water resource management, infrastructure development and water and sanitation service delivery (GoM, 2005). Water quality features prominently as a major policy goal and priority throughout the document, thus intrinsically linking it to HWTS.

Under the NWP, the MWDI is responsible for monitoring the quality of water resources, while water utilities are responsible for monitoring “water quality within the water supply systems”, and the MoH is responsible for monitoring and providing “guidance concerning the quality of

⁴ Personal communication with Tracy Morse, 14 August, 2012.

⁵ Personal communication with McLawrence Mpsa, 6 August, 2012.

⁶ For the following five-year period 2011-2016, a draft of MGDS II was released in June 2011 for stakeholder review and input but a copy could not be obtained for this study.

drinking water” (GoM, 2005, p19). Other policies assign responsibility for HWTS directly to the MoH. Thus, a coordinated approach by several stakeholders would be needed to address sector challenges and deliver potable water to all in accordance with their mandates. The absence of an independent regulator for drinking water quality is inconsistent with what some opinion leaders in the water sector maintain is an international best practice (IRC International Water and Sanitation Centre, 2010).

The NWP mandates the MoH to oversee interventions that halt the spread of water-related disease (the definition of which includes, but does not explicitly mention, HWTS), promote health and hygiene education and provide research and guidance. The integration of water and sanitation within HIV and AIDS programming is explicit, and the policy specifically mentions “portable treatment units” (GoM, 2005, p16) as a strategy for assuring water supply in disaster situations.

National Health Policy

The National Health Policy is the successor to the Public Health Act of 1948 (GoM, 2012a). The policy is in an early draft stage and the current wording does not yet contain details regarding environmental health activities, safe water, household water treatment and safe storage or national strategic priorities such as the Essential Health Package. This presents an opportunity to include supporting language for HWTS to increase awareness of its effectiveness for addressing a key national health concern.

National Environmental Health Policy

The National Environmental Health Policy is the main national policy outlining the government’s approach to environmental health issues that explicitly mentions household water treatment and safe storage (GoM, 2010b). On WASH, the policy goal is to “improve water quality, sanitation and hygiene at community, public and business institutions” (GoM, 2010b, p13). In the same section, the policy makes the following statements in respect of WASH, several of which relate to HWTS (GoM, 2010b, p13):

- “3.2.3.1 Government shall monitor the quality of water from source to user point.
- 3.2.3.2 Government shall promote treatment of water at point of use.
- 3.2.3.3 Government conduct surveillance of water, sanitation and hygiene related diseases.
- 3.2.3.4 Government shall ensure that all household members practice water hygiene measures.”

The policy lists the following strategies to achieve the policy goal (GoM, 2010b, p13):

- “3.2.4.1 Strengthen water quality monitoring
- 3.2.4.2 Strengthen water treatment at point of use.
- 3.2.4.3 Strengthen surveillance of WASH related diseases.
- 3.2.4.4 Promote water hygiene at household level.”

The Department of Preventive Health Services within the MoH is responsible for overall coordination of the policy, including its implementation, in collaboration with external stakeholders. This policy provides high-level political and institutional support for HWTS as a preventive health strategy. Unfortunately, the document has a “final draft” status and remains unsigned by policy makers.

Health Sector Strategic Plan 2011 – 2016

The Health Sector Strategic Plan puts forward the government’s implementation strategy for improved national health (GoM, 2011a), a cornerstone of which is the delivery of the Essential Health Package - 56 essential interventions to address 13 health conditions affecting many Malawians including diarrhoeal diseases.⁷

Although HWTS is considered an important intervention in the reduction of diarrhoeal disease by WHO and UNICEF (WHO & UNICEF, 2009), HWTS is not an EHP intervention. Interventions included in the EHP were evaluated on several criteria: burden of disease, cost effectiveness, access to the poor, MDG condition, evidence-based intervention and availability of earmarked funding (GoM, 2011a). HWTS was not evaluated and it is unclear why it was not included.⁸

Elsewhere in the HSSP, strategies such as household water chlorination, water quality testing, hygiene promotion and disease detection and reporting are identified as the primary means to reduce environmental risks to health, although these references are not harmonised with the National Environmental Health Policy. The narrow reference to chlorination seems to preclude other treatment options and although the MoH has partnered with private sector partners to test filtration options (such as the Lifestraw by Vestergaard Frandsen), these appear to still be in the pilot stage.⁹

One of the key strategies of the EHP is to deliver services in an integrated manner (GoM, 2011a), lending support to weaving HWTS into broader strategies or “platforms” for health and development. Integration could help secure funding and enable HWTS to reach a national scale, especially as HWTS is also relevant to several of the Malawi Growth & Development Strategy outcomes. Possible platforms include national programmes for school-based WASH, maternal health and HIV/AIDS prevention and care, some of which already reference HWTS as an implementation strategy or are exploring its application.

Private sector participation appears to be one strategy the government is using to improve health service delivery. So-called “service-level agreements” (SLAs) between private sector partners and District Health Offices are currently used in the delivery of maternal and newborn health

⁷ A December 2011 near-final draft version of the HSSP was reviewed for this study, as the final version was not available.

⁸ Personal communication with Humphreys Masuku, 21 August, 2012.

⁹ Personal communication with Frank Olesen, 9 July, 2012.

services (GoM, 2011a). These often waive user fees for vulnerable groups, helping to improve equity of access and affordability. SLAs could be one way of further engaging the private sector in HWTS.

Chlorine Preparation Guidelines

The MoH has authored Chlorine Preparation Guidelines to standardise the preparation of chlorine stock solution (CSS) by health workers in the field (GoM, 2010c). The chlorine stock solution programme is a national effort to provide a free method for treating water prior to its consumption and is primarily designed to aid people in cholera-affected areas. The guidelines set out instructions for preparing chlorine for various purposes such as hand washing, general disinfection of household items, household water treatment and safe storage and disinfection of dead bodies.

Despite the guidelines, community health workers may be incorrectly training households on the proper dosing of the solution leading to complaints about taste¹⁰. On the other hand, the author of this report directly observed correct household knowledge of product use and characteristics such as frequency and shelf life while speaking with a user in Mangochi District, Southern Region.¹¹ This suggests that effective communication about the practices is occurring.

The MoH reports it is working to strengthen the guidelines and the CSS programme. Firstly, the Epidemiology Unit of the Department of Preventive Health Services is considering a study to evaluate the effectiveness of chlorine stock solution on reducing diarrhoeal disease, particularly cholera.¹² Secondly, the MoH acknowledged the need to update the guidelines to include chlorine dosing for turbid drinking water.¹³ Specifications for such doses are already available in published literature (Lantagne, 2008).

Malawi Demographic and Health Survey

The Malawi Demographic and Health Survey is a nationally representative, cross-sectional survey implemented by the National Statistical Office with assistance from international and local partners (GoM, 2010a). Last completed in 2010, and before that in 2004, topics include fertility levels, knowledge and use of family planning methods, breastfeeding practices, the nutritional status of mothers and children, childhood illnesses and mortality, use of maternal and child health services, maternal mortality, and domestic violence. Topics are categorised by demographic indicators such as age, sex and geographic location.

The DHS collects data on a variety of indicators related to household drinking water including water treatment practices. This data is summarised in Section 6. Data is also collected on the incidence of diarrhoeal diseases and corresponding health-seeking behaviour and treatment. The 2010 DHS reports a total incidence rate of 17.5% for all cases of diarrhoea (including cholera)

¹⁰ Personal communication with Vicki MacDonald, 25 July 2012.

¹¹ Direct observation by Ryan Rowe, 8 July, 2012.

¹² Personal communication with Young Samanyika, 19 July, 2012.

¹³ Personal communication with Young Samanyika, 19 July, 2012.

but does not offer the proportion of child mortality attributed to diarrhoeal disease. The MoH Health Management Information Bulletin Annual Report for 2010 indicates that under-five mortality attributable to non-bloody diarrhoea is about 0.04% or 950 deaths (GoM, 2010d). In the same report, the total incidence rate for non-bloody diarrhoea in 2010 was reported to be 14% or 324,000 cases (GoM, 2010d). While the figures may seem low in comparison with other major health issues, it is likely due to the fact that diarrhoea is commonly underreported in field settings and data collection is often inaccurate or inconsistent.^{14,15}

Diarrhoeal Disease Control Policy Review

In 2010 and 2011, the MoH, in collaboration with PATH and the University of Strathclyde, conducted a review of policy supporting diarrhoeal disease control (PATH, 2011). The study identified key stakeholders, reviewed epidemiological data, existing policies and programs, and identified challenges and made recommendations for developing an integrated approach to prevention and control of diarrhoeal disease.

In February 2011, several key recommendations were made: the inclusion of diarrhoeal disease as a key priority in the Health Sector Strategic Plan, the development of a comprehensive diarrhoeal disease control policy and the establishment of a sub-technical working group focused on diarrhoeal disease reporting to the Technical Working Group on the Essential Health Package. As of July 2012, these recommendations had not been acted upon and it appears that the window for funding support may have lapsed.¹⁶ The MoH recently advised that it aims to kick start this process again and that the next step would be to present and advocate to the Principal Secretary for the recommendations to be implemented.¹⁷

Sector Performance Report – Irrigation, Water and Sanitation

The Sector Performance Report is an annual review of the status of the irrigation, water and sanitation sector in Malawi that aims to provide decision-making information for the MWDI's Joint Sector Review. The most recent Joint Sector Review meeting was held in April 2012 in Lilongwe, the capital city located in Central Region, and brought together over 200 participants from government, NGOs, donors, private sector, academia and local government during which a key discussion item was the 2011 Sector Performance Report (GoM, 2012b).

The 2011 SPR highlighted recent studies showing that water from “improved sources” is often contaminated at the source or post-collection due to poor practices during transport and storage (GoM, 2012b). The report recommended that HWTS be used in combination with low-cost options for water supply as a cost-effective and timely means of increasing access to safe water. Chlorination and ceramic filters were the recommended HWTS methods due to the residual protective effect of chlorine or filters lined with colloidal silver (GoM, 2012b). Despite the

¹⁴ Personal communication with Humphreys Masuku, 1 August, 2012.

¹⁵ Personal communication with Maggie Montgomery, 31 July, 2012.

¹⁶ Personal communication with Tracy Morse, 14 August, 2012.

¹⁷ Personal communication with Humphreys Masuku, 23 July 2012.

recommendation, HWTS was not included in the summary list of key issues and actions at the most recent JSR meeting (GoM, 2012c).

Sanitation Marketing and Hygiene Promotion Strategy for the Peri-Urban Areas of Blantyre and Lilongwe Water Boards

Developed by the MWDI, the Sanitation Marketing and Hygiene Promotion Strategy is a guideline for the implementation of sanitation and hygiene promotion activities in low-income areas of Lilongwe and Blantyre (GoM, 2010e). The document aimed to provide a framework for an integrated approach to WASH. The strategy overview lists three desired practices: use and maintenance of an improved pit latrine, hand washing at critical times and the safe storage and use of drinking water. Oddly, although the document provides an extensive overview of how to promote both improved sanitation and hand washing, there is no mention of either household water treatment or safe storage anywhere else in the document.

Social Cash Transfer Scheme

The Social Cash Transfer Scheme is a mechanism coordinated by the Office of the President and Cabinet to transfer small amounts of funds to designated groups of the population in order to alleviate the burden of poverty and encourage increased school attendance. Target groups are defined as those in an extremely low expenditure quintile, of old age, or suffering from illnesses or injuries that make them vulnerable. The Scheme was piloted in Mchinji District in 2006 (UNICEF, n.d.) and could be a potential delivery platform for HWTS. For example, members of vulnerable groups could be identified, located and provided with financial assistance (in the form of vouchers or cash transfers) to purchase water treatment products.

Such an approach is not without its challenges. For example, transfers of cash may not be used as intended, leading to the emergence of an informal market for vouchers in which recipients trade or sell them for other products of higher perceived value.¹⁸

Integrated Guidelines for Providing HIV Services

The Department of HIV and AIDS of the MoH has produced a set of guidelines for providing HIV services in an integrated fashion, via various preventive and curative services including antenatal care, maternity care, under-five clinics and family planning clinics (GoM, 2011b).

The guidelines refer to the importance of managing diarrhoea, an often-chronic condition in PLHIV. Although the National Water Policy calls for integration of WASH into HIV/AIDS programming, there is no mention whatsoever in the guidelines of HWTS which is inconsistent with the prescriptions of both international and national-level policies and priorities. Other countries, such as Uganda and Kenya, have included HWTS in their guidelines for HIV and AIDS prevention and care (Government of Kenya, 2002; Government of Uganda, 2010), and HWTS is a recommended intervention for this population group in international guidelines (US Agency for International Development [USAID] & WHO, 2010; WHO, 2008).

¹⁸ Personal communication with Roselyn Vusia, 20 August, 2012.

It is important to note that PLHIV are at high risk for diarrhoea-related opportunistic infections such as cryptosporidium and giardia, contracted through the consumption of dirty drinking water. Policy-makers and implementing stakeholders should be aware that chlorine-only HWTS options are not effective at removing protozoan parasites such as cryptosporidium or giardia as these are chlorine-resistant (WHO, 2011). Thus, for programs focused on PLHIV, only HWTS options effective at removing such pathogens should be used.

School Health and Nutrition Guidelines

The Government of Malawi has developed School Health and Nutrition Guidelines, which emphasise the importance of good WASH practices and proper nutrition to create a safe and productive learning environment (GoM, 2009b). School committees are explicitly mandated with the responsibility to ensure that safe drinking water is accessible to all students and the guidelines outline which parties can provide technical assistance in this regard. Water treatment is identified as a strategy for achieving this objective, and a target is set for 100% of schools to offer safe drinking water by 2018. Due to time constraints, it was not possible to obtain information either on the current status of implementation of this policy or progress toward the target.

4.2 Product regulation

Malawi Catalogue of Standards

In most countries, governments regulate products or services in order to protect consumers and promote fair and consistent business practices. In order to achieve this in a transparent fashion, governments set standards for products and services that establish a minimum threshold regarding quality, performance or fitness for purpose. In Malawi, a Catalogue of Standards has been developed by the Malawi Bureau of Standards. With respect to drinking water, the Catalogue includes standards regarding control and surveillance of drinking water networks – MS 678, public water quality sampling – MS 682 and bottled water quality – MS 699 (MBS, 2011). As noted in Section 4.1, Malawi does not have an independent regulator to assess and ensure compliance with these standards.

The Catalogue of Standards does not include criteria for water treatment products and the Malawi Bureau of Standards confirmed that no such standards currently exist.¹⁹ However, they advised that such standards could be drafted upon request.²⁰ Annex 5 outlines the steps to be undertaken to get that process started.

Currently, several water treatment products (listed in Section 7) are sold in Malawi and it is not clear whether, or how, they were approved for sale, nor what fees might apply to undergo such approval. This may also be a deterrent to international manufacturers considering introducing

¹⁹ Personal communication with Gloria Chaonamwene, 10 August, 2012.

²⁰ Personal communication with Gloria Chaonamwene, 10 August, 2012.

their products to the Malawian market. At the time of this report’s submission, the MBS had not yet replied to inquiries on the matter.

4.3 Duties and taxation

Customs and Excise (Tariffs) Order of 2007

Duties and taxation on products imported into Malawi are set by the Ministry of Finance, applying the rules set under the Customs and Excise (Tariffs) Order of 2007 (GoM, 2007a). Duties and taxes vary according to both the status of the importing party and the type of water treatment product. For this report, importing parties are distinguished as either water boards or any other party (including the private sector, research institutions and non-profit organisations). Water treatment products may include chemical or other additive products (*e.g.*, chlorine, colloidal silver or iodine) or non-chemical products, which include mechanical processes (*e.g.*, filters).

Table 1 summarises how the government currently levies duties and taxes on such products and Annex 6 includes further detail including references to the relevant portions of government regulations. For parties other than water boards, there is a large difference in the application of duties on chemicals versus non-chemical products, and the rationale for this is unclear.

Table 1: Are duties and/or taxes applicable?

Importing party	Chemicals	Non-chemical products
Water boards	No duty; No VAT	No duty; No VAT
All other parties	No duty; 16.5% VAT	Up to 30% duty; 16.5% VAT

Regarding taxes, commercial businesses involved in the sale of water treatment products are subject to an income tax of 30% (tax holidays are considered by the MoF on a case-by-case basis, and usually only for firms with significant existing or planned investment in the country). Firms may apply for an income tax exemption by signing a Memorandum of Understanding with the MWDI and submitting it to the MoF for approval.²¹

5 Key stakeholders

At a recent policy workshop on environmental health interventions, the MoH and MWDI jointly identified the key stakeholder categories and a brief description of their roles.²² Thus, the purpose of this section is to provide illustrative examples of key actors in each category and provide a brief overview of some of the actors, and their potential roles in, and perspectives on, a national programme to scale up HWTS. Contact information is provided in Annex 2, with a short list of possible funding partners in Annex 3.

²¹ Personal communication with unnamed official at MoF, 4 July, 2012.

²² Workshop on Environment Health Interventions, hosted by the WHO & UNICEF International Network on Household Water Treatment and Safe Storage, Maputo, Mozambique, 20-22 June 2012. More info at: http://waterinstitute.unc.edu/hwts/events/2012_maputo.

One shortcoming of the list is that it does not differentiate end users as a separate stakeholder category.²³ As users are the ultimate beneficiary, driving the necessity of a scaled up HWTS programme, the costs and benefits to this group should be always be considered. End users play an important role through their participation in research and formative efforts such as focus groups, surveys, interviews, and pilot testing, all of which could reveal end-user product preferences, willingness and ability to pay, behavioural issues and other important insights into the market. The term “end user” may broadly include whole communities or defined populations, such as PLHIV or orphans and vulnerable children, specific income groups or specific individuals used as an example of the target market.

Users of this report should also note that government actors (such as district-level authorities) and parastatal actors (such as water boards) often perform similar roles as those listed under the second category of non-government organisations. Section 9 of the National Water Policy (GoM, 2005) provides a more detailed overview of the government-mandated roles and responsibilities of these stakeholders.

Table 2: Stakeholders and roles

Key Stakeholders	Key Roles	Illustrative List of Key Actors
Government	Create an enabling environment for introduction and up scaling of HWTS as detailed in HWTS work plan: stakeholder coordination and policy/guidance formation	<ul style="list-style-type: none"> - Ministry of Health - Ministry of Water Development & Irrigation - Ministry of Finance - Water boards - Central Medical Stores - Malawi Bureau of Standards - District-level authorities
Non-government organisations	Programme implementation: advocacy and awareness, capacity building and service delivery	<ul style="list-style-type: none"> - Population Services International - Clinton Health Access Initiative - Water and Environmental Sanitation Network of Malawi - Church of Central Africa Presbyterian - Connect International via Smart Centre
Private Sector	Provision of HWTS products and services: product innovation and manufacturing, consumer financing, marketing, and supply chain management	<ul style="list-style-type: none"> - Large international firms - Local firms and entrepreneurs - Micro-finance institutions and private laboratories
International organisations	Financial support and technical guidance on best practices and product performance standards	<ul style="list-style-type: none"> - World Health Organization - United Nations Children’s Fund - US Centers for Disease Control and

²³ Personal communication with Roselyn Vusia, 20 August, 2012.

		Prevention
Academia	Generating evidence to inform decision making	<ul style="list-style-type: none"> - Mzuzu University (Centre of Excellence) - University of Malawi / Strathclyde (WASHTED) - University of North Carolina
Donors	Funding, policy guidance, and local capacity development	<ul style="list-style-type: none"> - Refer to Annex 3 for a list of potential donors and other funding sources

5.1 Government stakeholders

Ministry of Health

The MoH is the primary government body responsible for setting policy on HWTS and coordinating implementation by stakeholders. The Department of Preventive Health Services executes the work, implementing the National Environmental Health Policy and overseeing activities such as WASH/HWTS and water quality monitoring (GoM, 2010d).²⁴ The implementation of HWTS is devolved to district-level authorities in accordance with the National Decentralisation Policy (GoM, 1998) and specifically the Environmental Health team within the District Health Offices. Front-line defence against diarrhoeal disease and promotion of HWTS occurs mainly at the primary level of health care which consists of health posts, dispensaries, health centres and rural hospitals where services are provided by doctors, nurses, Health Surveillance Assistants (HSAs), community-based distribution agents and village health committees and NGOs (GoM, 2011a).

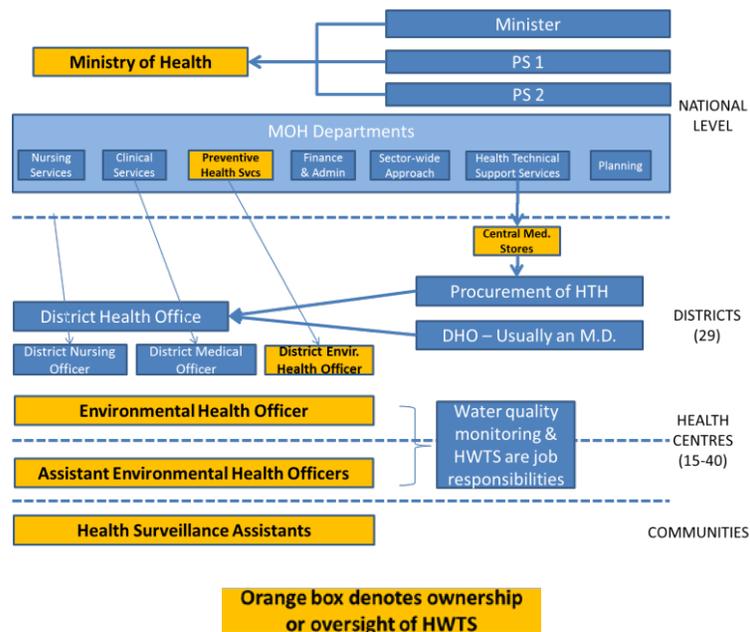
Each District Health Office is headed by a District Health Officer, usually a medical doctor, who oversees clinical services, nursing services, and environmental health services and NGO contributions. The District Environmental Health Officer is responsible for health promotion, including the importance of safe drinking water. The District Health Office is also responsible for forecasting demand for the chlorine stock solution and overseeing the implementation of Chlorine Preparation Guidelines (GoM, 2010c), water quality surveillance and other areas. Operational funding is based on need, as outlined in District Health Implementation Plans. These plans are devised according to strategies and priorities dictated by the MoH, and are prepared and overseen by the District Health Management Team (the District Health Officer, the District Nursing Officer and the District Environmental Health Officer). Such plans normally include budgets for CSS.²⁵ Figure 1 outlines the various actors in the MoH system responsible for setting policy and implementing HWTS (*i.e.*, the CSS programme). Annex 7 provides a general overview of MoH decision making and hierarchy.

²⁴ Personal communication with Young Samanyika, 19 July, 2012.

²⁵ Personal communication with Young Samanyika, 19 July, 2012.

Key directorates within the MoH that have a stake in HWTS include Central Medical Stores, an independent trust managing the procurement of medicines and other health products (including High-Test Hypochlorite powder, the ingredient needed to produce CSS),²⁶ the Department of Preventive Health Services, which oversees the implementation of environmental health initiatives including WASH/HWTS and water quality monitoring,²⁷ and the Departments of Nursing and Clinical Services, which are responsible for health care delivery (including consultations with clients who may be suffering from diarrhoeal disease preventable through WASH interventions or curative measures such as oral rehydration salts or zinc).

Figure 1: MoH actors with a role in HWTS



Ministry of Water Development and Irrigation

The MWDI is responsible for water supply and sanitation services nationwide, as well as planning, coordinating, regulating, disseminating information, establishing standards and guidelines and building capacity in the water and sanitation sector. National performance is usually measured in the Sector Performance Report, which includes 16 headline indicators – HWTS is not included (GoM, 2011). Within the water development area of the Ministry, there are three units: Water Resources Management, Water Supply Services and Sanitation & Hygiene. The Sanitation & Hygiene unit is principally responsible for HWTS while the Water Resources Management unit is tasked with water quality. It is not clear how the MWDI and the MoH coordinate their approach to HWTS to avoid duplication of effort.

The Sanitation & Hygiene unit's activities focus mainly on providing policy and technical support for the promotion of three key hygiene practices: hand washing at critical times, safe

²⁶ Personal communication with Brian Chimwembe, 10 August, 2012.

²⁷ Personal communication with Young Samanyika, 19 July, 2012.

disposal of human waste (including on-site sanitation options) and collection, transport, storage and handling of household drinking water or HWTS. Support includes the development of national level strategies and guidelines, technical assistance to districts by developing WASH strategies, and participation in national level decision-making bodies. Although there is a national Open Defecation Free Strategy and a National Hand Washing Campaign, there are currently no guidelines on HWTS, an issue which the MoH and the MWDI jointly seek to address. Furthermore, the MWDI chairs a Technical Working Group on Sanitation & Hygiene and sits on a National Sanitation and Hygiene Coordination Unit chaired by the MoH. These decision-making bodies are the mechanisms that would present decisions on HWTS.

The MWDI also provides technical assistance to Districts seeking to incorporate HWTS into their strategies concerning water, sanitation and hygiene. These strategies are detailed in district strategy and investment plans for the WASH sector. Four such investment plans were reviewed and found to incorporate HWTS or HWTS-related activities in some way. For example, there are references to promotion of HWTS in schools and communities (GoM, 2007b; GoM, 2007c), social marketing of WaterGuard (GoM, 2007d), water quality monitoring by village health and water committees (GoM, 2007d) and the results of a survey of households practicing safe storage of household water (GoM, 2007e). The investment plans tend to mention that water deemed safe at the point of collection is not guaranteed to remain safe at the point of consumption. Thus, it is clear that the role and need for HWTS are effectively disseminated by the MWDI to district-level officials responsible for WASH.

Water Resources Management is responsible for monitoring both the quantity and quality of surface water and ground water sources up to the point of collection. Although this responsibility should devolve to districts in line with the National Decentralisation Policy, it is currently handled by regional offices.²⁸ The unit keeps a master list of all the water points in the country and relies on sector stakeholders to advise it when a new water point is opened so that a baseline check may be performed (for a fee) and the water point approved for use. Periodic monitoring is conducted thereafter.

Source water quality monitoring is much less frequent than desired due to staffing shortages, resource constraints and lack of laboratory capacity.²⁹ When a water point is compromised or contaminated, local health authorities are advised to close it down and the contractor or operator responsible for maintaining the water point is notified to repair it. If the responsible party cannot be located, the Ministry and the community in question confer on how to proceed. Each water point has a Village Water Committee responsible, along with with local health workers, for communicating the problem and solutions to the community.³⁰

Ministry of Finance

²⁸ Personal communication with Peaches Phiri, 7 August, 2012.

²⁹ Personal communication with Peaches Phiri, 7 August, 2012.

³⁰ Personal communication with Peaches Phiri, 7 August, 2012.

The MoF is the body responsible for forecasting government expenditure and income and setting government policy on taxes and duties. It is also responsible for preparing the annual budget and allocating resources to various areas of government operations. With respect to HWTS, the MoF would be responsible for clarifying issues related to duties and taxation as they affect the private sector, research institutions and non-governmental organizations in the commercial sale and non-profit support of HWTS work. The MWDI and MoH are best positioned to lobby for duties and taxes on water treatment products to be adjusted.

Water boards

Water supply infrastructure and service delivery in Malawi is provided through five water boards – two of which are located in the major urban areas of Lilongwe and Blantyre while the other three are regional water boards serving the Northern, Central and Southern Regions of the country.

Access to safe water in Malawi faces several challenges. According to the most recent data available, 20% of the rural-dwelling population and 15% of the urban-dwelling population is drawing water from unimproved sources such as lakes, rivers or unprotected wells. When considered in combination with population data from the World Bank (2011), this suggests that as many as 3 million people draw water from unimproved sources on a daily basis.

For example, the Lilongwe Water Board estimates that it is reaching two-thirds of its coverage area of 900,000 people through home or yard connections and community-operated water kiosks.³¹ The un-served portion of the population, as many as 300,000 people, is currently drawing water from local boreholes and wells where water quality is neither monitored nor assured since it is not connected to the water supply network. The operational and maintenance responsibilities regarding these water points remain unclear. They may have been initially set up by local entrepreneurs or NGOs and later left to the community or abandoned. The quality of water from such sources is uncertain and those who consume its water represent part of the population at risk. In rural areas, many may be drawing water from surface sources thus creating an urgent need for HWTS.

³¹ Personal communication with Gabriel Gonani, 27 July, 2012.

Although water quality is regularly monitored at randomly selected point, users who obtain their water through home connections or kiosks may still be at risk. Water supplies in Lilongwe are often interrupted due to power cuts, inadequate water reserves and outdated, crumbling infrastructure.³² When supply is interrupted, households must seek alternative sources, sources which may be unsafe. In addition, kiosk-sourced water may become unsafe due to unsafe transport, handling and storage practices, although the risk may be muted due to the protective effect of residual chlorine. The Lilongwe Water Board acknowledges that the current situation creates an urgent need for HWTS.³³



A local water point in Kauma (Lilongwe) that does not appear to be operated or maintained by any official entity, with latrines located nearby (not shown). The woman drawing water is also using an uncovered container to transport the water: another risky practice. It is not clear whether this water is intended for drinking. (Photo by Ryan Rowe, 8 July, 2012.)

Prior to meeting with the author of this report, the Lilongwe Water Board was unaware that they are entitled to import water treatment products and chemicals free of duty and tax (refer to Annex 6 for more information), providing them with a potential cost advantage in the distribution or sale of such products. One arrangement might be to import these products and act as a distributor to third parties or reseller to agents (*e.g.*, kiosk operators) at little-to-no mark-up on the import price. The LWB expressed no opposition to third parties entering the coverage area to sell water treatment products.³⁴

Central Medical Stores

Central Medical Stores is the national pharmacy of the Government of Malawi. It is responsible for managing the procurement of medicines and other health products according to the needs of all government health facilities. Products procured on behalf of the MoH include High-Test Hypochlorite powder, the ingredient needed to produce CSS. As the main intermediary ordering and delivering the powder, CMS is a key stakeholder in the success of the chlorine stock solution programme. The chlorine stock solution programme is outlined in greater detail in Section 7.

As stock-outs of HTH powder reportedly occur with regular frequency, demand forecasting by the districts appears to be wanting and requires significant strengthening, as this is where the stock-outs occur. Unfortunately, without observing interviews at the district level, this remains a question. There also appears to be a great dependence on emergency tenders as a result of the long lapse between open tenders and regular stock-outs. As a result, UNICEF and other

³² Personal communication with Joseph DeGabriele, 17 August 2012.

³³ Personal communication with Gabriel Gonani, 27 July, 2012,

³⁴ Personal communication with Gabriel Gonani, 27 July, 2012.

organisations have reported that they keep a stockpile of chlorine stock solution on hand. CMS also reported that some districts receive supplementary funds or in-kind donations directly from donors.³⁵

Malawi Bureau of Standards

Malawi Bureau of Standards is the government body regulating product safety, quality and performance. Through a standards body like MBS, the government oversees the manufacturing, sale and provision of goods and services and ensures they meet acceptable minimal levels of quality and design and that they are fit-for-purpose. The MBS would be the lead agency in developing national standards on water treatment products and is therefore a key stakeholder in scaling up HWTS.

5.2 NGOs

Non-governmental organisations have an important role to play in the water and sanitation sector in Malawi, contributing to service delivery, building capacity of other NGOs and stakeholders and conducting advocacy on behalf of the citizens of Malawi and raising general awareness of WASH-related issues. Some key actors are Clinton Health Access Initiative, PATH, Population Services International and the Water and Environmental Sanitation Network.

Clinton Health Access Initiative

The Clinton Health Access Initiative (CHAI) is the technical assistance arm of the Clinton Foundation and has been operating in low- and middle-income countries such as Malawi since 2002. In Malawi, its mission is to strengthen health systems with a focus on HIV/AIDS prevention and care, cooperating with the government and other partners. In 2009, based on the promising results of a study in Blantyre and Salima Districts, CHAI implemented a programme integrating the delivery of water-related hygiene products (including WaterGuard and the P&G Purifier of Water) to HIV-positive and HIV-negative pregnant women served by health facilities in Machinga District. CHAI is currently transferring ownership of the programme to the MoH and the government is concurrently considering how to address key challenges, such as funding and procurement, and whether to expand and scale-up the programme.

PATH

PATH is a US-based internationally focused NGO working in more than 70 countries on innovative solutions and technologies to improve health. In Malawi, they worked with the University of Malawi Polytechnic in Blantyre to conduct a diarrhoeal disease control policy review identifying a lack of comprehensive policy (PATH, 2011). Under its Bill & Melinda Gates Foundation-funded Safe Water Project, PATH collaborated with the US Centers for Disease Control and Prevention to evaluate the antenatal care/hygiene kit model implemented by the MoH in partnership with Population Services International and CHAI. Going forward, PATH is eager to contribute to scaling up the ANC/hygiene kit model, conducting market assessments

³⁵ Personal communication with Brian Chimwembe, 10 August, 2012.

for HWTS products, developing consumer financing for the purchase of durable filters and other WASH products, qualitative and cost analysis of implementation activities and further work on the development of diarrheal disease policy for Malawi. Recently, PATH developed product design guidelines and a toolkit for commercialisation that would-be Malawian manufacturers and entrepreneurs might find useful. Although they are based on research conducted in Asia, the results of similar research in Mali, Ethiopia and Tanzania are forthcoming.³⁶

Population Services International

PSI is a US-based internationally focused NGO that specialises in social marketing for behaviour change and promotes products such as condoms, bed nets and HWTS in many countries around the world. In Malawi, they have a specific emphasis on HIV/AIDS and child health. PSI requires evidence of health impact or means of measuring potential impact of a pilot programme to justify supporting a specific intervention; success is measured in terms of disability adjusted life years averted, an indicator of the burden of disease that can be avoided through a given intervention.

PSI is the national distributor for the two main commercial HWTS products available in Malawi: WaterGuard and P&G Purifier of Water (known locally as Wa Ufa). It has provided support to recent pilot efforts to the integrated antenatal care/hygiene kit model which included WaterGuard. PSI has expressed interest in expanding their range of HWTS product options to include filters and other additive products. In discussions, PSI also expressed interest in a national partnership with the government. It could lend sector knowledge, expertise in social marketing and foster a strong national supply chain, but would be unwilling to contribute funding.³⁷ Research shows that scaling up HWTS is likely to be more successful with sustained social marketing (Wood et al, 2011) and thus PSI would be a key stakeholder in national efforts.

Water and Environmental Sanitation Network of Malawi

The Water and Environmental Sanitation Network (WESNET) is the national network for civil society organisations and individuals working on water and sanitation issues in Malawi and aims to facilitate information flow and stakeholder collaboration. WESNET identified three areas in which it believes civil society plays a role by contributing to the water and sanitation sector: community engagement, service delivery and technical input to policy development. Challenges confronting WESNET members include low awareness of current policies, limited technical capacity and funding constraints and indicate the need to support improved training. WESNET endorses an integrated approach to HWTS and feels that such an approach has thus far been overlooked. WESNET offered to survey members on their activities in HWTS as well as play a role in raising awareness of HWTS among policy makers, WESNET membership and the public.

5.3 Private sector

³⁶ Personal communication with Lorelei Goodyear, 23 August, 2012.

³⁷ Personal communication with Ricki Orford, 25 June, 2012.

The private sector can play several roles in scaling up HWTS, many of which relate to providing products and services related to HWTS, such as consumer financing, market research and consulting or supply chain management. For the sake of simplicity, this section focuses primarily on two categories of private sector firms involved in the manufacturing or distribution of HWTS products: large firms with international reach and small local players. The roles of micro-finance institutions for stimulating manufacturing and consumer uptake and private laboratories for water quality monitoring are briefly outlined.

Promoting private sector participation in HWTS can help to improve sustainability of the sector, improve use through increased accessibility and lower overall costs to consumers. With healthy competition and a profit motive, firms tend to improve their production, marketing and distribution practices over time, and these benefits can be passed on to consumers through lower costs and improved product quality. Over time, supply chain efficiency may also improve, helping to improve availability of spare parts, perhaps not just for HWTS-related products but also for the broader WASH sector (*e.g.*, parts for pumps, pipes and purifiers). In the long term, this will help to improve the sustainability of water projects operated by communities and local entrepreneurs.

Government, such as the Ministry of Finance, has a role to play by creating the right incentives for the private sector to move manufacturing onshore and invest in reaching isolated markets. Lowering or streamlining regulatory hurdles, taxes and trade barriers are some of the ways to accomplish this, as discussed in Sections 4.2 and 4.3. Improved product choice may also increase general consumer uptake of HWTS. As HWTS becomes more affordable and more choices become available, consumers may try out different methods and feel empowered to choose the one that best meets their needs and preferences.

Despite the benefits of private sector participation, commercial methods may not be effective in reaching the more vulnerable segments of society, for whom making ends meet or even survival is a daily struggle. These are the groups for whom safe water often offers the greatest benefit. Therefore, government needs to consider alternative approaches, such as free products, subsidies, cash transfers and vouchers. The recent emergence of so-called “social enterprise” models – companies that forego or re-invest profits to meet social goals – offers a hybrid business model combining market-based approaches with the principles of typical non-profit enterprises. For example, Ecofiltro, an award-winning firm producing clay-based filters in Guatemala, sells its filters to urban populations at a profit, allowing the company to lower the cost for rural populations who may have reduced access to safe water and be less likely to afford such products.

Large international firms

There are several large international firms that manufacture HWTS products: Vestergaard-Frandsen (LifeStraw Family filter), Medentech, (Aquatabs and Aquaflo), Procter & Gamble (P&G Purifier of Water), PSI (WaterGuard), Hindustan Unilever (Pureit) and Eureka Forbes

(Aquasure). These firms are often active in providing financial and in-kind support to various safe water initiatives around the world, including emergency response efforts (one major example is Procter & Gamble's Children's Safe Drinking Water Program).

LifeStraw, Aquatabs, Aquaflo, Pureit and Aquasure are not currently available for sale in Malawi. Their introduction could help stimulate the market. At least one international firm has already identified a local entrepreneur to act as its distribution agent while it considers its options for entering the market.

Local firms and entrepreneurs

Local firms, entrepreneurs and particularly, community-based organisations³⁸ could also play a role in scaling up access to and use of HWTS by contributing to diversity of product offerings and conducting community outreach. Currently there is only one local enterprise known to be selling an HWTS product to consumers and this is still in an early start-up phase. These initiatives also contribute to local economic growth and provide income-generating opportunities. While local manufacturers may understand local market nuances better than international firms, they tend to have significant working capital constraints and may not have as skilled a workforce, thus capacity building efforts and greater access to credit is needed. Small firms should still be required to meet minimum standards of quality and performance such that their products deliver the minimum necessary improvements in water quality for the benefit of human health.³⁹

Micro-finance institutions and private laboratories

Micro-finance outfits or government business start-up funds, such as Malawi Rural Development Fund and the Youth Enterprise Development Fund, could help to provide start-up capital to firms seeking to manufacture locally and/or import products and parts from abroad. Consumer lending from micro-finance institutions has been shown to be a successful strategy in India (POUZN Project, 2010), although some local players remain dubious of the business case.⁴⁰

The National Water Policy also identifies the private sector as playing a key role in services related to water quality (GoM, 2005), which could help to address the current gap in water quality monitoring identified in conversations with the MWDI⁴¹. It is unclear how many private firms in Malawi are currently qualified to perform such services.

5.4 International organisations

World Health Organization

The World Health Organization, the United Nations normative global health institution and the co-host/founder of the International Network on Household Water Treatment and Safe Storage,

³⁸ Personal communication with Young Samanyika, 3 August, 2012.

³⁹ Personal communication with Maggie Montgomery, 20 August, 2012.

⁴⁰ Personal communication with an unnamed representative of a Lilongwe-based MFI, 4 October, 2012.

⁴¹ Personal communication with Peaches Phiri, 7 August, 2012.

plays a critical and influential role in mobilising government officials to support HWTS. The WHO could play a key role in assisting the MoH with policy development and has a local official in Malawi who could dedicate 30% of his working time to assisting the MoH. One particular area where such assistance would be useful is informing the development of a national framework for evaluating household water treatment products, based on the WHO performance recommendations (WHO, 2011).

UNICEF

The United Nations Children’s Fund, the United Nations agency focused on child welfare and a co-host of the International Network on Household Water Treatment and Safe Storage, is an important stakeholder in any future plan to scale up HWTS. As the cluster lead for WASH and a strong global voice in support of child health, it can influence and coordinate stakeholders and mobilise funds.

Locally, UNICEF has staff dedicated to Child Health and WASH including an HWTS focal point who could potentially lend support. Previously, related efforts included communications materials for WASH in schools, water quality monitoring and maintaining stockpiles of CSS on hand for emergency response. For example, UNICEF collaborated with the MoH and the MWDI on developing a Water Quality Surveillance Training Manual for Extension Workers (GoM & UNICEF, 2004). UNICEF Malawi currently focuses on supporting the MoH with a National Handwashing Campaign and is involved in efforts to scale up water supply. Therefore, it may be limited in its capacity to support HWTS efforts without additional funding or a re-allocation of resources.

5.5 Academia

Research organisations play an important role in generating evidence to inform decision-making and offering courses that can help build technical or commercial capacity of local researchers, businesspeople and policy-makers. There are currently several academic organisations working in Malawi providing support to the water and sanitation sector: University of Malawi, Mzuzu University and the University of North Carolina. Researchers at these universities could be possible candidates to sit on technical working groups formed around WASH-related issues.

Mzuzu University

Mzuzu University is Malawi’s second major university and is located in the northern part of the country. The university has a Centre of Excellence in Water and Sanitation set up with the support of funders from abroad (WASTE from the Netherlands). Moreover, the university is now setting up a “Smart Centre” where existing and new low-cost WASH technologies are demonstrated, including water filters – an option not widely used in Malawi at the moment. The centre should aim to train NGOs and the local private sector in the production, maintenance and sales of low-cost water and sanitation options. The development and implementation of a strategy to scale up HWTS fits very well in the activities of the new centre. This project is

implemented by the Dutch organisation Connect International and funded by Aqua for All, with support from Rotary clubs in The Netherlands and UK.

University of Malawi & University of Strathclyde

The University of Malawi, a government-funded institution and one of Malawi's premier universities, partnered with the University of Strathclyde in Scotland to establish WASHTED, a research centre focused on WASH activities. The centre is currently working on advancing efforts in renewable energy, community-led total sanitation, conducting impact evaluations and contributing to plans for the World Environmental Health Congress 2016. This partnership has produced several publications over the last seven years. Various departments of the University of Malawi have links to environmental health, including the Kamuzu College of Nursing's Community Health Nursing Department, the College of Medicine's Community Health Department and the Polytechnic's Engineering and Applied Sciences Environmental Health Department.⁴²

University of North Carolina

The University of North Carolina in the US, has been working in Malawi in partnership with the MoH for over twenty years on a range of different health initiatives. The main activity is the operation of a facility in the capital city for research, clinical care and training. UNC also has strong credentials in water, sanitation and hygiene with over 50 years of experience working on WASH efforts both in the US and globally. Several researchers based at UNC have a work record in the field of HWTS could be invited to participate in research efforts or provide input to HWTS efforts in Malawi.

5.6 Donors

Malawi depends heavily on donations to its annual budget for the health sector. In Malawi, only 14% of health care funding comes from the government while about 86% comes from donors.⁴³ The largest donors are Global Fund (25%), USAID (17%) and the United Kingdom Department for International Development (10%). The GAVI Alliance, the Government of Norway, CDC, UNICEF, the German Development Bank and the World Bank provide an additional combined 20%, and thirty-eight other donors are responsible for the remaining 15% of funding.⁴⁴

Much of the aid that Malawi receives is discretely allocated to specific programmes rather than pooled for use by the MoH at its own discretion, thus making it challenging to find support for HWTS. An exception to this is the direct funding provided by USAID to PSI for several years to underpin nationwide social marketing and sales of WaterGuard. However, USAID ceased this funding in January 2012, having reprioritised its support for market-based approaches.

⁴² Personal communication with Tracy Morse, 14 August, 2012.

⁴³ This does not include the private sector share of health services delivery.

⁴⁴ Personal communication with an unnamed contact, 21 August, 2012.

As a result, HWTS either needs to be integrated within a broader health programme as mentioned previously or financial support for such specific activity will need to be rallied from donors. Furthermore, traditional donors such as USAID may be unwilling to provide support for subsidy-based programmes, especially given the current economic and budgetary challenges faced by many of Malawi’s aid partners. Rather than duplicate a list of key donors here, Annex 3 lists funding sources.

6 Baseline use of HWTS

This section reviews available data to determine whether sufficient information exists to establish baseline figures concerning the use of HWTS, and thereby provide a starting point for the government to measure success of efforts to scale up HWTS.

Published studies and other reports were reviewed to collect data measuring the use of HWTS in localised areas, specific populations or nationally. Several of these were conducted by PSI, as part of its work to promote household water treatment and other behavioural interventions that prevent malaria and diarrhoeal disease.

The most recent DHS includes a national assessment of the practice of HWTS. The forthcoming Welfare Monitoring Survey (WMS), a survey designed to aid in identifying and classifying the country’s vulnerable population groups, is reported to include national data on the use of HWTS. The WMS was last published in 2009.

Although both the DHS and the WMS are national measurements they are not determined on an annual basis, a gap that makes it difficult to assess the year-to-year success of measures to increase national coverage.

Table 3: Recent studies of HWTS

Study Name	Year	% treating water
Welfare Monitoring Survey	2011	To be released later in 2012 ⁴⁵
Demographic and Health Survey (GoM, 2010a)	2010	33* (nationally)
Antenatal care pilot (Wood et al., 2011)	2010	28** (pregnant mothers)
PSI Malawi HWTS survey (PSI, 2012)	2011	24**
PMTCT post-natal pilot (Xue et al, 2010)	2008 – 2009	99****
PSI Malawi TRaC study (PSI, 2008)	2008	13*** (caregivers)
PSI Malawi TRaC study (PSI, 2008)	2005	21***
CDC & University of Malawi (Stockman et al, 2007)	2005	12**

*Appropriate water treatment methods include boiling, bleaching, straining, filtering and solar disinfection

**WaterGuard

***Any method of treatment

****WaterGuard or Wa Ufa

⁴⁵ Personal communication with Benjamina Banda, 20 July 2012.

Demographic and Health Survey (2010)

The Demographic and Health Survey conducted in 2010 is currently the only national estimate available regarding the use of HWTS in Malawi. In that study, the main methods of appropriate treatment include:

Table 4: Treatment options used

	Urban (%)	Rural (%)	Total (%)
Boiling	6.1	11.4	10.6
Bleach/chlorine	26.1	25.0	25.2
Straining through cloth	1.2	1.8	1.7
Ceramic, sand, or other filter	0.2	0.1	0.1
Solar disinfection	0.0	0.0	0.0
Other	3.5	4.3	4.2
No treatment	66.8	64.2	64.6
% of respondents using appropriate treatment method	30.8	33.0	32.6

*Note: Respondents reported multiple methods, so results may total more than 100%. Appropriate water treatment methods include boiling, bleaching, straining, filtering, and solar disinfection.

Welfare Monitoring Survey (2009)

The Welfare Monitoring Survey is conducted by the National Statistical Office, most recently in 2011 and before that in 2009. The 2009 survey did not investigate the practice of household water treatment. In the 2011 WMS, respondents were asked several relevant questions as detailed below. Unfortunately, the results will only be published later in 2012 and could therefore not be included in this report.⁴⁶ The questions asked in the WMS relate to perceptions of water quality, treatment practices, transportation, storage and handling of household drinking water.

PSI Malawi HWTS Survey (2011)

In 2011, PSI conducted a survey that found 24% of Malawians reported having treated their drinking water within the week (PSI, 2012). Furthermore, a 2010 study by the Malawi DHO found that 20.5% of Malawians get their water from unimproved sources, again leaving them open to increased risk of diarrhoeal disease (PSI 2012). Further details on these figures were requested from PSI, but no response had been received at the time this report was submitted.

Antenatal Care Pilot (2007 – 2008), Follow-up (2010) and Replication (2011)

In 2007 and 2008, USAID provided funding to MoH and partners for a nine-month pilot study to distribute 15,000 free hygiene kits to antenatal care patients at government health facilities in Blantyre and Salima Districts in Southern Region. Kits included a 20-litre water storage container with a lid and spigot, WaterGuard, soap and oral rehydration solution. Additional WaterGuard and soap supplies were provided to patients if they returned to the clinic and they

⁴⁶ Personal communication with Benjamin Banda, 20 July, 2012.

then received additional counselling from health workers on correct use. PSI provided social marketing support to promote use and promote awareness of purchase points. In one year, WaterGuard use increased from a baseline 1% to 61%. In a 2010 follow-up study, use had decreased from 61% to 28% – still promising, as such levels of sustained use had not observed in previous studies. The programme also demonstrated an increase in the proportion of mothers utilising perinatal services in comparison with data collected in the population-based 2006 Malawi Multiple Indicator Cluster Survey (Sheth et al., 2010), both of which are linked with improved child and maternal health outcomes, suggesting that maternal health can be a viable platform to reach pregnant mothers and young children.

In a separate study in 2011, MoH and the Clinton Health Access Initiative attempted to replicate the results of the 2007 pilot, distributing 25,000 water hygiene kits to pregnant women in Machinga District in Southern Region (CDC, 2011). At baseline, none of these women were using WaterGuard. However at follow-up, 69% of women were confirmed to be using WaterGuard. In addition, 36% of programme participants reported purchasing the product. Furthermore, use and purchase behaviour diffused to relatives and friends, with 29% of programme participants' relatives and friends confirmed using WaterGuard and 16% reporting its purchase. The results provide further evidence that a maternal health platform can be effective at increasing awareness of HWTS and stimulating purchase of the product while contributing to improved use of post-natal care services, an important factor in the reduction of maternal mortality.

PMTCT Post-natal Pilot (2008 – 2009)

In 2008 and 2009, the University of North Carolina, in collaboration with Feed the Children and Procter & Gamble, conducted a study on the integration of water hygiene and nutritional packages into a PMTCT post-natal care service in Lilongwe. Fortified porridge and water hygiene packages, which included WaterGuard and Wa Ufa, were distributed to women who attended an initial post-natal care check-up to determine if such incentives would increase programme retention rates.

Results showed that greater than 75% of programme participants remained in the program. In 2008, only 33% of participants of a post-natal care programme without such incentives returned for their follow-up visits. This suggests that the integration of water hygiene or nutritional products into other health programmes can help to decrease the number of mothers who drop out of the programme. Furthermore, 99% of all the programme participants who returned for their 3-month visit reported using the water treatment products, although this data was self-reported.

PSI Maternal and Child Health TraC Study (2008)

In 2008, PSI Malawi conducted a household survey to follow up on the use among caregivers of WaterGuard to prevent diarrhoea and cholera among children under the age of five years of age. As a follow-up to the 2005-2006 survey, 4181 caregivers were surveyed. About 11% of caregivers reported having used WaterGuard or Wa Ufa in the previous week while 13.2% reported

“always” drinking treated water. Among those who treated, the chlorine stock solution was the most common form, followed closely by WaterGuard.

PSI Malawi TRaC Study (2005 – 2006)

In 2005 and 2006, PSI Malawi conducted a study to establish baseline indicators for knowledge, attitudes and practices around malaria and diarrhoeal disease prevention in caregivers of children under the age of five. Researchers interviewed a total of 2880 caregivers from nearly every district of the country. About 21% of respondents indicated they “always” treated their water and 31% indicated they treat it some or most of the time. Among those who treated, WaterGuard was the predominant method of treatment followed by other chlorine products and boiling.

7 Products: production and marketing practices

This section will summarise the production and marketing practices of the three of the most prominent HWTS solutions in Malawi: WaterGuard, P&G Purifier of Water and the chlorine stock solution. In addition, a number of other available products are identified and briefly reviewed. Proven methods such as bio-sand filtration, ceramic filtration and solar disinfection do not appear to have taken hold in Malawi and are consequently not discussed.

WaterGuard

WaterGuard is a 1.25% hypochlorite solution used to treat drinking water. WaterGuard was initially developed in the early 2000s as the “Safe Water System” by the US Centers for Disease Control and Prevention as a collaboration with the Pan-American Health Organization. The Safe Water System, introduced to Malawi in 2002 (CDC, 2011), is currently in use in nearly 20 countries worldwide, usually branded as WaterGuard in English-speaking countries.

Chemicals & Marketing Ltd, a local company, manufactures the solution and the bottle, helping to keep costs as low as possible. It is the only known locally manufactured HWTS product in Malawi. In other countries – such as Kenya, for example – other locally-manufactured products – such as AquaGuard and SoSafe – have emerged to compete with WaterGuard, which may be an indicator of commercial acceptance of chlorine-based products. This is not known to have occurred in Malawi.

In Malawi, WaterGuard has been marketed and distributed by PSI since 2002 via a network of sales points located throughout the country, which include private clinics, pharmacies, retail outlets and government health clinics. PSI conducts social marketing through national media campaigns, including radio, newspapers and billboards. Such activity helps to increase brand awareness and trigger first use. Globally, PSI has sold over 50 million bottles of WaterGuard over the last 20 years.

WaterGuard is packaged in a 150 mL bottle with a 3 mL cap that helps facilitate correct dosing by the end user and has a shelf life of 2 – 3 years. To treat water with WaterGuard, one capful of solution is added to 20 litres of drinking water. The user must then wait 30 minutes for the water

to be disinfected. One bottle of solution can treat up to 1000 L of clear water or 500 L of turbid water (Lantagne et al, 2011).

Until January 2012, the wholesale price of WaterGuard was MK 360 for a case of 12 bottles.⁴⁷ At retail, each bottle sold for MK 40.⁴⁸ Over 750,000 bottles of WaterGuard were sold during 2011.⁴⁹ This price point was made possible due to long-standing financial support from USAID to PSI, which acted as a subsidy to make the product more affordable for lower-income populations.

As of January, USAID discontinued the subsidy support and the wholesale price of WaterGuard rose to MK 960 per case.⁵⁰ At retail, the bottle now sells for MK 100.⁵¹ As of June 2012, over 300,000 bottles had been sold suggesting an annualised reduction of about 20%.⁵² PSI attributes this decline in part to the removal of the subsidy.⁵³ As of July 2012, at least one retail outlet in Mangochi District, Southern Region was selling WaterGuard at MK 70 (US\$0.25).⁵⁴ The reason for the price difference at that retail outlet is unclear.

In addition to the use of WaterGuard, households should store their water in a covered container with a narrow mouth or a spigot to prevent fingers and flies from entering. The use of such a container can reduce the risk of re-contamination within the home and is good HWTS practice, though such risk is already reduced by the protective effect of the chlorine residual.

P&G Purifier of Water or “Wa Ufa”

P&G Purifier of Water is produced by Procter & Gamble, a US-based global consumer goods conglomerate. The product was initially developed for commercial sale and later spun off as a non-profit arm of the company known as the Children’s Safe Drinking Water Program, which now provides the product at cost to partners around the world, assisting with humanitarian aid efforts and improving access to safe water in various settings. P&G Purifier of Water is manufactured at a single factory in Pakistan and is then distributed globally as needed.

P&G Purifier of Water is sold in a small pouch containing ferric sulphate powder and calcium hypochlorite, which combine to remove particles from the water and disinfect it. It is most appropriate for water drawn from lakes and rivers which tend to have higher levels of sedimentation and turbidity. To treat water with this product, a user pours the contents of one pouch into a 10-litre container of water and stirs for several minutes, until the ferric sulphate bonds with the sediment and settles to the bottom, before pouring the water through a cloth or thick napkin to filter out the sediment. The user must wait 20 minutes for the calcium

⁴⁷ Personal communication with Charles Yuma, 15 August, 2012.

⁴⁸ Personal communication with Charles Yuma, 15 August, 2012.

⁴⁹ Personal communication with Charles Yuma, 15 August, 2012.

⁵⁰ Personal communication with Charles Yuma, 15 August, 2012.

⁵¹ Personal communication with Charles Yuma, 15 August, 2012.

⁵² Personal communication with Charles Yuma, 15 August, 2012.

⁵³ Personal communication with Charles Yuma, 15 August, 2012.

⁵⁴ Direct observation by Ryan Rowe, 9 June, 2012.

hypochlorite (chlorine) disinfection process to complete prior to consumption. Similar to WaterGuard, the chlorine component offers a residual effect that can protect against recontamination.

In Malawi P&G Purifier of Water is known commonly as “WaterGuard Powder” or its Malawian brand name “Wa Ufa”. It has been available in the country since 2006 and is marketed and distributed primarily by PSI in the same manner as WaterGuard. PSI also provides Wa Ufa to many of P&G CSDW’s partners in Malawi, such as Africare, CDC, CHAI, Feed the Children, Government of Malawi, the University of North Carolina and World Vision. The PSI partnership enables Wa Ufa to reach consumers taking advantage of PSI’s strong supply chain, behaviour change expertise and social marketing activities. Currently in Malawi, about 10 million packets of Wa Ufa are turned over every year through these channels.

Wa Ufa is available wholesale at a price of MK 2,260 per case of 240 sachets (about MK 10 per sachet). It is sold in retail outlets at a price of MK 12 per sachet.⁵⁵ P&G’s in-country partners tend to purchase in bulk from PSI at the wholesale price.⁵⁶

Chlorine stock solution

CSS is a 1.00% concentration liquid chlorination product made from a combination of High-Test Hypochlorite (HTH) powder and water according to guidelines set by the Ministry of Health. Similar to WaterGuard, a small quantity of the solution is added to drinking water to improve its quality and make it fit for human consumption. No known assessments have been conducted on the health impact of the CSS programme however as mentioned in section 4.1 under Chlorine Preparation Guidelines, the Epidemiology Unit of the MoH is concerned that the programme has not had an impact on cholera in the country and is considering an evaluation.⁵⁷

Central Medical Stores procures HTH powder yearly from local distributors such as Sonali Pharmaceuticals, Worldwide Pharmaceutical Distributors and UNICHEM Limited, who in turn purchase HTH from international suppliers mostly based in India or China, through open tender processes.⁵⁸ The quantity ordered is determined through a joint demand forecast between the MoH and DHOs and is stockpiled in the country in 50 kg drums, which are held at three Regional Medical Store offices (located in Mzuzu, Blantyre and Lilongwe). If supply is exhausted or additional supply is required to meet emergency response needs prior to the next call for tenders, CMS will issue “Requests for Quotations” from suppliers, an expedited form of procurement. HTH is produced in only a few countries, so encouraging the local manufacturing of HTH does not appear feasible.⁵⁹

⁵⁵ Personal communication with Greg Allgood, 25 July, 2012.

⁵⁶ Personal communication with Greg Allgood, 16 August, 2012.

⁵⁷ Personal communication Young Samanyika, 21 September, 2012.

⁵⁸ Personal communication with Brian Chimwenje, 10 August, 2012.

⁵⁹ Personal communication with Daniele Lantagne, 7 August, 2012.

Based on the latest tender data from March 2012, each 50 kg drum of HTH costs MK 36,950 (approximately USD 125 at the September 2012 exchange rate).⁶⁰ The District Health Offices order their supplies from CMS. If CMS does not have sufficient supply, the DHOs are authorised to procure it from private suppliers. During the rainy season and periods of cholera outbreak, CSS is distributed free to communities, primarily by the Ministry of Health, to prevent the spread of cholera. Although the Ministry of Health and other stakeholders agree that HWTS is an important measure all year long, stock-outs of CSS are common during the non-peak seasons. This is partly due to a lack of resources for sustained year-round supply, as well as to inadequate forecasting by District Health Offices who bear the ultimate responsibility for the distribution of CSS.

DHOs must ensure that HSAs have access to the powder for distribution to communities and that they conduct demonstrations of how the solution is prepared. The HSAs call on members of the community to gather in a group where the HSA then prepares the CSS and distributes it to the community members, explaining how the solution is to be used to treat drinking water at home and that it has a 14-day shelf life.⁶¹ Given the varied circumstances under which it is prepared, achieving a consistent level of quality may be an issue (Abt, 2012);⁶² although no studies have been conducted to confirm this. So-called “civil protection committees” made up of health workers and civil society are also involved in the rapid response to alert health centres / posts and the preparation and distribution of stock solution.

At the policy level, HWTS is only officially endorsed as an emergency response measure and not for routine use. If this translates to a lower perceived priority at the district level, this may explain the continued seasonal stock-outs of the CSS powder. Stakeholders have indicated that that CSS supplied via government channels is not consistently available except during the rainy season when the risk of cholera is higher (Wood et al., 2011).⁶³ Districts may choose to prioritise other needs.⁶⁴ Furthermore, UNICEF Malawi suggests that free distribution of HWTS such as CSS during emergency situations may cause challenges for the successful commercialisation of HWTS products (Murcott & Jain, 2010).

In emergency response situations, establishing supply chain is not quite as important due to the immediate and critical need for the product. On the other hand, reliable availability of the product is necessary to ensure regular use as part of a daily routine.

Other products

Other products available in Malawi are water filters such as the LifeStraw Family Filter, the Tulip Siphon Filter and the Tulip Filter.

⁶⁰ Personal communication with Brian Chimwenje, 10 August, 2012.

⁶¹ Personal communication with Young Samanyika, 14 August, 2012.

⁶² Personal communication with Vicki MacDonald, 25 July 2012.

⁶³ Personal communication with Ngaba Chatata, 11 July, 2012.

⁶⁴ Personal communication with Young Samanyika, 6 September 2012.

The LifeStraw Family Filter is produced by Vestergaard-Frandsen at factories in Vietnam and shipped to markets where needed. Currently the product is not available in Malawi except through pilot programmes arranged by the company with the government or specific implementing organisations. Vestergaard Frandsen estimates the wholesale price with carriage and insurance paid to Lilongwe would be approximately US\$25 – 28 depending on the shipment's origin.

The Tulip Siphon Filter is produced by Basic Water Needs, a private firm in India. It has a filter capacity of five to six litres per hour and is effective in reducing turbidity and harmful bacteria. These filters have been used by CCAP in a small project in Livingstonia, Northern Region for the last two years. Once introduced for commercial sale, the retail price is expected to be approximately US\$16.

There are a number of other filters, referred to as “table-top” filters, which are imported and may require some assembly by the user or the distributor prior to sale. The Tulip Filter, a similar product from the same manufacturer as the Tulip Siphon Filter, is due to launch soon. It will be assembled locally using a filter element imported from India and other parts, such as a storage container and cover, which will be produced in Malawi. The difference with the Tulip Filter is that it has a flow rate of about one-third to half (*i.e.*, 2 – 3 L/h) of the Tulip Siphon Filter due to the absence of a small manual hand pump. In addition, two containers are attached: one for the dirty water and one for the clean water. The expected retail price for the Tulip Filter will be in the range of US\$14-18 for a 10 L capacity model.⁶⁵ The same distributor is also considering the introduction of Aquaprove, a chlorine dioxide water treatment product, and Silverdyne, a silver-based treatment method, and steps are underway to have these products tested by authorities locally to allow for commercial sale.⁶⁶

A visit to one retail outlet in Lilongwe found several brands of table-top filters that were available for purchase. The manufacturers include Addis (South Africa), Mellerware (South Africa), The Water Well (South Africa) and Wyniob Posada (Poland). These companies do not make claims regarding the degree of microbiological improvement in water quality on their packaging, however it does make statements to the effect that their product produces pure or clean water, wording that may be misleading to some customers. At the time of observation, these filters were retailing for between US\$26 and US\$39.⁶⁷ An inquiry was made to MBS regarding the approval of these products for sale in the market, but no reply had been received at the time this report was submitted.

Several factors may explain why filters are not more widely available in Malawi. Cost of production and marketing may be one factor. As mentioned in section 4.3, such devices are subject to higher duties than chemical-based products. Chemical products also tend to have a

⁶⁵ Personal communication with Joseph DeGabriele, 25 June, 2012.

⁶⁶ Personal communication with Joseph DeGabriele, 24 August, 2012.

⁶⁷ Direct observation by Ryan Rowe, 29 July, 2012.

lower upfront cost and can therefore compete more effectively, acting as a deterrent to filter manufacturers. Filters are also more complex and need supply chains for spare parts and after-market support such as training and maintenance. Malawi is also subject to frequent power outages which can inhibit the private sector from investing in manufacturing capacity. It could also be due to the lack of transparency on product standards and regulations and associated fees, as discussed in Section 4.2.

8 Limitations of this study

This report is a preliminary consultative study with a pre-defined scope and should be considered neither exhaustive nor comprehensive. As such, the study has at least four limitations:

- (1) **Stakeholders:** Due to time constraints, lack of contact info or scheduling conflicts, some stakeholders could not be reached for input, such as: Ministry of Education (for information on school-based WASH), Office of the President & Cabinet (for information on the Social Cash Transfer Scheme), Department of Disaster Management Affairs (for information on the national strategy for emergency response), National Epidemic Management Committee formerly the National Cholera Task Force, Malawi Health Equity Network (for an additional NGO perspective) and the UK Department for International Development (for information on their current funding priorities and strategy with respect to WASH).
- (2) **Literature:** Some key policy documents and other literature may have been missed. For example, the following documents were not available during the investigation phase of this report and could not be reviewed: Malawi Growth and Development Strategy II (2011 – 2016); the final and approved version of the Health Sector Strategic Plan 2011 – 2016; the Essential Health Package Policy (Ministry of Planning, 2004; reviewed by SWAP in 2010) and the national protocol on cholera prevention and control mentioned in the Cholera Manual for Health Workers (GoM, 2008). There may be other relevant documents that went unidentified during the preparation of this report and were unfortunately neglected.
- (3) **Policy implementation:** Information gathered from literature reviews and in interviews with stakeholders was not corroborated through data collection or field observation. This makes it difficult to verify stakeholder assertions about the implementation of policies and guidelines and identify capacity weaknesses at the district level.
- (4) **Narrow scope:** Considerations such as end-user product preferences, behaviour change, product effectiveness and financing are not addressed, to name a few. Users of this report should consider how these factors may relate to the development of a national strategy to scale up HWTS, reviewing appropriate literature and consulting with stakeholders accordingly.

9 Key challenges and opportunities

- HWTS contributes to high-level policy goals set out in the Malawi Growth & Development Strategy and could therefore be positioned as a national priority.
- National policy is broadly supportive of integrated service delivery and contains references to HWTS. Still, some government documents are contradictory and several gaps remain in implementation.
- Decentralising service delivery may encourage customisation of HWTS strategies in ways that take account of key cultural factors. However in practice, this may be challenged by weak capacity at the district level.
- The Government of Malawi’s programme to distribute chlorine stock solution is a successful example of HWTS at the national scale with some challenges: currently, no policy document exists to guide implementation nor has research been conducted the efficiency or effectiveness of the programme.
- The absence of product standards and regulations on water treatment products has led to confusion among private sector manufacturers and distributors and the emergence of products which may be misleading to some consumers.
- Chlorine-based HWTS products are the dominant form of HWTS available in Malawi with very few, if any, proven filter options available to consumers.
- Access to water is relatively high in Malawi in comparison with many other African countries. Unfortunately, water quality monitoring is poor, making it difficult to ascertain the areas at highest risk for water-related disease;
- There are a number of key stakeholders from the private sector, NGOs and international agencies that could contribute in scaling up HWTS through improved mobilisation and coordination by the government.
- Seed money is available to support initial efforts to move forward on HWTS but large-scale funding remains a challenge.
- Early efforts to integrate HWTS into maternal and child health programmes are returning positive short-term results and suggesting that the model has the potential to impact a variety of health outcomes.

10 Recommendations

This section outlines specific recommendations for action by the Government of Malawi with respect to increasing use of HWTS. The MoH and MWDI may wish to select the actions they consider of highest priority and include them in the proposed national action plan on HWTS.

1. Develop a national action plan on HWTS

- Host a consultative meeting with stakeholders to discuss key priorities in scaling up HWTS using the seed funding received from WHO & UNICEF.
- Select the highest priority actions identified during the consultations and from this list of recommendations and include them in the national action plan.
- Finalise the national action plan initiated in Maputo and use it as a tool to mobilise financial resources from stakeholders.

2. Integrate HWTS into the maternal health services platform

- Present evidence and rationale for integration and a preliminary strategy for scaling up through the maternal health services platform to the Committee on Safe Motherhood and other decision-making bodies, including the Technical Working Group on Reproductive Health and the Technical Working Group on Sanitation & Hygiene.

3. Strengthen institutional environment

- Harmonise existing policies and address the following key gaps and omissions:
 - Include HWTS in key policies and national strategies still in draft status (*e.g.*, National Health Policy).
 - Include HWTS as a major theme in the next Sector Performance Report (due later in 2012⁶⁸).
 - Issue a policy directive and public statement through the print and broadcast media that HWTS is not only an emergency intervention, but an essential, routine and recommended practice to improve drinking water quality specifically in rural and peri-urban areas.
 - Review and update the Sanitation & Hygiene Promotion Strategy for Low-Income Areas of Lilongwe and Blantyre to include a framework for the promotion and implementation of HWTS.
 - Integrate HWTS and WASH into the Guidelines for HIV/AIDS.
 - Implement the recommendations of the Diarrheal Disease Control Policy Review including the development of a comprehensive policy and the establishment of a sub-technical working group on diarrhoeal disease.

⁶⁸ Personal communication with Joseph DeGabriele, 14 August, 2012.

- Consult with the Essential Health Package Technical Working Group on the omission of HWTS as an essential intervention.
- Develop a policy guideline for the implementation of the national chlorine stock solution programme.
- Develop guidelines for the implementation of HWTS and outline standardised indicators guided by the toolkit for monitoring & evaluating HWTS programmes (WHO & UNICEF, 2012).
- Develop national performance standards and labelling requirements for water treatment products guided by the WHO performance recommendations (WHO, 2011) or similar health-based frameworks.
- Harmonise duties and taxes so that filters are handled in the same way as additive products;

4. Support and strengthen chlorine stock solution programme

- Conduct qualitative assessments of district-level capacity constraints with special attention paid to budget planning, resource mobilisation, procurement and inventory management.
- Update chlorine preparation guidelines to include the recommended dosage of 3.75 mg/L of water with a turbidity level of 10 – 100 NTU (Lantagne, 2008).
- Conduct monitoring and evaluation of HSA distribution and community education to ensure fidelity of its implementation with existing (and proposed) policies and guidelines.
- Explore the use of SLAs to engage health care providers in the implementation of the national chlorine stock solution programme and the strengthening of behavioural change communications for water-related hygiene education and community sensitization.

5. Continue stakeholder consultations and increase public awareness

- Address the limitations set out in Section 8 by continuing to consult with stakeholders and to review government policies and other related documents, including in particular:
 - Department of Disaster Management Affairs, regarding the role of HWTS in emergency response situations;
 - National Epidemic Management Committee (chaired by the Epidemiology Unit in the Department of Preventive Health Services at the Ministry of Health), regarding the national protocol on prevention and control of cholera and the role of HWTS;

- Office of the President and Cabinet, regarding the role of cash transfers and vouchers in promoting HWTS to vulnerable groups;
 - Ministry of Education, regarding the extent of implementation of HWTS in schools;
 - WESNET, regarding conducting a mapping survey of NGOs on the extent of HWTS activities across the country;
 - Mzuzu University, regarding building the capacity of local entrepreneurs for business opportunities and market-based approaches in HWTS, including local manufacturing and importation of low-cost options⁶⁹ and consumer lending through micro-finance institutions;
 - End-users, including individuals, households and organisations representing this group;
 - Malawi Growth and Development Strategy II (2011 – 2016);
 - Health Sector Strategic Plan 2011 – 2016 (final and approved version); and
 - Essential Health Package Policy (Ministry of Planning, 2004; reviewed by SWAP in 2010).
- Conduct communication and advocacy efforts with district-level decision-makers to influence their perception of the importance of HWTS-related programming.
 - Make key sector policies and strategies available online to facilitate information flow between government, civil society and the public.

References

- Abt. (2012). Abt/Malawi Consulting Report by Jennifer Peters – 01 April 2012. Received by email from Abt Associates. Lilongwe, Malawi, Abt Associates.
- CDC. (2011). Hygiene Promotion through Malawi Antenatal Care System: Preliminary Findings of Machinga Program Evaluation. Atlanta, USA, US Centers for Disease Control. Received by email from US Centers for Disease Control.
- Clasen T et al. (2006). Interventions to improve water quality for preventing diarrhoea (A Cochrane Review). *Cochrane Database of Systematic Reviews* 2006, Issue 3. Available at: <http://www2.cochrane.org/reviews/en/ab004794.html>.
- Clasen T et al. (2007). Cost-effectiveness analysis of water quality interventions for preventing diarrhoeal disease in developing countries. *Journal of Water and Health*, 5(4):599-608.
- Fewtrell L et al. (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>.

⁶⁹ Personal communication with Joseph DeGabriele, 17 August, 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.
- GoM. (n.d.) 2010 Malawi Millennium Development Goals Report. Lilongwe, Malawi, Ministry of Development Planning and Cooperation, Government of Malawi. Available at:
<http://planipolis.iiep.unesco.org/upload/Malawi/MalawiMDGs2010Report.pdf>.
- GoM. (2005). National Water Policy. Capital Printing Press: Lilongwe, Malawi, Ministry of Water Development and Irrigation, Government of Malawi. Available at:
<http://www.moafsmw.org/ocean/docs/Policy%20Documents/National%20Water%20Policy%20FINAL.pdf>.
- GoM. (2007a). The Malawi Gazette Supplement dated 28th December 2007, Government Notice No 42, Customs and Excise Act, Customs and Excise (Tariffs) Order, 2007. Lilongwe, Malawi, Malawi Revenue Authority, Government of Malawi. Available at:
<http://www.mra.mw/tariffs/T4e40ead62256d.pdf>.
- GoM. (2007b). Salima District Rural WASH Strategy and Investment Plan 2007-2015. Lilongwe, Malawi, Ministry of Water Development & Irrigation, Government of Malawi.
- GoM. (2007c). Likoma District Strategy and Investment Plan for Water, Sanitation & Hygiene 2007-2015. Lilongwe, Malawi, Ministry of Water Development & Irrigation, Government of Malawi.
- GoM. (2007d). Lilongwe District Rural WASH Strategy and Investment Plan 2007-2015. Lilongwe, Malawi, Ministry of Water Development & Irrigation, Government of Malawi.
- GoM. (2007e). – Blantyre District Rural WASH Strategy and Investment Plan 2007-2015. Lilongwe, Malawi, Ministry of Water Development & Irrigation, Government of Malawi.
- GoM. (2008). Cholera Manual for Health Workers. Lilongwe, Malawi, Ministry of Water Development & Irrigation, Government of Malawi.
- 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.
- GoM. (2009b). School Health and Nutrition Guidelines: Together for Healthy Productive Schools. Lilongwe, Malawi, Ministry of Education Science and Technology, Ministry of Health, Ministry of Agriculture and Food Security, Government of Malawi.
- GoM. (2010a). Demographic and Health Survey. Zomba, Malawi, National Statistical Office, Government of Malawi.

- GoM. (2010b). National Environmental Health Policy – May 2010 Final Draft. Lilongwe, Malawi, Ministry of Health, Government of Malawi.
- GoM. (2010c). Chlorine Preparation Guidelines – Jan 2010 edition. Lilongwe, Malawi, Ministry of Health, Government of Malawi.
- GoM. (2010d). Health Management Information Bulletin – Annual Report: July 2009-June 2010. Lilongwe, Malawi, Ministry of Health, Government of Malawi.
- GoM. (2010e). Sanitation Marketing and Hygiene Promotion Strategy for the Peri-Urban Areas of Blantyre and Lilongwe Water Boards. Lilongwe, Malawi, Ministry of Water Development and Irrigation, Government of Malawi.
- GoM. (2011a). Health Sector Strategic Plan 2011-2012: Moving towards equity and quality (Draft 6 final Dec 12th). Lilongwe, Malawi, Ministry of Health, Government of Malawi.
- GoM. (2011b). Clinical Management of HIV in Children and Adults: Malawi Integrated Guidelines for Providing HIV Services. Lilongwe, Malawi, Ministry of Health, Government of Malawi.
- GOM. (2012a). National Health Policy – April 2012 Director’s Draft. Lilongwe, Malawi, Ministry of Health, Government of Malawi.
- GoM. (2012b). 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. (2012c). Irrigation, Water and Sanitation Sector: 2011 Joint Sector Review Report – May 2012 Draft. Lilongwe, Malawi, Ministry of Water Development and Irrigation, Government of Malawi. Received by email from Joseph DeGabriele on 9 July 2012.
- GoM. (2012d). 2012/13 Budget Statement, delivered in the National Assembly of the Republic of Malawi by the Minister of Finance Honourable Dr. Ken Lipenga, MP, at the Parliament Building. Lilongwe, Malawi, Government of Malawi. Available at: <http://www.malawi.gov.mw/images/stories/BUDGETSTATEMENT2012-13.pdf>.
- GoM & UNICEF. (2004). Water Quality Surveillance: Training Manual and Handbook for Extension Workers. Lilongwe, Malawi, Ministry of Health, Government of Malawi.
- 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.

- Institute of Development Studies. (2011). “Launch of Open Defecation Free Malawi Strategy.” Available at: <http://www.communityledtotalsanitation.org/resource/launch-open-defecation-free-malawi-strategy>.
- IRC International Water and Sanitation Centre. (2010). “South Africa will eventually get an independent water regulator.” 25 March 2010. Available at: <http://www.irc.nl/page/52062>.
- Lantagne D. (2008). Sodium hypochlorite dosage for household and emergency water treatment. *Journal of American Water Works Association*, 100(8):106–119.
- Lantagne D et al. (2011). Hypochlorite Solution Expiration and Stability in Household Water Treatment in Developing Countries. *Journal of Environmental Engineering*, 137(2):131-136.
- Malawi Environmental Health Association. (2011). “National Hand Washing Campaign Launched.” Available at: <http://www.malawieha.org/node/40>.
- MBS. (2011). Catalogue of Malawi Standards. Lilongwe, Malawi, Malawi Bureau of Standards. Available at: http://www.mbsmw.org/publications/CATALOGUE_OF_MBS.pdf.
- Murcott, S. & Jain, M. (2010). Status of household water treatment in 45 UNICEF countries. Presentation at the 2010 Annual Meeting of the International Network on Household Water Treatment and Safe Storage. Available at: http://waterinstitute.unc.edu/media/2_Tommy_Ngai_-_Status_of_HWTS_in_45_UNICEF_priority_countries.pdf.
- PATH. (2011). Towards an Integrated Approach to Diarrhoeal Disease Control in Malawi: Assessment of current programmes and challenges. Seattle, USA, Program for Appropriate Technologies in Health. A summary is available at: http://www.path.org/publications/files/VAC_malawi_policy_fs.pdf.
- POUZN Project. (2010). Public-Private Partnership Model for Point-of-Use Water Disinfection among Lower Income Households: A demonstration project In Uttar Pradesh, India. Washington DC, USA, Point-of-Use Water Disinfection and Zinc Treatment Project, AED. Available at: <http://blogs.washplus.org/drinkingwaterupdates/2012/01/usaaidpouzn-public-private-partnership-model-for-point-of-use-water-disinfection/>.
- PSI. (2008). Maternal and Child Health TraC Study Evaluating Water Treatment and Hygiene for the Prevention of Diarrhea and Cholera among Caregivers of Children under Five. Lilongwe, Malawi, Population Services International.
- PSI. (2012). PSI/Malawi WASH Strategy. Lilongwe, Malawi, Population Services International. Received by email from Charles Yuma on 9 July 2012.

- Sheth A et al. (2010). Impact of the Integration of Water Treatment and Handwashing Incentives with Antenatal Services on Hygiene Practices of Pregnant Women in Malawi. *American Journal of Tropical Medicine & Hygiene*, 83(6):1315-1321.
- Stockman LJ et al. (2007). Point-of-Use Water Treatment and Use among Mothers in Malawi. *Emerging Infectious Diseases*, 13(7):1077-1080.
- UNICEF. (n.d.). Q&A: The Malawi Social Cash Transfer Pilot. Available at: http://www.unicef.org/malawi/MLW_resources_qasocialcashpilot.pdf.
- UNICEF. (2012). A Promise Renewed – Under-five mortality dashboard - Malawi. Available at: <http://www.apromiserenewed.org/Dashboard.html>.
- UNICEF & WHO. (2009). *Diarrhoea: Why children are still dying and what can be done*. New York, USA, United Nations Children’s Fund. Available at: http://www.who.int/child_adolescent_health/documents/9789241598415/en/index.html.
- UNICEF & WHO. (2012). Progress on Drinking Water: 2012 Update. Available at: http://www.who.int/water_sanitation_health/publications/2012/jmp_report/en/index.html.
- USAID & WHO. (2010). How to integrate water, sanitation and hygiene into HIV programmes. Geneva, Switzerland, World Health Organization. Available at: http://www.who.int/water_sanitation_health/publications/9789241548014/en/.
- Waddington H et al. (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/admin/pdfs2/17.pdf>.
- WHO. (2008). Essential Prevention and Care Interventions for Adults and Adolescents Living with HIV in Resource Limited Settings. Geneva, Switzerland, World Health Organization. Available at: <http://www.who.int/hiv/pub/guidelines/EP/en/index.html>.
- 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 & UNICEF JMP. (2012). Malawi: improved water coverage estimates (1980 - 2010). Available at: http://www.wssinfo.org/fileadmin/user_upload/resources/MWI_wat.pdf.
- Wood, S., Foster, J. & Kols, A. (2011). Understanding why women adopt and sustain home water treatment: Insights from the Malawi antenatal care program. *Journal of Social Science & Medicine*, 75(4):634-642.
- World Bank. (2011). Rural and urban population data on Malawi for 2011. Available at:

<http://data.worldbank.org/indicator/SP.POP.TOTL>.

Xue J et al. (2010). Use of nutritional and water hygiene packages for diarrhoeal prevention among HIV-exposed infants in Lilongwe, Malawi: an evaluation of a pilot prevention of mother-to-child transmission post-natal care service. *Tropical Medicine and International Health*, 15(10):1156-1162.

Annex 1: Stakeholder consultations

Government of Malawi and related entities

- Humphreys Masuku, Ministry of Health, Deputy Director - Preventive Health Services
- Young Samanyika, Ministry of Health, Principal Environmental Health Officer - Preventive Health Services
- Godfrey Kadewele, Ministry of Health, Deputy Director - Pharmaceuticals
- Fanny Kachale, Ministry of Health, Deputy Director - Reproductive Health Unit
- Diana Khonje, Ministry of Health, Maternal & Newborn Health Officer - Reproductive Health Unit
- McLawrence Mpsa, Ministry of Water Development & Irrigation, Director - Sanitation & Hygiene Unit
- Peaches Phiri, Ministry of Water Development & Irrigation, Deputy Director - Water Quality Unit
- Brian Chimwembe, Central Medical Stores, Procurement Pharmacist
- Gabriel Gonani, Lilongwe Water Board, General Manager
- Steve Kamuloni, Malawi Bureau of Standards, Director of Quality Assurance
- Gloria Chaonamwene, Malawi Bureau of Standards, Standards Manager
- Unnamed representative, Ministry of Finance, Analyst

NGOs

- Ngaba Chatata, WESNET, National Coordinator
- Lorelei Goodyear, PATH, Senior Program Officer
- Jim McGill, CCAP Livingstonia Synod, Mission worker
- Ricki Orford, PSI, Country Director
- Marcel Schreurs, Aqua for All, Program Officer
- Unnamed representative, US-based international NGO, Health Financing Technical Assistant

Private sector

- Greg Allgood, Procter & Gamble Children's Safe Drinking Water Program, Director
- Joseph DeGabriele, Malawi-based independent consultant and entrepreneur
- Henk Holtslag, Netherlands-based independent consultant
- Vicki MacDonald, Child Health Advisor, Abt Associates
- Kevin O'Callaghan, Medentech, Sales & Marketing Manager
- Frank Olesen, Vestergaard-Fransen, Regional Director – South Africa

International organisations

- Michael Forson, UNICEF HQ, WASH Specialist and Global HWTS Lead
- Simon Msukwa, UNICEF Malawi, WASH Specialist
- Blessius Tauzie, UNICEF Malawi, WASH Specialist & Malawi HWTS Lead
- Rob Quick, US Centers for Disease Control and Prevention, Diarrheal Disease Control Branch
- Maggie Montgomery, WHO HQ, Water, Sanitation & Hygiene, Technical Officer
- Hudson Kubwalo, WHO Malawi, Health & Information Officer

Academia

- Tracy Morse, University of Malawi & University of Strathclyde, Researcher and Lecturer

Donors

- Monica Villanueva, USAID Malawi, Health Officer

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Annex 3: Funding options

This annex sets out a brief list of possible options for the Government of Malawi to seek external funding to support HWTS activities. The identification of specific funding opportunities, and the extent of existing or previous support by these parties for HWTS, was not an area of inquiry within the mandated scope of this report. This list is not exhaustive, nor is it intended to be so.

Government

- African Development Bank
- Australian Agency for International Development
- Canadian International Development Agency
- Government of China – Via Ministries of Commerce, Finance and Foreign Affairs
- Danish International Development Agency
- European Investment Bank
- German Company for International Cooperation
- Government of the Netherlands – Via Ministry of Development Cooperation
- Irish Aid
- Italian Development Cooperation Programme
- Japan International Cooperation Agency
- Kuwait Fund for Arab Economic Development
- Malawi Rural Development Fund
- Malawi Youth Enterprise Development Fund
- Norwegian Agency for Development Cooperation
- Scottish International Development Fund
- Swedish International Development Agency
- United States Agency for International Development
- United Kingdom Department for International Development
- United Nations agencies such as UNICEF, World Bank Group and World Health Organization

Philanthropic actors

- Aqua for All
- Bill & Melinda Gates Foundation
- Clinton Foundation
- Conrad Hilton Foundation
- Rotary Foundation

Other

Carbon credits have recently emerged as an alternative funding mechanism for household water treatment programmes. The premise upon which this functions is that encouraging households to treat water using methods or technologies that do not consume fuel (like boiling would) reduces carbon emissions. If the amount of carbon emissions can be certified or verified, carbon credits could be generated and sold, with the proceeds funding the implementation of HWTS. The International Network on Household Water Treatment and Safe Storage recently hosted a webinar on this topic and the proceedings are available at:

http://waterinstitute.unc.edu/hwts/events/2012_webinar1. In addition, 300in6 has sponsored a report on carbon finance, available at: <http://300in6.org/documents/>.

Annex 4: Key government documents reviewed

This annex presents a list of the official Government of Malawi or government-endorsed/supported documentation (such as the Demographic and Health Survey or the Diarrheal Disease Control Policy Review) reviewed as part of this preliminary consultative study. Every attempt was made to obtain the final versions of such documents, though in some cases this was not possible during the preparation of this report. Where available, the date of each document is included.

Note: Where possible, links to the original source or soft copies of these documents have been made available online at <http://300in6.org/platforms/malawi/>.

Document Name	Document Date
National Decentralisation Policy	Final, 1998
Malawi Growth and Development Strategy 2006-2011	Revised, 2009
National Water Policy	Final, 2005
National Health Policy	Director's Draft 01, April 2012
National Environmental Health Policy	Final Draft, May 2010
Health Sector Strategic Plan 2006-2011	Draft 6 final Dec 12 th 2011
Chlorine Preparation Guidelines	January 2010 edition
Malawi Demographic and Health Survey	September 2011
Diarrhoeal Disease Control Policy Review	28th February 2011
Sector Performance Report – Irrigation, Water and Sanitation	Final, June 2012
Sanitation Marketing and Hygiene Promotion Strategy for the Peri-Urban Areas of Blantyre and Lilongwe Water Boards	2010
Integrated Guidelines for Providing HIV Services	2011
School Health and Nutrition Guidelines	Final April 14 2010
Malawi Catalogue of Standards	2011
Customs and Excise (Tariffs) Order of 2007	28th December 2007

Annex 5: Product standards process

This annex is based on email correspondence with the Malawi Bureau of Standards. Where standards for a given product exist, product certification is a three step process.⁷⁰

- 1) If there is an existing MS, the product is “subject to conformity assessment for import certification”.
- 2) “New products for use in Malawi undergo preshipment conformity assessment prior to importation of the whole consignment of the product. The importer requests the supplier or manufacturer to send a sample of the product, as it would be packaged for the market or use, by courier directly to the MBS in the name of the importer on this address: The Director General, Malawi Bureau of Standards, Moirs Road, Kristwick, Blantyre, Malawi. A test report from a competent laboratory in the country of origin should be sent along with the sample.”
- 3) “When the sample product conforms to the applicable standards, the MBS then sends a report to the importer i.e. upon payment of appropriate assessment fees, permitting importation of the product on condition that the subsequent import consignments will be subjected to assessments in order to ensure continued and consistent compliance with the applicable standards. Importation of the product is rejected if the sample product fails to conform to the applicable standards during preshipment assessments.”

The Malawi Bureau of Standards outlined three steps to begin the development of standards for water treatment products.⁷¹

- 1) MBS receives a proposal from product manufacturers, service providers or other parties for the development of a set of standards.
- 2) MBS undertakes consultations with stakeholders on the development of standards.
- 3) MBS conducts internal discussions on the development of standards.

This process could be funded externally or through the normal funding process of internal and could take at least six months per proposal.⁷²

⁷⁰ Personal communication with Steve Kamuloni, 6 August, 2012.

⁷¹ Personal communication with Gloria Chaonamwene, 6 August, 2012.

⁷² Personal communication with Gloria Chaonamwene, 6 August, 2012.

Annex 6: Duties and taxation

Importing party: Water boards and all other parties

Water boards: Under Section XXII of the Customs and Excise (Tariffs) Order, water boards may import goods for use in water supply (including water meters and water treatment chemicals) from a bonded warehouse free of all duties and taxes (GoM, 2007a). These goods fall under Customs Procedure Code (CPC) 4000.488 and the Ministry of Finance confirmed verbally that the classification includes filters.⁷³

Table 5: Duties and taxes on products imported by water boards

Duty / Tax Category (CPC 4000.488)	Amount
Non-WTO Member Customs Duties (Column 5)	Free
WTO Member Customs Duties (Column 6)	Free
COMESA Customs Duties (Column 7)	Free
SADC (excl. South Africa) Customs Duties (Column 8)	Free
SADC (only South Africa) Customs Duties (Column 9)	Free
Excise Rates (Column 10)	Free
Value-Added Tax Rates (Column 11)	16.5%*

*In the 2012/2013 budget statement, it was announced that VAT would be reduced to zero (GoM, 2012d).

All other parties: All parties other than the water boards, such as the private sector, research institutions, and non-profit organisations, are assumed to be importing such goods for non-industrial commercial purposes and are therefore subject to pay duties and taxes (unless granted an exemption).⁷⁴ Duties and taxes on these parties vary according to the type of product, as set out below.

Chemical products

Under Section VI of the Customs and Excise (Tariffs) Order, chemical elements such as chlorine (CPC 28.01), iodine (CPC 28.01) and colloidal silver (CPC 28.43) are free of import duties and a value-added tax of 16.5% applies (GOM, 2007a). Details are listed in Table 6.

Table 6: Duties and taxes on chemicals

Duty / Tax Category (CPC 28.01, 28.43)	Amount
Non-WTO Member Customs Duties (Column 5)	Free
WTO Member Customs Duties (Column 6)	Free
COMESA Customs Duties (Column 7)	Free
SADC (excl. South Africa) Customs Duties (Column 8)	Free
SADC (only South Africa) Customs Duties (Column 9)	Free

⁷³ Personal communication with MoF representative, 4 July, 2012.

⁷⁴ Personal communication with MoF representative, 4 July, 2012.

Excise Rates (Column 10)	Free
Value Added Tax Rates (Column 11)	16.5%*

Non-chemical products (i.e. filters)

Under Section XVI of the Customs and Excise (Tariffs) Order, importation of devices for filtering or purifying water for purposes other than for industrial use (CPC 84.21) are subject to varying duties and taxes (GoM, 2007a). Details are listed in Table 7.

Table 7: Duties and taxes on devices other than chemicals

Duty / Tax Category (CPC 8421.21.20)	Amount
Non-WTO Member Customs Duties (Column 5)	30%
WTO Member Customs Duties (Column 6)	25%
COMESA Customs Duties (Column 7)	1%
SADC (excl. South Africa) Customs Duties (Column 8)	15%
SADC (only South Africa) Customs Duties (Column 9)	25%
Excise Rates (Column 10)	–
Value Added Tax Rates (Column 11)	16.5%*

Finally, as a point of interest, pumps imported for use in water supply, sewage, drainage or irrigation (CPC 8413.20.10) are free of duties and subject to 16.5% VAT (GoM, 2007). However, a locally-based water and sanitation professional has advised that in 2012, such parts again become dutiable.⁷⁵ The motives for the original duty-free status of such parts and the recent change are not clear.

⁷⁵ Personal communication with Joseph DeGabriele, 6 August, 2012.

Annex 7: Ministry of Health

The MoH is the government body responsible for setting health policy and regulating health-related activities in the country, including coordinating the roles of various stakeholders. By delegating certain key activities and aligning them with the existing government structure and strategy for health service delivery, the government could enhance scalability by increasing its capacity through cooperation with other stakeholders. The MoH is responsible for ensuring that policy is implemented correctly. The Sector-Wide Approach, developed in 2004 through a Programme of Work that ended in 2011 and now continuing with the 20011 – 2016 Health Sector Strategic Plan, is a key mechanism for coordinating stakeholders and foreign aid.

The Minister of Health and two Principal Secretaries are the most senior decision-makers on health issues and have signing authority on policy documents issued by the MoH. If documents have already been signed and finalised, it would be difficult to modify them, thus requiring the exploration of flexible tactics to implement policy changes. Groundwork for policy decisions is conducted by the various departments within the MoH. Administratively the MoH is divided into several departments: Nursing Services, Clinical Services, Preventive Health Services, Finance & Administration, Sector-Wide Approach, Health & Technical Support Services, Planning and Central Medical Stores.⁷⁶

Operationally, MoH delivers health services through a network of District Health Offices (DHOs) in each of the country's districts. Each DHO is headed by a District Health Officer, usually a medical doctor, who oversees clinical services, nursing services and environmental health services. They are in-turn overseen by a District Medical Officer, a District Nursing Officer and a District Environmental Health Officer (together known as the District Health Management Team). The DHO funds its operations through transfers from the Treasury of Malawi via the District Council, based on funding requirements outlined in Health Implementation Plans. Implementation plans are developed according to strategies and priorities dictated by the MoH, while taking into account the localised needs and priorities of the DHO.⁷⁷

The District Health Offices have specific personnel assigned to handle services to children under five years of age, ante-natal care, family planning and HIV/AIDS-related activities. For example, under-five clinics exist in many communities. They tend to function on a part-time schedule because the activities they manage, though recurrent, are only occasional. Such facilities are established by the communities, in either dedicated facilities or existing community gathering points such as churches or under recognised trees. At these clinics, children are weighed and vaccinated once a month. Ante-natal and family planning services may also be provided through such facilities.⁷⁸

⁷⁶ Personal communication with Young Samanyika, 19 July, 2012.

⁷⁷ Personal communication with Young Samanyika, 19 July, 2012.

⁷⁸ Personal communication with Young Samanyika, 19 July, 2012.