

---

# Implementation of Household Water Treatment and Safe Storage (HWTS)

Technical Brief  
October 2017

# Technical Brief: Implementation of Household Water Treatment and Safe Storage (HWTS)

|           |   |           |
|-----------|---|-----------|
| <b>1</b>  | <b>Introduction</b> .....                                     | <b>2</b>  |
| <b>2</b>  | <b>What are the Key Components of HWTS Initiatives?</b> ..... | <b>2</b>  |
| <b>3</b>  | <b>Creating Demand</b> .....                                  | <b>4</b>  |
| 3.1       | Importance of Creating Demand .....                           | 4         |
| 3.2       | Considerations for Creating Demand.....                       | 4         |
| <b>4</b>  | <b>Supplying Products and Services</b> .....                  | <b>6</b>  |
| 4.1       | Importance of Supplying Products and Services.....            | 6         |
| 4.2       | Considerations for Supplying Products and Services.....       | 6         |
| <b>5</b>  | <b>Monitoring for Improvement</b> .....                       | <b>8</b>  |
| 5.1       | Importance of Monitoring for Improvement.....                 | 8         |
| 5.2       | Considerations for Monitoring for Improvement .....           | 8         |
| <b>6</b>  | <b>Engaging with Others</b> .....                             | <b>9</b>  |
| 6.1       | Importance of Engaging with Others .....                      | 9         |
| 6.2       | Considerations for Engaging with Others .....                 | 9         |
| <b>7</b>  | <b>Financing</b> .....  | <b>11</b> |
| 7.1       | Importance of Financing .....                                 | 11        |
| 7.2       | Considerations for Financing .....                            | 11        |
| <b>8</b>  | <b>Building Capacity</b> .....                                | <b>12</b> |
| 8.1       | Importance of Building Capacity .....                         | 12        |
| 8.2       | Considerations for Building Capacity .....                    | 13        |
| <b>9</b>  | <b>Summary</b> .....  | <b>14</b> |
| <b>10</b> | <b>Definitions</b> .....                                      | <b>14</b> |
| <b>11</b> | <b>Additional Resources</b> .....                             | <b>15</b> |
| <b>12</b> | <b>References</b> .....                                       | <b>16</b> |

*This document is part of a collection of resources for learning and training about household water treatment and safe storage (HWTS). To access CAWST's other HWTS resources, visit [cawst.org/resources](http://cawst.org/resources).*

## 1 Introduction

There are many different ways to help people use **household water treatment and safe storage (HWTS)** technologies and behaviours into their homes. Examples include:

- Businesses that manufacture, market, distribute, and/or sell HWTS products (for example: filters, storage containers, chlorine).
- Water, Sanitation and Hygiene (WASH) programs that include HWTS promotion.
- Humanitarian distribution of HWTS products during emergencies.

We use the terms “HWTS initiative” and “HWTS implementation” to describe any project, program, or business that helps people treat and safely store water at the **point-of-use** (in the home or institution where the water is used).

While there is no standard implementation model for HWTS initiatives, there are common elements that must be considered. In this technical brief:

- We list six key components of HWTS initiatives.
- We describe why each component is important.
- We give examples of ways in which these components can be addressed within HWTS initiatives.

Key words in this document are marked in a bold font. If you are reading this on a screen, you can go to the definition of key words by clicking on them while holding the Ctrl button. If you are reading a printed copy, please refer to Section 10: Definitions.

## 2 What are the Key Components of HWTS Initiatives?

There is no standard approach for helping households adopt HWTS methods **correctly, consistently, and continually**. However, CAWST has identified six key components that all implementers should consider as they plan their HWTS initiatives. We identified these by examining case studies and literature reviews about HWTS implementation, and through our own experience providing support to a diverse range of HWTS implementers.

The six components are:



**Creating Demand:** How do you help people see the benefit of your HWTS product or behaviour and its continued use over the long term? What will motivate people to purchase and use a product? What are the barriers to product purchase and use?



**Supplying Products and Services:** How do you select appropriate HWTS products and services? How do you ensure a consistent supply of your product, including any replacement parts or consumables? How do you make required services consistently available and accessible?



**Monitoring for Improvement:** What will you measure over time to ensure that your initiative is successful? How will you adapt and improve your initiative based on the information you collect?



**Engaging with Others:** Who do you need to work with, and how can you work together? How will you coordinate with service providers, regulators, community leaders, government, and other **stakeholders**?



**Financing:** How will you fund all of the components of your initiative to ensure long-term success? What are the costs to the households you serve?

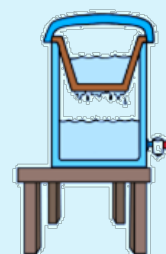


**Building Capacity:** How will you build the knowledge and skills required for all relevant stakeholders (for example: households, manufacturers, distributors, educators, service suppliers) to perform their roles well?

The six components above are often addressed by different stakeholders. One organization does not have to address all components on their own (in fact, programs are sometimes more successful when roles are distributed between different stakeholders based on areas of expertise).

### Why Aim for Correct, Consistent, and Continued Use?

Correct, consistent, and continued use refers to three conditions required for HWTS methods to have the greatest health benefits (Clasen, 2015). If people use HWTS methods properly to treat all of the water they drink, they are more likely to experience health benefits. Households should use their HWTS method(s) on a continued basis throughout all seasons of the year (see also Brown & Clasen, 2012). This requires long-term behaviour change.



## 3 Creating Demand



### 3.1 Importance of Creating Demand

People will only use products or services that they want. In interviews with 79 individuals who had experience implementing HWTS initiatives, user demand was the most frequently identified factor affecting HWTS sustainability and scale up (Ojomo, Elliott, Goodyear, Forson, & Bartram, 2015). Many HWTS initiatives have failed to achieve desired impacts because implementers did not take time to understand, respond to, and stimulate demand.

Here are some ways in which a lack of attention to user demand has affected HWTS initiatives:

- Chlorine solution was marketed for water disinfection, but people did not understand what it was for and had no interest in buying the product. They thought it was cholera medicine. The implementer had not taken the time to understand the market, select an appropriate product, and raise public awareness about how it works.
- Biosand filters were distributed in a region where people relocate frequently. Given their size and weight (over 150 kg when filled), the biosand filters were left behind when people moved. The product provided did not match user needs or demand.

Many HWTS initiatives fail when they focus on short-term supply of products instead of how to ensure long-term behaviour change. Demand creation should inspire people to continue using HWTS correctly and consistently because they see the value it adds to their lives.

### 3.2 Considerations for Creating Demand

After reviewing a range of studies and HWTS implementation models, Figueroa & Kincaid (2010) recommend the following six steps for designing and implementing a communication intervention as part of your HWTS demand creation activities:

1. Identify the potential audiences for your HWTS intervention.
2. Conduct thorough audience research.
3. Design the communication intervention.
4. Use a mix of communication channels and approaches.
5. Advocate for HWTS at the policy level.
6. Monitor progress and evaluate the HWTS intervention.

In this section, we provide some considerations for identifying your audience and selecting communication channels and approaches. Note that selecting appropriate HWTS systems is very important for demand creation; you will have a much easier time generating demand for products that meet user needs and expectations. Refer to *CAWST Technical Brief: Selecting Household Water Treatment and Safe Storage Options*.

## Identify and Understand your Audience

Demand creation requires a good understanding of the people you are marketing your HWTS products and services to. This may include household decision makers (parents, grandparents), community influencers (doctors, religious leaders, teachers, health workers), or specific groups such as mothers with young children.

It is helpful to conduct a formal or informal market survey to begin answering the following questions:

- What is the size of the market for HWTS products?
- Are there distinct groups within the communities where you work? If so, what specific groups will you market your product(s) to, and why?
- What are the most important criteria your potential users will consider when deciding whether to use HWTS products?
- What are people willing or able to pay for HWTS products and services?
- What communication channels do people use to get information (for example: posters, radio, community events, word of mouth, household visits)?
- What HWTS products or services already exist in the area?
- Who could you partner with in your target communities to act as champions of your product or service?

## Design a Communication Intervention

Once you understand your target population, there are many demand creation tools and approaches you can choose from. In general, these fit within one or more of the following categories:

- **Education:** Provide people with the information they need to make informed decisions.
- **Promotion:** Many motivating factors—such as status, perceived costs and benefits, and social norms—influence whether people want to use a particular product or method. Take time to learn about and influence the different factors that motivate or discourage HWTS use among people in your community.
- **Demonstration:** Use physical demonstrations or pilot projects to show people how the HWTS system works and the benefits it can provide.
- **Community Dialogue and Mobilization:** Use existing community groups, or help to build new ones, where WASH-related issues and solutions can be discussed. **Community Health Clubs, School WASH Clubs,** and approaches like **PHAST** or **CHAST** can be used to promote dialogue and help people see value in HWTS methods.

## 4 Supplying Products and Services



### 4.1 Importance of Supplying Products and Services

Households need both HWTS products and supporting services to ensure that they can correctly, consistently, and continually treat their drinking water. Over time, many HWTS products require maintenance, replacement parts, or consumable supplies. As well, users often require ongoing support to properly use and maintain HWTS systems.

Here are some ways in which HWTS initiatives were affected by poor product or service supply systems:

- Ceramic pot filters were marketed and sold in several communities and were initially very popular. Over time, the ceramic pot elements and taps on the filters started to break in some households. People did not know where to get replacement parts or who to contact for support. The company's reputation declined, and households gradually stopped using the filters.
- A large nongovernmental organization (NGO) was distributing household membrane filters in rural communities. Most of the filter components were imported from overseas. When the product manufacturer stopped exporting its hollow fibre membrane cartridges, the implementing organization was suddenly unable to meet demand and had to urgently search for a new source of filter cartridges. This slowed down their planned activities for several months.

### 4.2 Considerations for Supplying Products and Services

In their review of factors that affect the sustainability and scale-up of HWTS initiatives, Ojomo et al. (2015) point out that most early implementers of HWTS came from nonprofit, academic, and government sectors and lacked expertise in supply chain management and market-based strategies. The WASH sector is still learning best practices for HWTS supply.

#### Supplying HWTS Products

Many households in need of HWTS products are in rural or remote locations, where access to supplies can be challenging. Sometimes a household's ability to consistently and continuously use HWTS practices depends on the availability of replacement parts or products.

**Consumable products**, such as chlorine tablets, liquid disinfectants, and flocculant-disinfectant powder, require a long-term supply chain because households regularly need to purchase additional supplies. **Durable products**, such as many household water filters and safe storage containers, need to be replaced less frequently. However, households still need access to replacement parts or products when their durable goods break or wear out.

Ensuring an effective supply chain for an HWTS product depends on many factors, including (Ojomo et al., 2015):

- The availability of necessary raw materials.
- Human resources required to make and transport products.

- Import barriers and regulations, including tariffs and restrictions.
- Availability and willingness of retailers or other distributors to transport and sell products.
- Transportation networks that reach target communities.

Quality control is important for household water treatment products. If the product quality is poor, its performance and reputation are at risk. Some implementers choose to do their own manufacturing and distribution so that they can control product quality. Others choose to outsource many aspects of product supply and do careful monitoring to ensure that they are always receiving high quality products. Reputable regional and international manufacturers of HWTS products often have good quality control standards and product manufacturing consistency. However, HWTS products that depend on international supply chains may be subject to import taxes, and storage and handling fees, which can cause delays and added costs. In some countries, such as Tanzania, a government body sets standards and provides certification to approved products, which gives implementers and consumers confidence in product quality (Ojomo et al., 2015).

Some implementers choose to sell products through traditional commercial outlets, such as retail shops and pharmacies. Others sell products through community volunteers, health workers, or mobile sales teams. In some programs, households purchase HWTS products directly from the factory or implementer. In others, HWTS products are distributed to households or institutions for free or at **subsidized** rates.

### Supplying Ongoing Services

Successful HWTS initiatives usually provide some services to households. These may include:

- User training.
- Repair services.
- Supply of replacement parts (for example, ceramic elements for ceramic candle filters).
- Household visits to check filter use and performance.



Some HWTS initiatives use services as a means of generating demand for products. For example, community health promoters may offer free drinking water quality testing services to households, and then offer HWTS solutions to address water quality issues. Or businesses that offer consumable supplies may provide regular follow-up visits to households to check their satisfaction with the product and to sell replacement supplies.

As implementers, you will need to identify the level of service required for households to achieve correct, consistent, and continued use of your products. If you are implementing a short-term project, you will also need to identify who to engage with—for example, local government, health clinics, community health workers, or local businesses—to ensure that necessary services continue after the project ends.



## 5 Monitoring for Improvement

### 5.1 Importance of Monitoring for Improvement

Monitoring is important for measuring your initiative's progress and impact, especially if you want to scale up your activities over time.



Here are some ways in which a lack of attention to monitoring affected HWTS initiatives:

- Students from a school WASH club were trained to monitor the use of water filters, handwashing stations, and latrines. They diligently recorded notes on the forms they had been given, but head teachers and representatives from the sponsoring NGO took many months to review their reports. Although monitoring was happening diligently, the decision makers weren't taking time to analyse information, identify issues, and take corrective action.
- Before they improved their monitoring process, an organization was producing biosand filters with flow rates that were much higher than recommended, meaning they were not treating water as effectively as possible. Because they were not regularly measuring flow rate, the implementer missed the opportunity to take corrective action before filters were installed in people's homes.

### 5.2 Considerations for Monitoring for Improvement

Many implementers are tempted to collect as much information as possible, which then becomes overwhelming and difficult to analyze. Monitoring should be practical; all information collected should be used to measure how well you are meeting your goals and to help you identify ways to improve your activities.

At an early stage (ideally before you begin implementing), think about what information you will need to be able to track your initiative's success and make informed decisions to improve your products and services. This could involve creating a list of **key performance indicators** (ideally fewer than 10 indicators) and a system for tracking how they change over time.

Good monitoring systems:

- Collect and organize information to measure a small set of indicators.
- Track both **outputs** (immediate results of activities, such as the number and quality of filters produced or the number of households trained), and **impacts** (longer-term results that reflect the overall goals of the initiative, such as percentage of products still being used correctly, user perception of products, or reduction in diarrheal diseases).
- Are integrated into program activities, with specific people accountable for making changes and improvements regularly based on monitoring results.
- Are simple and within the means of the organization. Information collected is focused on factors that the implementing organization(s) can control.
- Have an allocated budget and people with the skills to analyze data and recommend improvements.

## 6 Engaging with Others



### 6.1 Importance of Engaging with Others

Implementing HWTS initiatives in isolation is usually a bad idea; most HWTS implementers cite partnerships with community leaders, government, or local organizations as critical for promoting WASH messages and ensuring sustained behaviour change (Ojomo et al., 2015).

Numerous people and organizations are needed to make HWTS initiatives work. Partnerships with community leaders and respected organizations can make a big difference in an initiative's success. As well, integrating HWTS into other programs enables you to use resources more efficiently and expand the impact of your initiative.

Many people and organizations have attempted to implement HWTS in isolation, and have failed because of a lack of long-term engagement, buy-in, and support from key stakeholders. For example:

- An organization started implementing HWTS projects in a district but did not communicate with local authorities. This made it much more difficult for the organization to gain respect and credibility in the district.
- A business entered a new community, hoping to generate sales for WASH products. Breaking into the market took a long time. One year later, the business realized that they could have saved a lot of time by partnering with a local community-based organization (CBO). This CBO had relationships with many key community members, extensive knowledge of the community, and was interested in forming partnerships to improve WASH conditions.

### 6.2 Considerations for Engaging with Others

In general, initiatives you implement will be more effective if they are created in partnership with community members and other stakeholders. Consider all stakeholders before starting a project. This includes anyone who may use your HWTS products, be impacted by the results of your work, or affect the success of your initiative. If possible, also consider who you could engage with to integrate your initiative into broader programs that address other aspects of WASH, health, or community development; this type of integration can improve the sustainability of initiatives (Ojomo et al., 2015).

Examples of stakeholders you may need to engage with in some way include:

- Local leaders (for example political, social, or religious leaders)
- Community health promoters
- Community-based organizations, including women's and farmers' groups
- School teachers and principals
- Entrepreneurs and owners of small businesses
- Local, national, and international NGOs who operate water, sanitation, or health programs

- Local, district, and national government bodies who make laws relating to water and sanitation and who may operate programs or provide subsidies
- Potential or existing donors
- Water and Sanitation User Groups or Committees

It is important to acknowledge the capacities and limitations of each stakeholder. This will help you engage with them in a meaningful way to identify the value they will get from your initiative, the contributions they can make, and potential areas of conflict or gaps in expertise. Your efforts to engage others should be results-oriented. Focus on what both sides can accomplish and what value you can gain by working together.

Engaging with others can take very different forms, depending on the level of input and ownership stakeholders have, or want to have, within your initiative. The following table describes how people’s level of interest and influence may affect their involvement with your project and the approach you can take to engage with them. You can use a blank version of this matrix to plot your stakeholders according to interest and influence.

**Table: Interest-influence matrix for stakeholder involvement**

| Level of Interest    | Level of Influence  |   |
|----------------------|---|---|
|                      | <i>Low Influence</i>  | <i>High Influence</i>   |
| <b>Low Interest</b>  | <p>Types of stakeholders: These stakeholders may include local organizations, nearby communities, or businesses who are unlikely to be closely involved or affected.</p> <p>How to engage: Keep them informed of project progress. Over time, their interest and engagement may increase.</p> | <p>Types of stakeholders: These stakeholders may include government representatives, influential community members, regulators, or others with influence. They could create problems for the project if they are opposed to your activities or approach.</p> <p>How to engage: Consult them from the early planning stages, and keep them informed of progress.</p>                 |
| <b>High Interest</b> | <p>Types of stakeholders: These stakeholders may include community members or others who care about the project but may not have much decision-making power.</p> <p>How to engage: Intentionally involve them throughout planning, implementation, and monitoring.</p>                        | <p>Types of stakeholders: These stakeholders may include government representatives, influential community members, regulators, or others with influence. They can use their influence to support your cause. They are key players.</p> <p>How to engage: Involve them closely throughout planning, implementation, and monitoring. Work to keep a good relationship with them.</p> |

## 7 Financing

### 7.1 Importance of Financing



Everything has a cost. To ensure correct, consistent, and continued use of HWTS, there must be a sustainable way to finance the supply of HWTS products and services. As an implementer, you will need to find a balance between helping households access affordable HWTS products, and ensuring that households have invested in the products and see value in using them. Giving products away for free can result in a lack of buy-in or investment from users. As well, free distribution of HWTS products reduces the opportunity to foster local markets and support local suppliers and distributors.

Examples of financing issues that have affected HWTS initiatives include:

- An international NGO was giving away filters for free. Few households used the filters or understood their value.
- An organization had relied on the same funder to cover most of its implementation costs for over five years. The funder decided to shift its funding to different countries, leaving the implementing organization without the funds to support its activities.

### 7.2 Considerations for Financing

Three main aspects of every HWTS initiative need to be financed:

1. **Start-up costs:** costs associated with assessing demand, understanding users, selecting appropriate HWTS systems, building the necessary capacity to start the project, and setting up a supply chain.
2. **Ongoing implementation costs:** costs associated with creating demand, supplying products and services, engaging with others, monitoring, fund development, and capacity building. This includes research and development to improve products and services.
3. **User costs:** costs for households to purchase, operate, and maintain HWTS systems.

Many different financing models have been applied to HWTS Initiatives. Often, a project or program uses different funding sources for start-up costs than for ongoing product and service delivery. User costs are often paid partially or in full by households. However, in some cases—particularly in humanitarian distribution programs—all three of the above aspects may be financed through a single grant.

Financing mechanisms for HWTS implementation include:

- **Grants:** Sums of money given by a funding organization to do specific activities. Grants often come with defined reporting requirements and sometimes restrictions on implementation methods. Proposed activities must be completed within a given time frame.
- **Donations:** Money given by individuals, groups, or trust funds. Sometimes donations can be used for any expenses, and sometimes they are tied to specific projects or activities.

- **Carbon credits:** Credits for greenhouse gas reductions achieved by one group that can be purchased and used to offset the emissions of another group. Some HWTS projects reduce greenhouse gas emissions by introducing water treatment methods that reduce the amount of fuel burned to boil water. This makes them eligible for funding through carbon credits.
- **Microfinance:** A credit or loan system where small amounts of money are lent to households or small businesses to invest. Interest is charged on the loan. The loan may be managed by a bank, a microfinance institution, or a community group.
- **Revolving funds:** Funds set up by a community group or project implementer to provide credit to households for purchasing products or services. The funds are lent to one or more households, who pay back the money in installments. Once the money is repaid, it is lent to the next household.
- **Profits from sales of products or services:** Money transferred from households to implementers in exchange for HWTS products or services. Sometimes the cost of HWTS products and services may be subsidized, meaning part of the cost is paid by the implementer or a funder, and households do not pay the full price.

Most implementers agree that households are more likely to feel ownership for a product or service—and therefore continue using it—if they contribute some funds. However, many of the populations in greatest need of HWTS products may lack the resources to purchase HWTS technologies. In these cases, you may want to consider:

- Finding low-tech, affordable HWTS options with low user costs.
- Subsidizing your products and services.
- Offering a range of products and services at different price points.
- Asking households to provide assistance with manufacture, transport, and installation of HWTS systems.
- Connecting households with microfinance institutions for small loans to purchase HWTS products.

---

## 8 Building Capacity

### 8.1 Importance of Building Capacity

Many people are involved in ensuring the success of HWTS initiatives. This includes people who market products and services, manufacture and distribute products, provide ongoing services, and use HWTS systems in their homes. Each of these stakeholders—whether program staff, entrepreneur, household member, or government staff—needs specific knowledge and skills to perform their role well. Capacity building refers to helping people and organizations build the knowledge, skills, and attitudes required to perform their roles effectively. An ongoing commitment to building capacity within your HWTS initiative will increase the quality of the products and services you offer.



Many HWTS initiatives have suffered because of a lack of attention to capacity building. For example:

- Community WASH promoters were responsible for monitoring HWTS behaviours in households, but they did not understand how to use the monitoring forms. A lack of attention to building their skills in using checklists, interviewing households, and recording data led to a collection of inconsistent records.
- Solar disinfection (SODIS) users were observed putting bottles in shaded areas, failing to close bottles properly, or filling them only partially. These users required additional training and ongoing support; when users do know how to use HWTS systems properly, this can reduce the health benefits and reputation of the system.

## 8.2 Considerations for Building Capacity

Building capacity should be targeted and results-oriented. Project-based implementers should always have an exit strategy that will ultimately leave the management of HWTS systems and services in the hands of local stakeholders. The aim of capacity building should be to make this possible.

A successful capacity building program often includes the following:

- Capacity assessments: Regular formal or informal ways of checking whether people have the knowledge and skills required to perform their role effectively. Components of your capacity assessments can be built into your monitoring system. Capacity assessments should give people space to do self-reflection and identify their own knowledge and skills gaps. Sustainable change will happen within individuals, organizations, or society only when they recognize the need for capacity building, and request it themselves (Simister & Smith, 2010).
- Capacity building plans: Plans developed alongside key stakeholders, after considering current resources, performance requirements, and expected deliverables. A good capacity building plan outlines how you will measure the success of these activities and how you (or the most appropriate stakeholder) will provide feedback as people learn new skills. Some goals should be achievable in the short-term (quick wins), while others should take longer to achieve. You may choose to use a competency development process to help stakeholders identify their strengths and capacity gaps and create personalized plans for growth (Refer to *CAWST's Competency Development Guide*).
- Capacity building activities: The activities you use should focus on meeting the priorities outlined in capacity building plans. Methods include formal training, mentorship or coaching, independent research, online courses, on-the-job feedback, IEC (information, education, and communication) materials, club meetings, competitions, and more. You may choose to use a mix of methods for different stakeholders.

## 9 Summary

There are six key components that must be considered within any HWTS initiative. These are:

- Creating Demand
- Supplying Products and Services
- Monitoring for Improvement
- Engaging with Others
- Financing
- Building Capacity

Many HWTS initiatives have failed to achieve their intended objectives because of a lack of attention to one or more of these key components. However, many HWTS implementers have also carefully considered these six components, learned lessons throughout implementation, and gradually improved the quality of their initiatives.

### Examples of HWTS Initiatives

*CAWST's HWTS Implementation Case Studies* give detailed overviews of different HWTS initiatives. Each case study describes how the implementer(s) addressed the six components of HWTS initiatives, and what challenges they faced along the way.

## 10 Definitions

**Child hygiene and sanitation training (CHAST):** An approach for promoting personal hygiene among children, using a variety of educational games.

**Community health clubs:** An approach in which a core group of community members meets regularly to discuss health issues and solutions in their community.

**Consumable products:** Items that must be purchased on a regular basis. They can be used once or for a limited time and then must be replaced. Examples for household water treatment include chemical coagulants and chlorine tablets.

**Correct, consistent, and continued use:** The conditions required for HWTS to have the greatest health impacts. Households should use their HWTS systems correctly to treat all the water they drink through all seasons.

**Durable products:** Items that last for a long time (usually several years or more) and do not need to be replaced frequently. Examples for household water treatment include biosand filters and safe storage containers.

**Household water treatment and safe storage (HWTS):** Activities by which household members treat and store water in their homes. Also commonly referred to as managing water at the point-of-use (POU).

**Impacts:** Long-term results from a project that reflect its overall goals. Examples of impacts for an HWTS project include reduced incidences of diarrhea, reduced days missed from school, or increased economic wellbeing of sales agents.

**Key performance indicators (KPIs):** Measurable values that indicate how well an implementer is achieving its most important objectives. Examples might include: number of new customers per year, percentage of households still using technology correctly after one year, or revenue from sales.

**Outputs:** Measurable immediate results that are directly related to project activities. Examples include: number of filters built, customers visited, sales brochures distributed.

**Participatory hygiene and sanitation transformation (PHAST):** An approach that engages community members through participatory education and decision-making about WASH issues.

**Point-of-Use:** Water treatment in the household or institution where the water will be used. Also called household water treatment.

**School WASH clubs:** An approach in which a core group of students and school staff meet regularly to discuss WASH issues and implement WASH solutions at their school. They often follow a curriculum.

**Stakeholders:** Key people or organizations who are impacted by, or could impact, a project or initiative.

**Subsidy:** Money paid, often by a government or nongovernmental organization, to keep the price of a product or service low enough for people to afford. Subsidies are often given to help households purchase household water treatment units or latrines.

---

## 11 Additional Resources

**CAWST HWTS Knowledge Base.** Available at [www.hwts.info](http://www.hwts.info).

- A knowledge base for point-of-use water treatment solutions, from technology options to implementation best practices.

**CAWST Education and Training Materials.** Available at [cawst.org/resources](http://cawst.org/resources).

- Case studies, technical briefs, lesson plans, presentations, posters, sanitary inspection forms, and other resources for learning and training about HWTS.

**World Health Organization: Publications and Documents Related to Household Water Treatment and Safe Storage.** Available at: [www.who.int/water\\_sanitation\\_health/water-quality/household/household-publications/en](http://www.who.int/water_sanitation_health/water-quality/household/household-publications/en).

- Resources related to national HWTS policies, the Scheme to Evaluate Household Water Treatment Technologies, water quality guidelines, water safety planning, and more.



## 12 References

- Albert, J., Luoto, J., & Levine, D. (2010). *End-user preferences for and performance of competing POU water treatment technologies among the rural poor of Kenya*. ACS Publications. Retrieved from <http://pubs.acs.org/doi/abs/10.1021/es1000566>
- Brown, J., & Clasen, T. (2012). High adherence is necessary to realize health gains from water quality interventions. *PLoS One*, 7(5), e36735.
- Clasen, T. (2015). Household Water Treatment and Safe Storage to Prevent Diarrheal Disease in Developing Countries. *Current Environmental Health Reports*, 2(1), 69–74. <https://doi.org/10.1007/s40572-014-0033-9>
- Figueroa, M. E., & Kincaid, L. (2010). Social, cultural and behavioural correlates of household water treatment and storage. Johns Hopkins Bloomberg School of Public Health Centre for Communication Programs. Retrieved from <http://ccp.jhu.edu/wp-content/uploads/Household-Water-Treatment-and-Storage-2010.pdf>
- Ojomo, E., Elliott, M., Goodyear, L., Forson, M., & Bartram, J. (2015). Sustainability and scale-up of household water treatment and safe storage practices: Enablers and barriers to effective implementation. *International Journal of Hygiene and Environmental Health*, 218(8), 704–713. <https://doi.org/10.1016/j.ijheh.2015.03.002>
- Simister, N., & Smith, R. (2010). Monitoring and Evaluating Capacity Building: Is it really that difficult? International NGO Training and Research Centre (INTRAC). Retrieved from <http://www.intrac.org/resources.php?action=resource&id=677>



Calgary, Canada | [www.cawst.org](http://www.cawst.org) | [support@cawst.org](mailto:support@cawst.org)

Last Update: October 2017

This document is open content and licensed under the [Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by-sa/4.0/) (CC BY-SA 4.0). **You are free to:**

---

**Share** - Copy and redistribute the material in any medium or format.

**Adapt** - Remix, transform, and build upon the material for any purpose, even commercially.



---

Under the following terms:

**Attribution** - You must give appropriate credit to CAWST, provide a link to the license, and indicate if changes were made. You may do so in any reasonable manner, but not in any way that suggests that CAWST endorses you or your use. Detailed guidelines available here: [resources.cawst.org/cc](http://resources.cawst.org/cc)



**ShareAlike** - If you remix, transform, or build upon the material, you must distribute your contributions under the [same license](#) as the original.

---

CAWST will produce updated versions of this document periodically. For this reason, we do not recommend hosting this document to download from your website.

CAWST and its directors, employees, contractors, and volunteers do not assume any responsibility for, and make no warranty with respect to, the results that may be obtained from the use of the information provided.