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# Case Study: Monitoring Household Water Quality, SHIP Water Laboratory, Zambia

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## Short summary

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There is growing recognition in the WASH sector that measuring access to drinking water alone does not guarantee safe water. There are a number of hurdles to measuring water quality, among them local capacity to carry-out effective water quality testing.

The Centre for Affordable Water and Sanitation Technology (CAWST) and its network of Water Expertise and Training (WET) Centres have worked to build local capacity to carry-out effective drinking water quality testing. A study of this work will contribute greatly to the WASH sector's renewed focus on this area.

WET Centres are locally-staffed, in-country organizations that do locally what CAWST does globally, which is to close the capacity gap in the WASH sector by providing training and consulting services to local organizations working in WASH.

The study focuses on CAWST's WET Centre partner in Zambia, Seeds of Hope International Partnerships (SHIP), which in 2009 expressed their need for water quality testing training. This training allowed WET Centre field workers to offer a wide range of water testing services.

CAWST has also supported SHIP in its establishment of two laboratory facilities in Ndola and Lusaka, Zambia, servicing a range of government, non-government, individual and private sector stakeholders.

CAWST's work with the Zambia WET Centre has produced a significant body of work in the area of developing local capacity to carry-out effective drinking water quality testing. This study is timely given the WASH sector's renewed focus on water quality testing, providing a record of successes, challenges and solutions, with an appropriate focus on skills and knowledge alongside technology and infrastructure.

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## Key words:

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*Universal and equitable access to drinking water ; Safe drinking water ; Affordable drinking water ; Adequate and equitable access to sanitation for all ; Combat water borne diseases ;*

## Issues addressed:

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### **WASH (inequalities, schools, health centers, refugee camps, women and girls)**

**Capacity building:** A shortage of qualified technical WASH professionals has been identified at a global level. This shortage is undermining the success and sustainability of WASH interventions and is standing in the way of universal access to safe drinking water and sanitation. The MDGs focused spending on WASH infrastructure, technological innovation and institutional reform investments – overlooking the priority on knowledge and skill.

**Monitoring:** WASH monitoring programs often lack consistency and accuracy. This is often due to a lack of trained staff, lack of funds and poor planning. To monitor WASH programs, water quality data needs to be correctly collected, analyzed and distributed.

### **Water quality (pollution, dumping of toxic materials, wastewater management, recycling, reuse, restore ecosystems and aquifers)**

**Drinking water quality:** Through the MDGs, there has been a focus on access to improved water sources and infrastructure. Recently, there has been a shift towards recognition of the need for truly safe water and sustained services; but there remains uncertainty about how to assess progress towards those goals. There is also demand for testing water quality to monitor and evaluate technologies and WASH projects.

## Tools for implementation:

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**Capacity development:** See short summary

## Lessons Learned:

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**Triggers:** The need for qualified water quality technicians in Zambia

**Drivers:** SHIP WET Centre to meet local WASH demands CAWST's motivation to build the capacity of SHIP to provide water quality testing

**Barriers:** At a local level:

- Finance: Equipment and consumables are expensive
- Supply chain: Consumables are a challenge to buy locally.

At a regional level:

- Reputation: It takes time and effort to be accepted as a reliable lab in the WASH sector.
- Supply chain: Consumables are a challenge to buy locally.

### **What has worked well?**

- Scaling up slowly and working up to a full lab
- Starting simple: a portable lab kit (Palintest and Delagua have kits designed for developing world applications)
- Encouraging plenty of practice in field situations
- Encouraging co-facilitation of the DWQT workshop. If the field workers can teach others, we are assured they have retained the knowledge.
- Competency validation
- Evaluation of lab performance

### **What can be improved? At a local level:**

- Lab documentation
- Data management

At a global level:

- International certification of water quality labs
- Awareness on the importance of DWQT in ensuring water quality and the sustainability of WASH programs.

### **The way forward:**

- Train more trainers
- Expand the curriculum to include an intermediate level
- Continue to provide WASH workshops to close the capacity gap in the sector.
- Strengthen the case for including capacity development in the water and sanitation SDGs, for water quality and other WASH components.

**Links:** CAWST Website: <http://www.cawst.org/en/what-we-do>

- Drinking Water Quality Testing manual: This workshop is designed for those interested in conducting drinking water quality testing as part of the implementation, monitoring, or evaluation of household water treatment and safe storage (HWTS) or small community water supply systems projects in developing countries. [http://resources.cawst.org/package/drinking-water-quality-testing-manual\\_en](http://resources.cawst.org/package/drinking-water-quality-testing-manual_en)
- Drinking Water Quality Testing trainer manual: This manual is for trainers who are interested in delivering training on drinking water quality testing. It includes lessons plans and guidance on training delivery. [http://resources.cawst.org/package/drinking-water-quality-testing-trainer-manual\\_en](http://resources.cawst.org/package/drinking-water-quality-testing-trainer-manual_en)