Quality Control in the Decentralized Production of Biosand Filters

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Overview

CAWST and the University of Calgary designed a quality control (QC) methodology in the form of a workshop. The objective was to train and support biosand filter (BSF) implementers globally in conducting quality control for BSF production.

Motivation & Background

**The Need:**
- CAWST evaluated 32 BSF projects in 19 countries:
  - 9(28%) had flow rate issues
  - 8(25%) filter fabrication quality issues

**Frequent Problems Identified from Project Evaluations**

The Opportunity:
- Given CAWST’s capacity development and BSF experience, it is uniquely positioned to build local capacity in BSF QC through training
- Implementers will support the acceleration of water self-supply through increased efficiency and quality in BSF production

Objectives

Develop and pilot a 5 day QC workshop to help implementers:
- Identify causes/effects of poor BSF quality issues
- Conduct effective monitoring and evaluation
- Identify opportunities for systemic improvement

Then, evaluate the effectiveness of the workshop.

Lesson Plans

1. Workshop Introduction
2. Defining Quality
3. Process Mapping
4. Best Practices and QA Tests
5. Best Practices Inspection
6. Quality Assurance Tests
7. Filtration Grain Size Analysis
8. User Knowledge Assessment
9. Giving Effective Feedback
10. Monitoring
11. Situational Analysis
12. Trend Analysis
13. Monitoring Form Analysis
14. Challenges
15. Action Planning
16. Closing

Methods

- Piloted workshop with Seeds of Hope International Partnerships (SoHIP)
  - Ndola, Zambia; May 16-20, 2016
  - 24 participants from African Biosand Filter Implementers Network
- Applied the Kirkpatrick categories (reaction, learning, behaviour, results) to evaluate training
- Conducted pre/post workshop surveys to evaluate reaction, learning and behaviour
- Evaluated results based on visual observations and data collection from SoHIP production site in Zambia

Results

**Reaction:**
- 95% of participants reported that the workshop met expectations and was relevant, due to:
  - Ability to apply new knowledge
  - Applicability of content to operational needs

**Learning:**
- Largest self-assessed knowledge increases in:
  - slump test, grain size analysis test and implementing a QC program

**Behaviour:**
- Pending Nov. 2016 follow-up

**Results:**
- Pending Nov. 2016 follow-up

Challenges & Next Steps

**Challenges:**
- Evaluating operational baselines in QC based on survey results, as QC measures differ between production sites
- Measuring to what degree training contributed to tangible increases in filter quality

**Next Steps:**
- Perform final follow-up in Nov. 2016
- Expand survey to more thoroughly measure results
- Deliver workshop to implementers and assess training effectiveness