Quality Control in the Decentralized Production of Biosand Filters

Nicole Chan*, Lisa Mitchell, Tommy Ngai**, Simon Li***

***University of Calgary, **CAWST**

7th RWSN Forum, 29 November – 2 December, 2016, Abidjan, Côte d'Ivoire

Overview

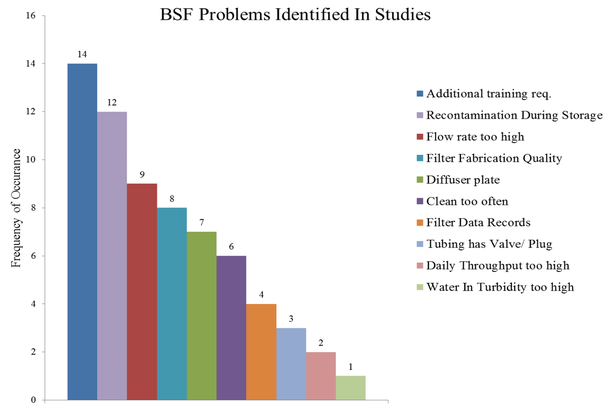
CAWST and the University of Calgary designed a quality control (QC) methodology in the form of a workshop. The objective was to train and support biosand filter (BSF) implementers globally in conducting quality control for BSF production.

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[1]



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

1. T. Ngai, B. Coff, D. Baker and R. Lentz, "Global Review of the Adoption, Use, and Performance of the Biosand Filter," in *Progress in Slow Sand and Alternative Biofiltration Processes*, London, UK, IWA Publishing, 2014, pp. 309-317.

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

CAWST

UNIVERSITY OF CALGARY

RWSN