

**DEVELOPMENT OF GUIDELINES FOR BEST  
PRACTICES IN WATER QUALITY MANAGEMENT  
FOR RURAL WATER SUPPLIES – BASED ON THE  
WATER SAFETY PLAN APPROACH**

**Manikku Baduge Tharanga Nilushi**

**(08/10373)**



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Degree of Master of Science

Department of Civil Engineering

University of Moratuwa  
Sri Lanka

January 2013

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Dissertation is submitted in partial fulfillment of the requirements for the degree  
Master of Science

Department of Civil Engineering

University of Moratuwa  
Sri Lanka

January 2013

## DECLARATION OF THE CANDIDATE AND SUPERVISOR

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I declare that this is my own work and this dissertation does not incorporate without acknowledgement any material previously submitted for a Degree or Diploma in any other University or institute of higher learning and to the best of my knowledge and belief it does not contain any material previously published or written by another person except where the acknowledgement is made in the text.

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The above candidate has carried out research for the Masters Dissertation under my supervision.

Signature of the supervisor

Date

## ACKNOWLEDGEMENTS

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## ABSTRACT

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### **Development of Guidelines for Best Practices in Water Quality Management for Rural Water Supplies – Based on the Water Safety Plan Approach**

This study is about the Rural Water Supply Schemes (RWSS) of Matara District which are managed by Community Based Organizations (CBO) and their management of the quality of water of the schemes.

It is observed that implementation of best practices for management of the water quality of RWSSs is significantly low, causing many risks of contamination of the water supplied to the consumers. If the water supplied to the consumers is not safe, the purpose of the water supply is lost, as the primary objective of rural water supply schemes is to provide safe drinking water to those who do not have access to same. Therefore, there is a need for development of a guideline based on water safety plan approach for RWSSs which helps them to adopt best practices in water quality management.

The study was conducted to identify most significant causes for the failure to adopt aforesaid best practices in RWSSs and it is done in two steps. First step was a pilot survey which was done by carrying out interviews with the experts of rural water supply sector to investigate the requirements and the reasons behind the failure to adapt the best practices in RWSSs.

Second step was an in-depth investigation which was conducted through semi-structured interviews with stakeholders of 14 rural water supply schemes of Matara district to identify the causes leading to the failure to adopt best practices in water quality management, related to technical, environmental, institutional, social and financial aspects.

Based on the interviews and field survey, information was analyzed by using descriptive statistic analysis and binomial test.

The study revealed that, issues with the treatment processes, absence of checking of water quality, lack of quality control steps, lack of preventive actions for pollution and negative attitudes among the consumers are the most significant causes contributing towards the failure to adopt the best practices in water quality management of RWSSs.

The study recommends adopting the set of guidelines developed in this study based on the water safety plan approach, which address the significant causes for failure to adopt best practices by the CBO's that manage the RWSSs in the Matara District, in order to reduce the risks of contamination of the water supplied by RWSS's. Further study is needed to generalize the guidelines to the national level, as the significance of issues related to the different climatic, topographical and social environments may vary across the country.

**Key words:** Best Practices, Matara District, Rural Water Supply Schemes, Water Quality Management, Water Safety Plan

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## LIST OF ABBREVIATIONS

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Abbreviation	Description
CBO	- Community Based Organization
CWSSP	- Community Water Supply and Sanitation Project
GN	- Grama Niladhari
MoH	- Ministry of Health
NGO	- Non Government Organization
NWSDB	- National Water Supply and Drainage Board
PHI	- Public Health Inspector
PS	- Pradeshiya Sabhawa
RWSS	- Rural Water Supply Scheme
SLS	- Sri Lanka Standards
WHO	- World Health Organization
WSP	- Water Safety Plan
WSS	- Water Supply Scheme



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