

LB/200N/25/99

8

**AN APPRAISAL OF THE
SMALL TOWN WATER SUPPLY SCHEMES IN
KURUWITA & KALAWANA
WHICH WERE IMPLEMENTED WITH
USER COMMUNITY PARTICIPATION**

BY

**K.P.R.S.SAMARASINGHE
M.I.E. (Sri Lanka)**

A THESIS SUBMITTED IN PARTIAL FULFILLMENT

 University of **OF** Moratuwa, Sri Lanka
Electronic Theses & Dissertations
**THE REQUIREMENT FOR THE DEGREE OF
MASTER OF ENGINEERING IN ENVIRONMENTAL
ENGINEERING AND MANAGEMENT**

IN

**THE FACULTY OF ENGINEERING
DEPARTMENT OF CIVIL ENGINEERING**

SUPERVISED BY PROF.(Mrs.) N.RATNAYAKE

මොරටුව විශ්ව විද්‍යාලය, ශ්‍රී ලංකාව
මොරටුව.
සර්වකාලීන

**University of Moratuwa
September 1999**

Theses Collection

70599

624.799

628.1(548.7)

70599

DECLARATION

This thesis has not been previously presented in whole or part to any University or Institute for a Higher degree.

.....
Signature of Candidate

.....
Date



University of Moratuwa, Sri Lanka
Electronic Theses & Dissertations
www.lib.mrt.ac.lk

ACKNOWLEDGMENT

This report has been prepared under the guidance of Prof.(Mrs.) N.Ratnayake, Department of Civil Engineering University of Moratuwa. I am grateful to her for valuable advices and guidance given to complete the study and this report.

Special Thanks are due to Mr.D.S.D.Jayasiriwardhana, Mr.A.M.A.K.Weerasinghe, Mr.P.K.W.Silva, Ms.Chandani Hettiarachchi and Ms.Vajira Malkanthi of NWSDB for the advice and help given for the preparation of this report.

Finally, appreciation is due to the Officers in NWSDB and office bearers of Community Based Organizations in Kuruwita and Kalawana, who gave relevant information for this study.



University of Moratuwa, Sri Lanka
Electronic Theses & Dissertations
www.lib.mrt.ac.lk

ABSTRACT

This study was based on Small Town Water Supply Schemes which were constructed in Ratnapura District under a World Bank loan and implemented with user community participation.

The study was limited to the first two Small Town Schemes, constructed by National Water Supply and Drainage Board, in Kuruwita and Kalawana small towns.

The aim of the study was to evaluate the success with regard to technical and social aspects of the above two schemes implemented with active community participation during planning, construction and operation and maintenance phases.

Technical aspects were compared with similar schemes constructed by National Water Supply & Drainage Board without participation of users while social aspects were compared by analyzing social improvement of the area before and after the new schemes.

Technical data were collected from National Water Supply & Drainage Board offices. Social aspects were evaluated by using field survey with questionnaire and interviews.

The study shows, for a sustainable Water Supply Scheme, it is necessary to obtain a user participation in planning, construction and operation & maintenance phases.

In the planning stage of a community water supply scheme, it is necessary to obtain a user participation, because all the relevant data for accurate planning are available at the place where the scheme to be built; and also it is easy to collect data from users rather than collecting by out side officers or any other person.

During the construction period it is also necessary to participate users to aware about quality of work, major components of the scheme, how to operate the scheme, and methods using for construction etc. Those will help to go for the sustainable operation and maintenance of a scheme.

Sustainable Operation and maintenance system is the main objective of community water supply scheme. Therefore it is necessary to participate users during operation and maintenance of scheme, because the scheme should run to full fill their requirement.

CONTENTS

	Page No.
1 INTRODUCTION	1
1.1 Background	3
1.2 Research Objective	4
1.3 Brief description of selected schemes for the study	4
1.4 Scope of the Study	7
1.5 Organization of the report	7
2 IMPLEMENTATION STRATEGY USED BY NATIONAL WATER SUPPLY & DRAINAGE BOARD	8
2.1 Identification of Small Town Water Supply Schemes	8
2.2 Policy decisions applied during the implementation	9
2.3 Implementation phases	12
3 RESEARCH METHODOLOGY	19
3.1 Collecting data from NWSDB offices	21
3.2 Questionnaire used for field survey	25
4 ANALYSIS OF DATA	29
4.1 Technical aspects	29
4.2 Social aspects	39
5 DISCUSSION OF RESULTS	56
5.1 Technical aspects	56
5.2 Social aspects	59
6 CONCLUSIONS AND RECOMMENDATIONS	62
6.1 Conclusions	62
6.2 Recommendations	63
7 LIST OF REFERENCES	65

- Annexure I** - **Prioritizing criteria**
- Annexure II** - **Tariff structure for both schemes**
- Annexure II** - **Tripartite Agreement**
- Annexure IV** - **Implementation phase**
- Annexure V** - **Water quality reports**
- Annexure VI** - **Questionnaire used for field survey**



08. **LIST OF TABLES**

- | | | | | |
|----|-------|---|---|---|
| 1. | Table | 1 | - | Role of actors in Kuruwita & Kalawana Water Supply Scheme |
| 2. | Table | 2 | - | Comparison of Technical aspects |
| 3. | Table | 3 | - | Pattern of O&M authority proposed |



09. LIST OF FIGURES

Figure Number

- | | | |
|---------|---|---|
| I. | - | Previous consumption pattern |
| II. | - | Distance from source to house |
| III. | - | Time consumed for water collection |
| IV. | - | No. of times taken to collect water per day |
| V. | - | Reasons for changing to new scheme from existing scheme |
| VI. | - | Increasing of amount of water usage |
| VII. | - | Present consumption pattern |
| VIII. | - | Priority of community for the project |
| IX. | - | Proposes of scheme |
| X. | - | System of contribution |
| XI. | - | Actions taken in leaks or pipe bursts appears in the system |
| XII. | - | Contribution pattern for O&M activities |
| XIII. | - | Active participation in O&M |
| XIV. | - | Reasons for contribution to the scheme |
| XV. | - | Satisfactory level of community for the new scheme |
| XVI. | - | Methodology used for the selection of scheme |
| XVII. | - | Level of contribution to other project than this project |
| XVIII. | - | Progress of society to work together |
| XIX. | - | Increasing of value of land |
| XX. | - | Project should be planned |
| XXI. | - | Increasing of job opportunities |
| XXII. | - | Capacity of CBO to maintain this type of project |
| XXIII. | - | Success of involvement of users in planning |
| XXIV. | - | Having legal authority or not |
| XXV. | - | Skill development of the area |
| XXVI. | - | Difference of leadership in this CBO and others |
| XXVII. | - | Action taken about quality of pipe specials in water supply |
| XXVIII. | - | Knowledge about quality of pipes special in water supply |
| XXIX. | - | Level of knowledge about CBO leaders in O&M |
| XXX. | - | Key plan of Kuruwita water supply scheme |
| XXXI. | - | Key plan of Kalawana water supply scheme |
| XXXII. | - | Key plan of Ruwanwella water supply scheme |
| XXXIII. | - | Key plan of Kahawatta water supply scheme |

LIST OF ABBREVIATIONS

AGM	-	Assistant General Manager
CBO	-	Community Based Organization
CWSPU	-	Community Water Supply & Sanitation Project Unit
DDP	-	District Development Plan
DS	-	Divisional Secretary
GI	-	Galvanized Iron
GOSL	-	Government of Sri Lanka
HRD	-	Human Resource Development
IDA	-	International Development Agency
LA	-	Local Authority
m³	-	Cubic Meter
NGO	-	Non Governmental Organization
NRW	-	Non Revenue Water
NWSDB	-	National Water Supply & Drainage Board
O&M	-	Operation & Maintenance
OJT	-	On the Job Training
PO	-	Partner Organization
PS	-	Pradeshya Shbha
PSP	-	Private Sector Participation
PVC	-	Polyvinyl Chloride
RWS	-	Rural Water Supply
SO	-	Support Organization
USAID	-	United States Agency for International Development