SUCCESS FACTORS FOR EFFECTIVE MANAGEMENT OF RURAL WATER SCHEMES IN SRI LANKA.

BY

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This Dissertation was submitted to the Department of Civil Engineering of the University of Moratuwa in partial fulfillment of the requirements for the Degree of Master of Science in Construction Project Management.

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UNIVERSITY OF MORATUWA
MORATUWA SRI LANKA

2010

Declaration

I hereby certify that this dissertation does not incorporate any material without acknowledgement and material previously submitted for a degree or diploma in any university to the best of my knowledge and I believe it does not contain any material previously published, written or orally communicated by another person except where due reference is made in the text.

.....

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This is to certify that this thesis submitted by P.S.Muthunayake is a record of the candidate's own work carried out by her under my supervision. The matter embodied in this thesis is original and has not been submitted for the award of any other degree.

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Acknowledgement

I would like to make the first special acknowledgement to my research supervisor Dr. A.A.D.J Perera for all the help, assistance and guidance given in explaining and revising the dissertation. Thank you very much for all the assistance and the words of encouragement given till the end to complete the thesis. You really take an interest and put forth the extra effort in helping the students to accomplish this goal. Thank you very much again for all the support and guidance throughout the research to complete the thesis with success.

I gratefully acknowledge the support extended by several officers of Rural Water Supply Section (RWS) of National Water Supply and Drainage Board. Mr. Gerard Fernando (Former Assistant General Manager, RWS Section), Mr.Rohan Wijesooriya (Assitant General Manager, RWS Section), Mr.Gunapala (Senior Sociologist, RWS Section) and Mr.Rangith Fernando (Chief Engineer, RWS Section) generously gave their valuable time to answer my questions, organized my field visits and provided access to documentation. I also wish to thank many office bearers of water management committees (CBOs) and many individuals who devoted their time to fill my questionnaires.

Also I would like to thank my family members who gave me enough support and freedom in all the ways till the end to accomplish my goal successfully.

Finally I would like to express my thanks to all the others who contributed in various ways in completing this thesis.

P.S Muthunayake

February 2010

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Abstract

Many governments embraced the idea of changing from "providers to facilitators" And have become convinced that centralized systems cannot deliver the required services to the rural water sector. Hence the strong push towards decentralization that started in the late eighties and a growing trend to encourage rural communities to manage their water supply schemes. In any project there are several factors which influence the success of the project and those factors are considered as critical factors to the project. This study identifies and analyzes the critical factors which influence rural water schemes success in Sri Lankan context.

Majority of the literature related to rural water schemes management have highlighted several factors, factor groups and sub factors related to rural water schemes success. This study identified the critical factors influencing the success of rural water supply schemes, examined different parameters of critical factors affect success, examined the awareness of different stakeholders of rural water sector regarding success and factors affecting to the success, examined the impact of identified critical factors for success and the recommendations in detail for rural water schemes success through the findings.

The study came up with a conceptual model that depicts identified critical factors and factor groups, critical factors were further divided into variables and sub-variables and
questionnaires were developed based on those variables. Questionnaires were distributed to random samples which represent rural water schemes implementing agencies, water management committees and beneficiaries. The research study used SPSS software to analyze the data which were collected through questionnaires.

The results revealed that majority of the stakeholders are aware that most of the factors are critical for rural water schemes success but there are some factors where stakeholders are not much aware that those are critical for project success. The

findings of the study revealed that, economic factors and support infrastructures, skills and abilities of water management committee, leadership of Water management committee (CBO leadership), training and Capacity building ,coordination and backup support of implementing (supporting) agencies, transparency and responsibility of activities, motivation ,communication skills of implementing agency (supporting agency) staff, power and commitment of water management committees, Periodic monitoring and evaluation, community participation, personnel characteristics of water management committee members and external factors have significant influence on rural water schemes success.

1. Introduction

1.1 Background

Water is a vital resource, indispensable to life and essential for overall economic and social development of a country. In Sri Lanka, access to safe water is considered as an inalienable right of its' people, thus making provision of water is considered as a top priority of the Government. The world Water Supply and Sanitation Decade (1980-1990) had been an important turning point in planning and programming the water supply and sanitation sector in the country (ADB, 2007). Since Sri Lanka's independence in 1948, the Government has carried out many programs to develop water resources and provided part of the population with basic utilities including water supply and sanitation. During the World Water and Sanitation Decade, the Government embarked on an ambitious plan, targeting 100% water supply coverage of urban population and 50% coverage of rural populations by 1990 (ADB, 2007). However due to financial, physical and other constraints, these targets were only partially achieved.

Subsequently in year 2000, in response to the United Nations' Millennium Development Goals (MDGs), the Government renewed its' commitment for making water supply and sanitation accessible to all, in its' poverty reduction strategy. The specific goals of this strategy include provision of safe drinking water to 85% of the population by year 2015 and 100% by 2025.It aims to provide 100% of the urban population and 75% of the rural population by 2025. (MHPI & NWSDB, 2002)

A persistent challenge facing the water supply sector has been the large rural-urban disparity in the level and quality of services provided to urban and rural populations. Although, major progress has been achieved in improving access to safe water in urban areas, coverage in rural areas remains far behind. The urban population of Sri Lanka, amounting to 21.5% of the total population, occupies 0.5% of the land area. While 75% of the urban population is served with pipe borne water, only 14% of the rural population has access to pipe borne water. Close to 65% of the total population obtain water from protected wells (NCED, 2005).

During recent history, many landmark changes have occurred in rural water supply and sanitation sector in Sri Lanka. Many Governmental and Non-governmental organizations (NGO) involved in providing small scale Rural Water Supply Schemes (RWSS) during last two decades. Participatory Rural Water Supply systems were introduced in 1980's by few donor funded water supply projects (NWSDB-PMU, 2007). Many RWSS, especially the small scale Water Supply Schemes constructed under participatory approaches are operated and maintained by user community themselves through Community Based Organizations (CBOs).

From a national perspective, community management in public RWSS services has been negligible until recently. The totally government provided water supply systems had created a culture of dependence in which water supply system was not mainly perceived as a common property. Community participation has been more successful when it occurs throughout the project life cycle. Recognizing the importance of public participation in decision making, several international declarations and resolutions such as the Dublin Statement (1992), and Hague Declaration (2001), promoted active public participation in decision making in water management (Mostert, 2003). Principle two of the Dublin statement emphasizes the need to develop and manage water resources using participatory approaches engaging users, planners, and policy makers. Furthermore, the UN resolution passed mid way in the Water and Sanitation Decade (1981-1990), identified the need to increase community participation, and in particular to increase participation by women, in the planning, operation, and assessment of water and sanitation programs and projects. This paradigm shift in development, in calling for a bottom up approach rather than top down, was not only limited to the water supply and sanitation sectors but also gained wide acceptance in rural development. Chambers (1983), stressed the importance of "putting the last first" and suggested the bottom up development model, where rather than allowing outsiders to drive the development process, to involve the subjects to develop themselves, by defining their needs, priorities, and preferred development pathways. Consequently, the "demand-driven" approach was adopted, where communities became key partners in the project planning and design, shared part of the capital costs during construction, and took on responsibility for operations and maintenance. Sri Lanka, too, experienced this evolution in community participation and has adopted it in rural water supply.

In Sri Lanka with a population of close to 19 million of which approximately 80% live in rural areas, it is believed that over 3000 rural water supply schemes have been implemented, with funds from multi-lateral, bi-lateral, and non-governmental organizations (NGO) funding, over the past two decades (NWSDB-PMU, 2007). Nevertheless, due to a lack of a central data base, or systematic monitoring, there are no records indicating how many of these schemes are still in operation, how many of these are success, how many are failures and how well the communities are managing. As such NWSDB believe that majority of the schemes are functioning well. The Sri Lankan government continues to promote the concept of community management of rural water supply, by promoting new investments, which continuously strive for better performance by building on lessons learned from past interventions in the sector.

Increased emphasis on community management of water supply schemes may well be the only way that Sri Lanka can achieve the coverage anticipated in the MDG's. However, an increase in community managed projects will not help Sri Lanka to achieve its targets if these systems can not be maintained over time. The schemes constructed have to remain operational, and be sustainable during their design life.

Despite the efforts made by the Government, NWS&DB, NGOs and private sectors in promoting water and sanitation services to rural areas, still there are a number of rural water schemes that are not functioning properly. The methodologies and approaches employed by water providers in provision of water and sanitation services influence the success of rural water schemes. Success and failures of water supply projects depends on a number of factors which need to be taken into consideration by the water providers. By reviewing these factors we can learn something from the succeeded rural water projects and even those projects which have failed. Critical success factors can be described as characteristics, conditions, or variables that can have a significant impact on the success of a project when properly sustained, maintained, or managed.(Milosevic and Patanakul 2005).Thus, the idea behind this research is to identify what are the critical factors that influence the rural water schemes success and analyze how different parameters of those factors affect the overall sustainability of these projects.

1.2 Problem Statement

Millennium Development Goals (MDGs") create new vision to achieve current development issues in Developing countries. Based on MDG's, one of the major challenges facing Sri Lanka is providing safe and adequate drinking water to all inhabitants. This challenge is due to constraints of population growth, limitation of financial and other resources and problems related to the sustainability. Hence the government of Sri Lanka recently, gave priority to improving both rural water supply facilities as well as urban water supply facilities.

To face these challenges Government of Sri Lanka has implemented a number of rural water supply projects with the government and non-governmental organizations. According to the past experiences in Sri Lanka, the major problem faced by rural water supply projects is their long term sustainability. In the past, the state organizations have adopted a supply-driven approach to service delivery, rarely taking beneficiary preferences into account. As a result the rural water fails to give customers satisfaction and recovers no capital or O&M cost. Because of poor construction and poor maintenance, water supply systems become out of order in a very short time (ADB, 2007). A change from this supply-driven approach to demand driven, integrated, community participation approach was introduced due to recognition of the shortcomings of the conventional "engineering" approaches which had been adopted in previous rural water supply projects. (Shanthasiri & Wijesooriya, 2004)

In this new approach, in all phases of the project, the user communities are involved and they actively contributed to planning, design, construction and the consolidation of the systems and more recently even the Water System management was entrusted to village communities with the back-up support of implementing agencies. Community management, however, faces a lot of constraints and requires greater knowledge of the technological, social, economical and managerial dimensions and how they are inter-related. Therefore, more emphasis is to be put on the establishment of management capacity at community level for lack of experiences and strategies. It needs to go beyond training a caretaker and a book-keeper. (Khadka, 2000).The same is valid for establishment of support capacity within the supporting agency. On the community side, there is often lack of experience with management of water supply

systems and lack of tools to cope with their management and on the supporting agency side there is often lack of skills to facilitate community processes (ibid).

Therefore, simple monitoring tools to be developed which helps communities to identify potential problematic areas and stimulate actions. Often more importance seems to be adhered to reporting on achievements(positive or negative) than to sustaining the service of the water supply system at the desired level .Monitoring should help tackle the technical, economical and managerial problems related to the system.

It is believed that over 3000 rural water supply schemes have been implemented in Sri Lanka with funds from multi-lateral, bi-lateral, and non-governmental organizations(NGO) funding, over the past two decades. Nevertheless, due to a lack of a central data base, or systematic monitoring, there are no records indicating how many of these schemes are still in operation, and how well the communities are managing or what factors lead to their success or failures. In any project there are several factors which affect the ultimate outcome of the project and some of those factors are considered as critical factors which influence the success of the project. For rural water supply projects also there are some factors which lead to success or failure of the schemes. Therefore it is very important that implementing agencies, water management committees and beneficiaries become aware of the critical factors which influence the success of the schemes since rural schemes are a collective effort of these three groups and to identify what is the impact of those factors to the overall outcome of the scheme so that they can conduct and implement the project by concentrating more on those factors from the initial stage of the scheme and throughout the life cycle of the project.

These critical factors are of prime importance to provide basic guide to implementing agencies and policy makers to help RWSS beneficiaries to manage the schemes properly and to implement the future projects effectively and to upgrade the conditions of the existing schemes.

1.3 Research Objectives.

The main objective of this research is to:

- Identify the critical factors influencing the success of rural water supply schemes in Sri Lanka.

The related objectives of the research are to;

- Examine how different parameters of factors affect success.
- Examine awareness of the stakeholders of community water schemes regarding these critical factors.
- Examine the impact of critical factors influencing rural water supply schemes success.
- Provide a guidance to make rural water schemes success through findings from the success factors.

1.4 Research Design / Methodology

From literature review and expert opinions, the major factors which can be categorized as key factors for project success were first identified. These factors were categorized into groups of "factors related to implementing agencies", "factors related to community organizations (CBOs)" , "factors related to beneficiaries" and "factors related to external environment " and they were further divided into variables and sub-variables and the questionnaires were developed based on those variables. There are some factors, which are relevant to all groups but impact is different and this aspect was considered in the questionnaire design. In addition to that, the questionnaires aimed to obtain views of all stakeholders (water providers, community based organizations and beneficiaries) on each identified factors

Chapter 3 discusses about the theoretical framework of research, population and sample, questionnaire design, data collection method and data analysis in detail. The SPSS statistical package was used to analyze the collected data and descriptive statistics has been used while analyzing and discussion of results.

1.5 Scope and Limitation

In order to achieve research objectives, a conceptual model has been developed based on concepts and critical factors. Based on the conceptual model and the research objectives, questionnaires were developed and distributed to collect data to obtain views of different stakeholders involve in the sector viz. implementing agencies, water management committees and beneficiaries of the rural water supply schemes

The rural water supply schemes implemented from other implementing agencies such as individual projects of Non Governmental Organizations (NGOs) are not covered under questionnaire survey and limited to the schemes which have been implemented by National Water Supply and Drainage Board. But, the factors discussed in this research will provide a basic guidance to management of all of these schemes.

1.6 Research Findings

The study has found out that the awareness of different stakeholders in rural water sector is varying according to their involvement in the sector. Majority of the stakeholders of rural water schemes indicated that they are aware about most of the factors but some of them are not much aware about certain factors like "community profile" and "community wealth and awareness". Further it has been identified that "Economic factors and support infrastructure", Skills and abilities of water management committees (CBOs)", "CBO leadership", "Training and capacity building", "Coordination and back-up support" and "Transparency and responsibility" are major influencing factors for rural water schemes success. In addition to that "motivation", communication skills of implementing agencies", "external factors", "power and commitment of CBOs", "monitoring and evaluation" and "community participation" have significant positive relationships with rural water schemes success. Moreover "personnel characteristics of CBO officers" has a significant positive relationship but it is not as much significant as above factors. "Community wealth and awareness" and "community profile" positively correlate with rural water schemes success but the relationships are not significant.

1.7 Chapter Outline

Chapter two discusses the literature related to evolution of community participation, concepts and divergent views held on participatory development, community management and community development and identifies different factors which have influence on rural water schemes success.

Chapter three discusses about the research methodology in detail. Conceptual model of the study is presented and the operationalization of concepts and variables also discussed. Further it also presents the details about questionnaire design and distribution and also discusses the statistical techniques used in analyzing data.

Chapter four discusses about the analysis and the results of the study. Descriptive statistics is used to analyze demographic information and then research concepts are validated using simple bar charts, pie charts, mean values, correlation analysis.

Chapter five provides the conclusion and discussion of the research study. Limitations and recommendations for rural water supply schemes success based on the findings from the critical factors are also presented in this chapter.

2 Literature Review

2.1 Introduction

Many writers have commended the concept of community participation in the management of water supply and sanitation as the most effective way of achieving sustainability and without active community participation in planning and management, they are often not properly operated and maintained. Community involvement in development has seen a transition from limited participation to active involvement, with the community taking full responsibility for decision making and management. The term community has different definitions in literature, but still they remain a common meaning. For example, a culturally and politically homogenous system, a group within an administratively defined area (tribal area or neighborhood) or, a common interest group (Mansuri and Rao, 2004). Other definitions given are: a group with a sense of identity and belonging that have shared values and norms, shared needs, and a commitment to meet these needs (Israel et al., 1993). For the purpose of this thesis the term community defined by Doe and Khan (2004) is used. They defined "Community as a group of people with common interests who are capable of taking collective decision and action for their common good" (p.362). This means that it is the people who can bring changes to the problems they face having a common interest and commitment.

As such increased involvement of the community in development over the past two decades has changed the traditional roles adopted by government and community. The change-over has resulted in governments moving from "provider" to "facilitator" and the communities' from "receiver" to "doer". This section of the thesis introduces the evolution of community participation, concepts and divergent views held on participatory development, community-management and community development, and in particular how these concepts have evolved in the discourse on community involvement in rural water supply.

2.2 Evolution of Community Participation

Even though water and sanitation coverage has advanced in many countries, there is uneven progress between rural and urban areas (Hutton & Bartram, 2008) . While urban coverage is also under increasing pressure due to population growth and rapid rural-urban migration, coverage in rural areas is much lower in many countries, whether it is developing or developed (Briceno et al., 2004). In developing regions, by 2006, access to improved water sources, reached 90% and 78% among urban and rural populations respectively (UN, 2008). This disparity is mainly due to developing country government's finding it increasingly difficult, if not impossible, to extend water and sanitation coverage, through conventional public service delivery mechanisms to rural and semi-urban areas (Rondinelli, 1991). Provision of basic services, such as water supply and sanitation, has placed extreme strains on limited government resources. This poor performance by the public sector in rural areas led to the search for institutional alternatives in the 1980's (Narayan, 1995).

As Mostert (2003) stated recognizing the importance of public participation in decision making, several international declarations and resolutions such as the Dublin Statement (1992), and Hague Declaration (2001), promoted active public participation in decision making in water management. Furthermore, the UN resolution passed mid way in the Water and Sanitation Decade (1981-1990), identified the need to increase community participation. This paradigm shift in development, in calling for a bottom up approach rather than top down, was not only limited to the water supply and sanitation sectors but also gained wide acceptance in rural development. Chambers (1983), stressed the importance of "putting the last first" and suggested the bottom up development model, where rather than allowing outsiders to drive the development process, to involve the subjects to develop themselves, by defining their needs, priorities, and preferred development pathways.

The advocates for participatory development, note that public participation gives rise to better informed and more creative decision making, resulting in improved efficiency (Mostert, 2003); improves the quality and legitimacy of the output and builds capacity of participants (Dietz & Stern, 2008); provides social learning on managing collectively, and improves democracy (Mostert, 2003); and overall improves the sustainability (Mostert, 2003; Lockwood, 2004)

Partly due to the inability of responsible governments to provide water supply services, and also due to the increased acceptance and recognition of the benefits of engaging the community, a concerted effort towards community management of water supply schemes has been underway since the early 1980's (IRC I. W., 2003); (WHO, 1996). Community involvement in water supply schemes has evolved from limited community participation in the form of voluntary or low paid labor in government implemented projects in the 1960's, to increased participation, in terms of consulting villagers on some aspects of design, and training caretakers on some aspects of monitoring and maintenance in the late 1970's and early 1980's (Rondinelli, 1991).

Whittington et al.(2008) citing early literature on the subject, state that in the 1980's it was widely recognized that most community managed rural water supply programs in developing countries were performing poorly. Reasons for failure were elaborated as "engineers blamed poor quality construction, anthropologists described a lack of community participation, political scientists reported rent-seeking and poor governance structures, and economists complained of poor pricing and tariff design" (p.4). Estimates in the 1980's indicate that around US$ 1.5 billion were spent annually by governments and donors on rural water supply (Briscoe & De Ferranti, 1998).

In view of these apparent failures in the 1980's, a change in approach was adopted in the 1990's. A "demand-driven" approach was adopted, where communities became key partners in the project planning and design, shared part of the capital costs during construction, and took on responsibility for operations and maintenance. World leaders committed at the Earth Summits in 1992 and 2002, to provide basic services to millions of people who lacked access through the adoption of Agenda 21. One of the guiding principles of Agenda 21 is community management of services to be backed by measures to strengthen local institutions in implementing basic services programs.

2.3 Participatory Development

Participation is viewed as a tool for improving the efficiency of a project, assuming that where people are involved they are more likely to accept the new project and

partake in its' ongoing operation. It is also seen as a fundamental right; that beneficiaries should have a say about interventions that affect their lives (Pretty, 1995) . Kumar, (2002) asserts that participation is a key instrument in creating self-reliant and empowered communities, stimulating village-level mechanisms for collective actions and decision-making. With the paradigm shift in development that called for a bottom up approach, rather than a top down approach, the early 1980's saw an increase in community participation in development projects. Community participation is a process by which communities are empowered to make effective decisions (Harvey & Reed, 2007). Engaging the community in its own development, ensures that the proposed development will better target people's needs, incorporate local knowledge, create grassroots capacity to undertake other projects and maintain facilities, distribute benefits equitably, and help lower costs (Uphoff, Cohen, & Goldsmith, 1979)

To achieve effective outcomes through participation, considerable investments in time and resources by parties facilitating and engaging in the process are required. Often, pressure for delivery of outputs, in reduced costs and time, may compromise the process of community participation. Unfortunately development progress is measured, not only by the developers, but also by public opinion formers, by the speed in which tangible results are produced (Botes & Rensburg, 2000). Beneficiaries too, at times, grow impatient with endless discussions without any results forthcoming. Essentially, there has to be a balance between the "process" and the "product". If too much time is spent on the process, the beneficiaries may begin to lose interest as they feel it is only a "talk shop" with no tangible results. Alternatively, if engaged in the product too quickly, without adequate time for the process, the beneficiaries may have a product that they do not want, or cannot sustain.

Many rural development programs are based on participatory approaches. However, as Berner & Philips (2005) point out, it is a mistake to assume that those poor in income are rich in spare time. Do the rural poor have the time necessary to devote to participatory development? Some are unable to commit the number of hours required.

Apart from the resource requirements, Botes and Rensburg (2000) note that implementing participatory projects in a heterogeneous community is difficult. They also point out that if the community leadership favors the project, the chances of

success are high. Further noting that, experience shows that initiative and leadership comes from people with a higher social status. Most often when participation doesn't work, it is because it has not been tried seriously, or was wrongly facilitated. Investing more time and money up front is worth the while, as it may actually result in a savings in cost and time during implementation.

2.4 Community Management and Community Development

It is becoming evident that community management of water supply and sanitation services under a well established institutional set-up can contribute to sustainability of services for enhancing community development. However the community should be the key stakeholder in water supply and sanitation services in their respective villages. Back-up from the local government and other development partners such as NGOs and private sectors are essential for proper functions of the community managed water projects.

Vandana Shiva argues that, "more than any other resource, water needs to remain a common good and requires community management" (Shiva, 2002). The Dublin principles adopted at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro 1992, Agenda 21 and the World Summit on Sustainable Development (WSSD) in South Africa in 2002 both put more emphasis on community participation in management of water resources (Solanes & Gonzalez-Villarreal, 1999); (Doe & Khan, 2004).

Community management is where people are organized together to bring about an improvement in their lives, that could not have been attained individually (WHO, 1996). The community has responsibility, authority, and control over the development of the services. In other words, as Doe and Kahn (2004) simply state, community management is the vehicle through which collective action is exercised for the common good.

What is then community development? Various forms of community development are described in the literature. Community based development (CBD) is defined as that which actively includes beneficiaries in design and management, and community driven development (CDD), is where communities have direct control over key

decisions, such as management and investment of funds (Mansuri & Rao, 2004). The World Bank, (2007) defines CDD as an approach to increase a community's control over local development resources. The United Nations, in 1955, defined community development as a "process designed to create conditions of economic and social progress for the whole community with its active participation" (Doe and Kahn, 2004). Whatever definition there may be, community based development, community management, and community driven development, basically describe a bottom up approach that gives communities a say and responsibility for their own development.

Doe and Kahn (2004) note that community development is operationalized by community management. This is refuted by Harvey and Reed (2007) who note that community development is operationalized, not by community management, but by empowering communities to make choices. Citing water supply as an example, they state that the community should have the right to choose not to manage their water supply if they so wish.

It is recognized that there is considerable overlap between community empowerment and community participation (Laverack, 2001). Community empowerment has varying definitions in a wide range of disciplines. In general, empowerment is the ability for people to improve their lives, through a greater understanding and ability to gain control over personal, social, economic, and political forces (Israel et al., 1993). Laverack (2001) notes that while active participation of individuals increases the ability to influence the direction of the program, participation alone does not result in community empowerment. Empower, he notes, is to bring about social and political changes. This view is supported by Torre, 1986, who states that no matter how much participation there is, unless there is a social action component which increases the power of the group, there can be no community empowerment (Rissel, 1994)

In an organizational context, empowered organizations are managed democratically, and members share information and power, work collectively to meet mutually defined goals, and make collective decisions (Israel et al., 1993). In a review of various definitions on empowerment, Rissel (1994), citing Swift and Levine (1987), notes that community empowerment is achieved through three stages. First, individuals become aware of their powerlessness. Second, these individuals who feel strongly about this inequity, through social interactions develop comradeship with

likeminded individuals. Third, this group engages in activities to change the conditions that create the powerlessness.

Israel et al., (1993) notes the importance of distinguishing between the primary and secondary dictionary definitions of empowerment. The primary definition is, to invest or give power, or authority, to others. The secondary definition is to enable or give others the ability to obtain power. The authors further note that the empowerment process expected through community development is aligned to the secondary definition. Where, communities are empowered through the provision of skills and resources to gain control over their lives. Although, the authors discuss this definition in relation to community health education, it holds true for community development in general. It should be noted, however, that community empowerment is not easily achieved in the short term; it takes commitment and is a long-term process (Israel et al., 1993).

The widespread adoption of community management, by building capacity of communities to address their own needs, freed governments to concentrate on more fundamental issues (WHO 1996). This notion is further strengthened in a wide body of literature, where it sees community management as an alternative solution to conventional forms of infrastructure provision which have failed. There is also a school of thought that community management was a concept developed predominantly in the west, where a tendency to idealize communities in low income countries exist (Harvey and Reed, 2007). Nevertheless, the roots of the community development model can be traced to post colonial India and Pakistan (Binswanger, de Regt, & Spector, (2009); Korten, 1980). In the late 1940's and early 1950's, Mahatma Gandhi promoted decentralized development through *village republics*. Similar programs were adopted in 60 nations in Asia, Africa, and Latin America (Korten, 1980). However, due to political and technical reasons, and the view adopted by the newly independent countries, that there was a need for a strong center to build national unity, power and implementation shifted back to the central agencies (Binswanger, de Regt, and Spector, 2009).

It is suggested that the community management model was readily accepted by different actors to meet their respective agendas (IRC, 2003; Lockwood, 2004). Governments, found it to be a way to reduce demand on overstretched resources;

donors found this as an effective means by which development budgets could be stretched, and a mechanism by which corrupt and inefficient governments could be bypassed; NGO's were happy to take on the role as the voice of the community, and in many countries becoming a parallel government; and multilateral lending institutions such as the World Bank, saw community management as an effective tool by which their message on reduced government involvement and increased roles for private sector and civil society could be conveyed (IRC, 2003; Lockwood, 2004). While practitioners may have different views on how and why community management is widely accepted, it is clear that it is now mainstreamed in to the development agenda.

General principles of community management are (Lockwood, 2004): (i) participation- which must continue indefinitely from design stage onwards; (ii) control- community to have direct control over operation and management of the system; (iii) ownership- formal ownership of physical infrastructure is desirable, but not always possible under existing legal frameworks, but at least the perception of ownership; and (iv) cost sharing – here too depending on individual circumstances, contributions need not necessarily be financial in nature. The challenge in applying this model is that all communities are not equal. Differences exist between rural communities and within. Therefore, these differences have to be understood in a context specific basis.

As traditional government-led development initiatives in rural areas tended to suffer from poor maintenance, due to the inability to maintain widely dispersed infrastructure; staff, transport, and budgetary constraints; and user dissatisfaction, the community managed/driven development model became popular (Lammerink,1998). By making development initiatives more responsive to demand, the engagement of the community led to improved effectiveness and efficiency (Narayan, 1995), was more cost effective and ensured greater sustainability at substantially lower costs (Lockwood 2004), empowered the community and ensured equitable distribution of resources (Narayan,1995).

Nevertheless, while community management has had many successes, two broad constraints can be identified (Lockwood, 2004). They are internal and external constraints. The internal constraints are the influence of community dynamics,

poverty, strong traditions, misplaced priorities, lack of capacity (technical, managerial, financial) within the community. The external constraints are, time constraints (donor funded projects have short time frames within which certain actions should be accomplished and not always feasible), sectoral plans by other agencies, poor designs, political interference, lack of spare parts supply, lack of supportive policies and legislation, and importantly lack of long term support. Further, field based experience of a wide number of practitioners suggest, that even with improved approaches to community management, such as improving the management capacity, it is not realistic to expect rural communities to be completely self sufficient (Lockwood, 2004).

Communities can not do all these activities by themselves; they need support to enhance their performance functions. Communities need to be empowered on how to manage the water projects in terms of governance and provision functions such as availability and supply of spare parts and maintenance. Management skills on how to handle group dynamics, institutional arrangements and monitoring and evaluation of the systems are the important element for success and sustainability of community managed water supply and sanitation services (Schonten & Moriarty, 2004; IRC, 2003). It is however noted that successful community management of water supply services needs on-going support and guidance even if communities are well trained and organized to operate the system (Harvey and Reed, 2004; Lockwood, 2001). Local governments, NGOs and private sectors are the important organs to ensure institutional support for the sustainability of water supply and sanitation services under CM approach. Figure below shows motivation, maintenance, cost recovery and continuous support as the building elements for sustainability of water and sanitation services ((Carter & Howsam, 1999)

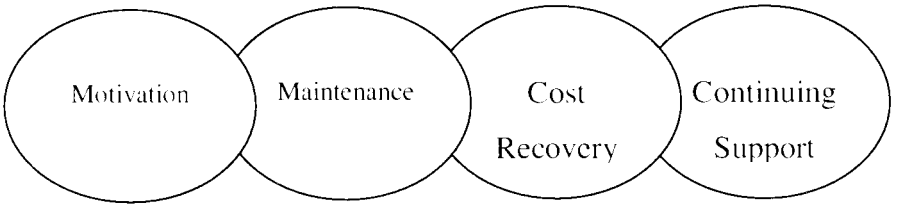

Figure 2-1: Sustainability Chain

Source: (Carter & Howsam, 1999)

The four aspects in the chain are considered very important for the sustainability of community managed schemes. Regarding motivation, it is said that motivation of communities to utilize new sources (water schemes or toilets) is crucial for sustainability. On the other hand where local communities have a role in maintenance activities of the water schemes, training (management and technical aspects) and backup from the government, NGOs and private sectors is necessary for sustaining the schemes. Cost recovery is very important for sustainability of water schemes because spare-parts, tools, replacement units and training all need money. Finally, continuous support from the government, NGOs and private sectors is vital for sustainability of community managed water and sanitation schemes (Carter and Howsam, 1999).

In a critical review of community based and driven development, through the review of a wide body of literature related to impact evaluation and case studies, Manzuri and Rao (2004) conclude that: (i)the decentralized approach has not always been effective in targeting the poor within communities; (ii) while evidence suggests that participatory projects improve outcomes and create effective infrastructure, there is little evidence to prove that participatory elements are responsible for this; (iii) targeting poor within unequal communities is more difficult, particularly when the power is concentrated among elites; (iv) even in the more egalitarian communities, community involvement is dominated by elites who are more educated and have fewer opportunity costs and as a result gain the greatest net benefit from participation; (v) while community based development is likely to be more effective in more cohesive and better managed communities, better networked and better educated groups within communities are also capable of benefiting more; (vi) while several studies suggest that sustainability of community based development depends heavily on enabling governmental institutional environment committed to transparent, accountable and democratic governance, it is also important that communities are accountable to their beneficiaries rather than bureaucratic and political superiors; (vii) such type of development is influenced by cultural and social systems and therefore is context specific, and projects are best achieved by careful learning; and (viii) community based development is not necessarily empowering in practice.

An evaluation on CDD and CBD projects supported by the World Bank found that projects which built on indigenously matured participatory efforts, or where the bank provided sustained long-term support beyond a single intervention, performed better in capacity development (World Bank, 2005). While CDD and CBD are increasingly being adopted by development agencies, the move is criticized by some scholars saying its popularity is mainly due to the cost cutting effects, and that there is a real lack of willingness on the part of the donor agencies to share decision making power (Berner and Phillips, 2005). Developing practitioners are also criticized for excelling in spreading the myth, that communities are capable of anything, and all that is required is good mobilization and the latent capacities of the community will be unleashed (Cleaver, 1999).

Despite the divergent views expressed on its effectiveness, community management is now widely adopted to meet the needs of the rural water supply and sanitation sector in developing countries. It is the main mechanism by which these countries attempt to meet their respective MDG's.

2.5 Community Management of Rural Water Projects.

Community management of rural water supply systems is now in its second decade as a leading paradigm for water supply development and management (Lockwood, 2004). Community management evolved from the concept of community participation that gained universal acceptance during the 1980's International Drinking Water Supply and Sanitation Decade (IDWSSD). McCall (1987), distinguishes between three levels of community participation as: 1) a means to facilitate the implementation of an external intervention; 2) a means to mediate in the decision making and policy formulation of external interventions; 3) an end in itself, the empowerment of social groups to gain control over resources and decision making. By the end of the IDWSSD, community participation within rural water projects had evolved to encompass this third level of involvement, including granting communities control over operations, maintenance and cost sharing (Lockwood, 2004). This also marked an important institutional policy change in international development towards basing the provision of services on demand, rather than the conventional supply driven model, and complemented efforts to create ownership of development processes on

the part of local communities (Nicol, 2000). This was the birth of community management of rural water projects.

We have seen how the version of community management practiced by the rural water supply and sanitation sector in developing countries traces its roots to the perceived failure of governments to implement, and more importantly to sustain water supply systems. Those in the sector who have a utilitarian approach (what works best for the community?) see community management as the only realistic option to provide some level of service. However they often see community management as a stopgap measure to be abandoned once government reforms itself, and can undertake its 'proper' function again. Those coming from rights based direction see community management as a means of empowering communities. The provision of functioning water supplies can come to be almost peripheral to the wider aim of making communities stronger, more cohesive and more able to demand their rights. The two schools of thought come together in the widespread adoption of participatory and 'people centered' approaches to rural water supply. (IRC, 2003)

Both schools of thought share a dislike and/or distrust of government. An important outcome has been an approach that has focused almost exclusively at community level, ignoring or bypassing government in the race to effectively and efficiently expand coverage or empower communities. This is unfortunate because despite successes empowering communities, the reality remains that community management approaches have not been noticeably better at sustaining systems than what went before. Yet one of the main justifications for investing in the costly software side of community management, the training of committees, pump mechanics, caretakers and so on, is increased sustainability.

The issue of flexibility in community management based approaches is crucial, but often ignored in the one size fits all - hand pump or nothing - approach practiced in much of the developing world. Rural people use water in a wide variety of ways (domestic, productive, spiritual), and systems that are designed to provide a level of service commensurate with those needs are much more likely to succeed in being owned and paid for by communities. Only community managed approaches have the flexibility to provide millions of communities around the world with tailor made water supply solutions.

The answer to the question 'why use community management?' is, 'because it's the best option under certain circumstances'. The question then becomes under what circumstances should community management be recommended?

The figure below provides one framework for answering the question. It is a simple conceptual representation of how community management (or management *by* the community) fits in with other management models not based on community control (management *for* the community). The triangles symbolize the relative workload, and more importantly control. In both model communities need support from the intermediate level, and service providers need to be responsive to the demands and needs of the community/customers. (IRC, 2003)

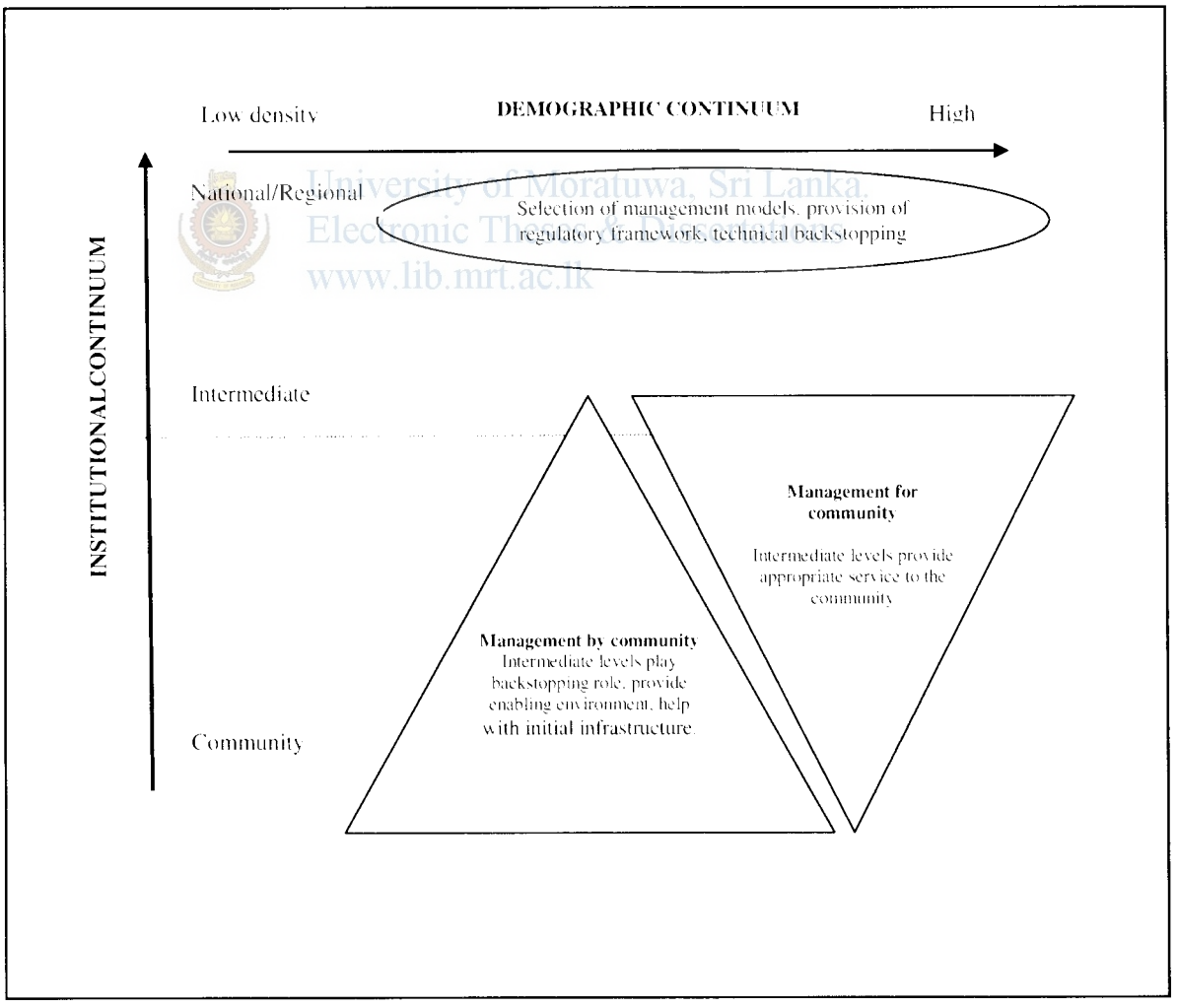

Figure 2-2: Appropriate Circumstances (IRC, 2003)

The above diagram suggests that one factor influencing the choice between community management and other models is demography. Where populations are dispersed or inaccessible, a community based solution will be more effective; where populations are concentrated, a service provision model is indicated. However, there are other possible axes that could be used, such as a poor to wealthy continuum where poor communities are more likely to manage their own water supply and rich communities are more likely to simply buy into an existing system. (IRC, 2003)

The reasons for using community management are therefore:

- because there is no alternative for economic, geographic or demographic reasons,
- because empowerment of communities is a good thing,
- Because there is no other way to provide the necessary flexibility.

The diagram also suggests that community management is most appropriate to dispersed rural, communities, and poorer communities. Yet clearly the minimalist version of community management practiced in many developing countries is not sustainable as it leaves communities unsupported and loads them with unrealistic expectations.

Today, community management is a reputable model for managing rural water supply because of an acceptance from multiple stakeholders within rural development circles with different agendas and priorities. Most influentially, "government's inability to build and maintain water supply infrastructure has been (one of) the major factors leading to the promotion of community participation" (Carter et al, 1999). The community management model also gave the NGO and private donor community more leverage to bypass inefficient government institutions and work directly with local communities, thus institutionalizing their longstanding belief that local people have the capacity and to manage natural resources. Similarly, multi national lenders such as the world bank and USAID saw community management as a general transition from supply to demand-driven approaches, which also fits within broader trends towards decentralization of government services and transfer of responsibilities to lower levels of government and ultimately to communities themselves (Nicol, 2000).

Benefits of community management in rural water supply and sanitation are recognized as: greater sustainability; improved community identification with the system leading to greater willingness to pay for it; ability to develop programs that meet real needs; and greater potential for improved performance due to pooling of external and local resources. The constraints are, a fear by the agencies that the community's capacity to manage may be limited; it may take longer to implement; a perception of threat to the traditional political hierarchy; and reluctance by some communities who depend on government to provide the service to see a shift in management (WHO, 1996).

Community management in rural water supply is now in its second decade, and emerged from a history of trial and error. Community involvement in rural water supply has seen an evolution with an input through labor in construction in the 1970's, to community participation in decision making and maintenance in the 1980's, to community management in the late 1980's and 1990s (IRC, 2003). This saw a transition of responsibility of service provision from government to the local people.

Scholars/practitioners cite divergent views on the impact of community management on rural water supply. Evans and Appleton,(1993) summarizing the findings of a workshop, where experiences from 122 completed water projects, from seven developing countries (Cameroon, Guatemala, Honduras, Indonesia, Pakistan, Uganda and Yemen) were shared, describes that community management is widely adopted because it is reliable, sustainable, and replicable; stimulates community development; and it works. However, the workshop findings short falls of stating under which community settings it works.

In Africa there is a high prevalence of community managed rural water supply and sanitation schemes (Harvey and Reed, 2007). The authors, while acknowledging that this has gained wide acceptance due to development based principles, note that this approach has gained popularity fundamentally due to three reasons. First, the government's inability to provide a proper service –with governmental institutions being unable to manage the "supply-driven" schemes—due to lack of capacity and resources. Second, the suitability to project approaches adopted by NGO's and donors-noting that by mobilizing the communities to take ownership and

responsibility for management, the responsible agencies were able to abrogate their responsibilities. Finally, the apparent "cultural idealization" of communities in low income countries by the Westerners.

It is widely accepted that community participation from an early stage in the project process increases the sense of ownership. However, ongoing motivation is required for continued participation (Mtinda, 2006). Evidence from the field suggests that strengthening community decision making and management capacity could take several years, and therefore, community managed projects may take longer than conventional agency led projects (Evans and Appeleton, 1993). Strong leadership, adoption of a programmatic approach focusing on process rather than output, helping communities make realistic appraisal of resources to keep the system functioning, selecting an appropriate community management structure, and increasing the involvement by women, are considered as key factors contributing to effective community management (Evans and Appleton, 1993).

In a study of 121 rural water supply projects, Narayan (1995) singles out beneficiary participation as the most important factor contributing to achieving project effectiveness and performance outcomes. A World Bank impact evaluation of community water supply sanitation projects in Sri Lanka, also confirms this finding, that active participation by users at all stages improve sustainability (World Bank ,1998). However, others note that community participation alone is no guarantee of success to sustainability of water supply schemes (Harvey and Reed, 2007). Attitudinal, economic, and institutional factors are also key contributory factors. Among the many challenges that face community managed schemes two stand out (Carter & Howsam, 1999). First, the strength of community spirit – although traditionally strong in rural areas, community spirit is being threatened due to influence of development which has increased the rural-urban drift, wealth, materialism, and individualistic behaviour. Secondly, government bureaucracies – where major shifts in attitudes and approach are needed to adopt changes from direct implementation to handing over management to community.

In a study of several 100 rural water supply systems in Ghana, Kenya, Uganda, and Zambia, Harvey and Reed (2007) conclude that community managed schemes have

not delivered satisfactory levels of sustainability. Problems occur generally within one to three years of commissioning and the most common causes identified were, the lack of long term incentives to maintain voluntary inputs on which community management often depends on; key trained individuals leaving the community; the community organization responsible for managing the scheme loosing the trust and respect of the general community; failure by community members to contribute to the maintenance fund; loss of ties with the responsible government agency, leading the community to feel that the agency has abrogated its responsibility for service provision; and inability of community to afford replacement of major capital items.

In a more recent study (Whittington et al., 2008), of rural water supply systems in 400 communities in Peru, Bolivia, and Ghana, the authors conclude that the demand-driven, community managed model is working well in all three countries. They note that not only were a majority of the systems still functioning, but the beneficiaries continued to access at least some of their water needs from these systems. However, the study notes that current cost recovery mechanisms being adopted by the communities cover only the operation and maintenance costs and that they are not moving to a financially sustainable future where they could replace infrastructure at the end of its economic life or expand the system to accommodate population growth. They caution that communities will keep returning for capital subsidies as some of them are doing now for repairs.

While benefits of community management model in rural water supply have tended to result in better performing systems for a greater cross section of the population, Lockwood (2004), notes that there are still problems with sustainability and it is now accepted that the model has its limitations. As time goes by, majority of communities are unable to maintain the systems on their own, and require some external assistance over the longer term. He cautions that while community management is the most widely practiced model, it is important to recognize that it is not the only model for rural water supply. There will be a need to include combinations of management responsibility, among private sector, public sector, and community. The choice of model will depend on other factors such as governance structures, population densities, etc., A combination of strong governments and organized communities is a

powerful tool for development (Evans, 1996). A better understanding of the synergies between the two will result in improved development.

Recent literature on the community managed model in RWSS argues for the need for "scaling up". Defined as "*...an expanded level of coverage of services in both space and time*" (Lockwood, 2004). The study recognized that there is a need to build capacity at the intermediary level such as local governments and NGO's and, also stressed the importance of moving from a "project" delivery to a "service" delivery. Identifying that donors tend to pull out of a particular sector or country, Lockwood, 2004, notes that if a water service approach is adopted it has a longer time frame and is broader in coverage. Therefore, there is a need to build service structures not only during implementation but for follow up support as well. Whittington et al. (2008), while acknowledging that long term financial sustainability requires a different model, notes that communities should not be encouraged to become dependent on NGO's and higher level of governments.

2.6 Summary Points

There is a growing trend in most Developing countries to encourage rural communities to manage their own water supply schemes. Governments are trying to change their role from 'provider' to 'facilitator', and External Support Agencies promote decentralization and greater community involvement in decision making and management.

Despite certain weaknesses, however, these studies reveal a significant potential for community-based management. There are several advantages to supporting a more prominent role for the communities themselves: greater efficiency in system performance; improved cost-effectiveness for both communities and agencies; and better prospects for the long-term sustainability of water supply systems management.

However, both agencies and communities face numerous constraints. In practice, little emphasis is put on developing management capacities at the local level. The agencies are more focused on construction of water supply systems, whereas the communities often lack management experience and the tools to deal properly with operation and

maintenance.

Community management does not imply that communities must take care of everything or pay the full cost themselves. The idea of partnership allows scope for sharing responsibilities between supporting agencies and communities. The exact division can vary considerably, but should be agreed upon in advance.

While some argue that participation is the key to success, others note that what is needed is to empower communities and this cannot be achieved through participation alone. Communities can only be empowered by providing them the necessary resources and skills, and it is something that cannot be achieved in the short-term and requires long-term commitment.

Community participation has been more successful when it occurs throughout the project cycle and it is noticed that participation is not effective when agencies retain control over the details of implementation or when issues concerning physical infrastructure and technology are addressed more effectively than issues of social organization necessary for managing the project works.

Further, success is threatened due to inability to raise sufficient revenue, not only for operations and maintenance but also system replacement, lack of ties with governmental institutions, and other internal and external constraints faced by communities. It is clear that the community managed model cannot be the only means by which rural water supply needs be met, as differences exist between and within rural communities. It is important to note that community management should not mean that the community needs to shoulder the entire responsibility during operation. As with the design and implementation stages, community management during operation stages should be supported by implementing institutions

3 Research Methodology

3.1 Introduction

This chapter discusses about the theoretical framework of research, population and the sample, questionnaire design, data collection method and data analysis in detail.

3.2 Methodology .

Figure 3.1 represents the research methodology graphically.

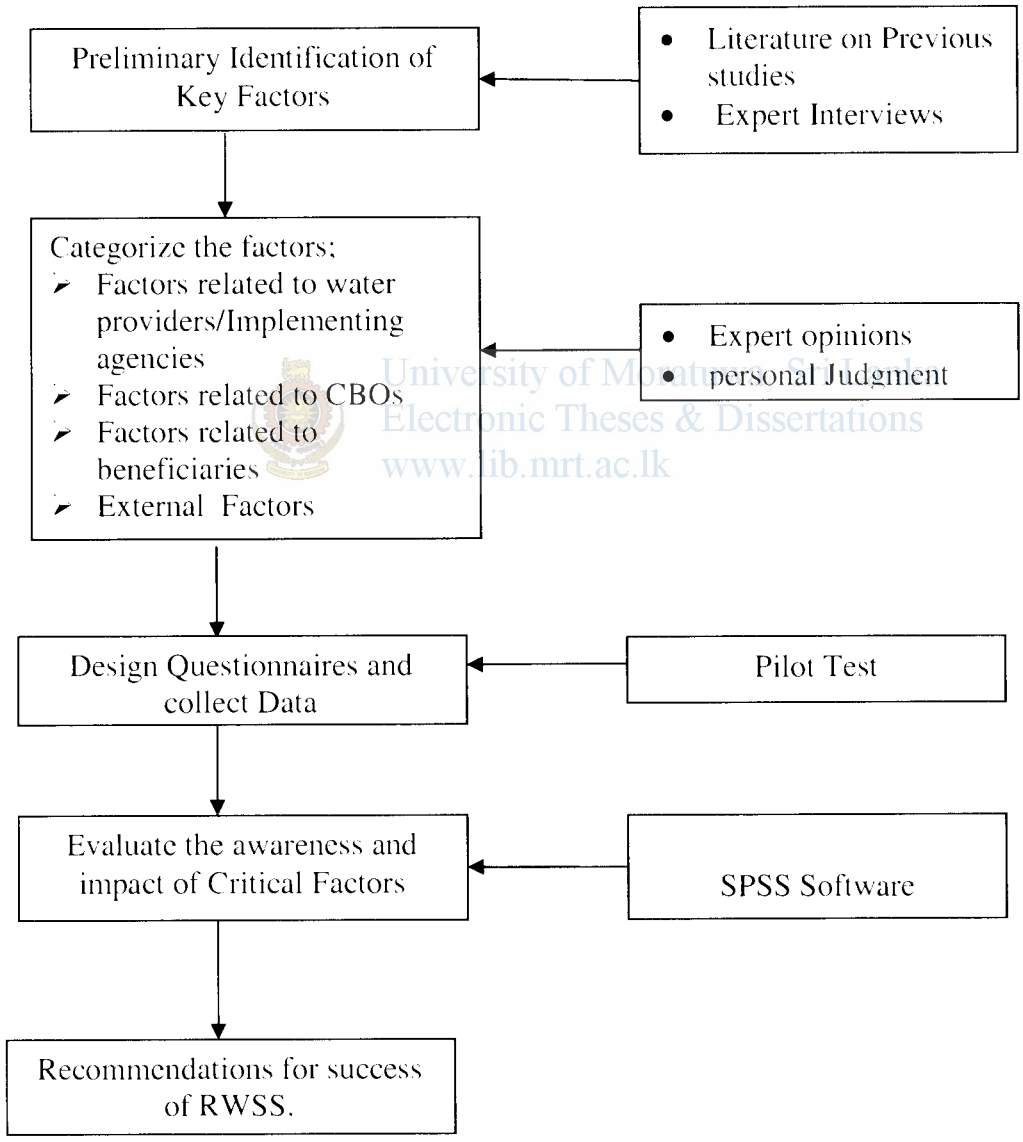

Figure 3-1: Research Methodology

3.3 Conceptual Model

Figure 3-2 shows the conceptual model developed for the research based on research objectives.

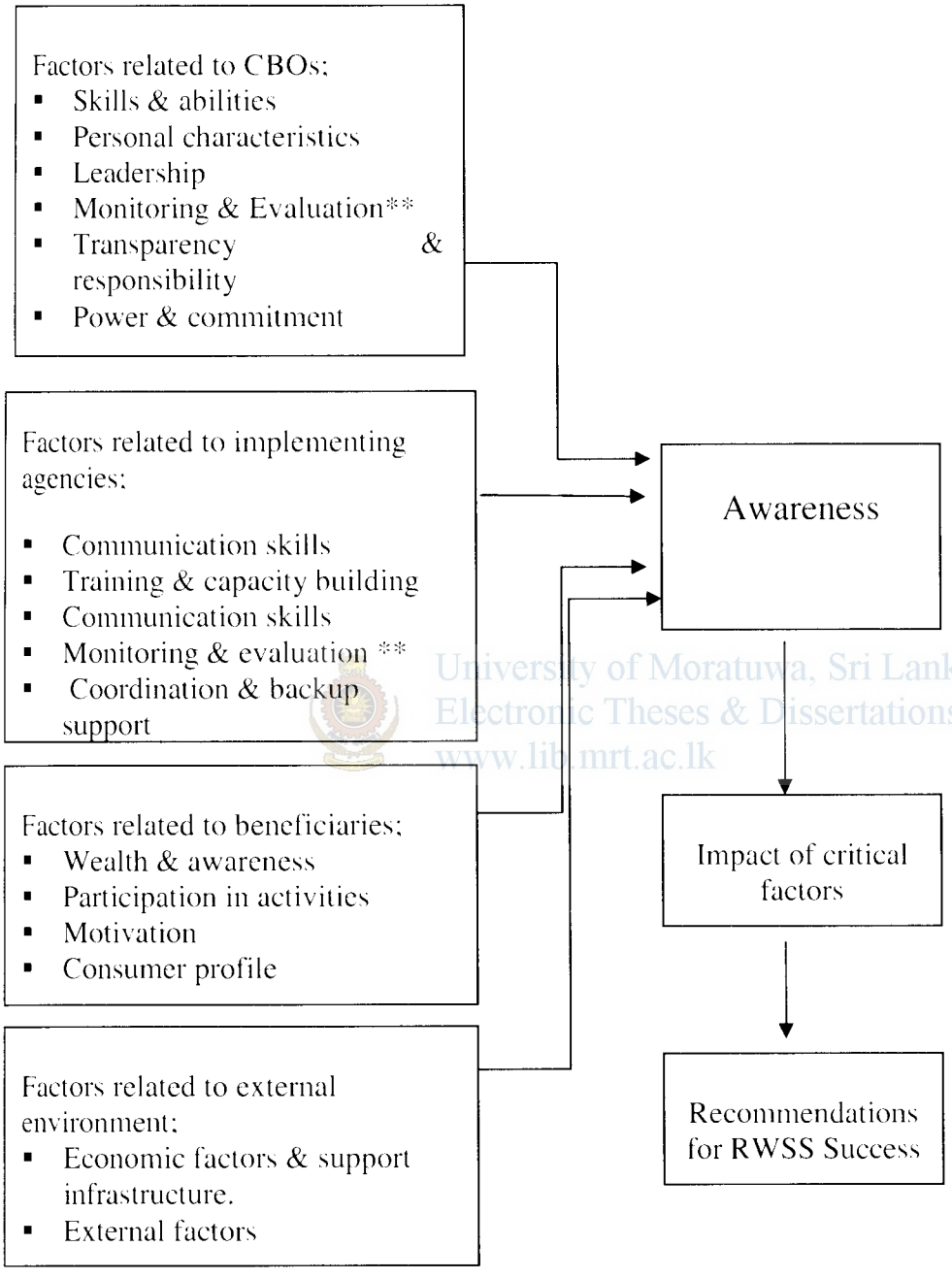

Figure 3-2: Conceptual model

Note : ** - Factor "monitoring and evaluation " is relevant for both implementing agencies and water management committees (CBOs).

3.4 Awareness of Critical Factors

In this research study Water Scheme Success is defined as, the water scheme is functioning to deliver its intended benefits over the long-term and fulfill 24-hour water demand of all beneficiaries throughout the design life of the water supply system. If the water scheme gives an acceptable level of service, which marginally satisfies the water demand of beneficiaries the water scheme is "partially successful". If the scheme does not deliver its' intended benefits over the design life, the scheme is "Not successful". A number of studies have identified various determinants of water system success, including technical, institutional, and social aspects.

There are 15 major factors which were identified as key factors for project success from literature review and expert opinions. These factors were categorized into groups of "factors related to Implementing agencies/ support agencies", "factors related to community organizations (CBOs)" , "factors related to beneficiaries" and "factors related to external environment " and they are further divided into variables and sub-variables and the questionnaires were developed based on those variables. In addition to that, the questionnaires were aimed to obtain views of all stakeholders [water providers/Implementing agencies, community based organizations (CBOs) and beneficiaries] on each identified factors.

Water management committee is the representative group of community people, chosen to take up management and operation & maintenance of the scheme and it remains in-charge of ensuring the sustainability of the service. Factors related to water management committees consists of different parameters and factors related to the project which can affect the scheme success. There are six essential factors which come under this concept of which one factor is common to implementing agencies. There are four critical factors identified with reference to implementing agencies (monitoring and evaluation is relevant to water committees too) , four critical factors with regard to beneficiaries and there are two factors under external environment.

Skills and abilities of water management committees play an important role with regard to the scheme success. In community managed water schemes, the communities are managing the system throughout the life cycle. The communities have varying needs and different characteristics, their innate skills and abilities greatly

influence the scheme success and they also bring their own perspectives and creativity to the process. Water Committee needs technical skills to maintain, repair and operate the system. They need administrative skills to collect revenue, run bank accounts, record keeping and make payments for services, parts, salaries etc. They need governance skills for problem definition, planning and informed decision making and should have ability to build consensus and resolve conflicts within the communities and between leaders.

Economic factors and support infrastructure is an important factor in the success of rural water schemes. At the implementation stage of the project, the Government contribute part of the cost of the scheme (normally 80%) , whereas other 20% is contributed by community (in the form of labour or cash) to ensure their participation. At the operational stage operation, maintenance and repair cost to be borne by the communities. Therefore, it is necessary to have a revenue flow to cover recurring cost of maintenance and operating expenses. Support infrastructure such as office accommodation, transport, communication facilities etc. are needed for proper functioning of the system.

Community consists of persons having different characteristics and interests. The water management committee composed of selected persons from this community. Therefore, the personal characteristics of committee members greatly influence the functioning of the system. They should have ability to work well in groups, should have common interest and accommodate diverse interests. They should ensure the cohesion among members as well as other people to ensure proper functioning of the scheme.

Leadership is a basic factor which has a relationship with success of rural water schemes. The leadership characteristics of office bearers of water committees and change of leadership within project life cycle influence the water scheme success.

Training and Capacity building and success of rural water schemes are closely related. Without adequate, appropriate capacity at different levels of stakeholders, the scheme will not be sustainable. The community should equip to undertake the necessary functions of governance and service provision in a sustainable fashion. The water committee should be given training on technical, managerial, administration and

financial skills and to be aimed to build innate skills and abilities exists in community and should address on a long-term, programmed basis.

Motivation of all stakeholders throughout the project life cycle is an important factor for the success of the scheme since motivation influences for the willingness of beneficiaries and water committees to provide necessary time, money and labour to keep the system functioning.

Coordination and back-up support of implanting agency is an important factor for achieving the success of the scheme. Careful planning and implementation in coordination with levels below (community) and above is necessary and community management should be seen as a flexible and evolutionary process, requiring continual dialogue. The water committee should receive support as and when they required and they should have easy access to support. Moreover, multidisciplinary approach requires the integration of professionals from non-technical fields and closer coordination with other government departments and among different schemes operating in the same area is also important.

Monitoring and evaluation is a continuous set of actions that improve the scheme performance over the short-term and influence the impact over the long-term which ultimately lead to the project success. Monitoring and evaluation can be best conducted in partnership among implementing agencies and water committees and it should stimulate two-way flow of information between them. Development of an effective monitoring and evaluation system by supporting organizations and monitoring and evaluation of water committees maintained with proper records are pre-requisite for success. And monitoring should be simple that community can monitor their performance.

Transparency and accountability of all activities is a vital factor to build consensus among communities and ultimately leads to the success of the scheme. Community management implies a situation whereby communities have control over the management of their water system. The management is undertaken by water management committee and the mutual trust between committee members and communities is essential to prevent conflicts among them. Therefore, transparency

and accountability of all decision making processes and financial activities should exist to develop mutual trust among all stakeholders.

Community management approach advocates best use of available resources within the community with support from outside agencies. The water committee is responsible, have authority and control over the system. Therefore, the power and personal commitment of committee members is very important for successful operation of the scheme.

Communication skill of implementing agency staff is an important factor for successful implementation and operation of rural water schemes. Project requirement has to be clearly and effectively communicated from the inception stage of the project as it influences building interest on project among users finally leading to the success of it. The implementing agencies should maintain an excellent communication links among people, ideas and information that are necessary for the scheme success.

The wealth of community and their awareness is an important factor for continues function of the system and its' success. It is very important that community understand the concept of community management (awareness) and develop attitude to support it. Revenue should ultimately come from community payment for the service and there should be a sufficient household income to pay for the service continuously which determines the "affordability" of community. All these aspects are depend on education level, knowledge, capacity and cost affordability of the beneficiaries, which is called the wealth of community.

The active community participation in all phases of the project is a basic factor for achieving success of the scheme as it develops sense of ownership and enthusiasm of the facility. If the community values the service, we can assume that they are willing to maintain the system over the long-term.

The community profile is also an important factor that affects success or failure of a scheme. The support of community in scheme activities influenced by community profile and factors like age, gender, culture, occupation, religion etc. come under this aspect.

Factors related to external environment is also a broader concept which describes different political, technological, legal and environmental factors. It consists of various parameters and factors, but this study narrows down it into two very important factors.

Table 3-1: Operationalization of Variables

Variable Group and concepts	Variable	Questionnaire reference
Factors related to Water Managing Committees.(CBOs)	skills and abilities	1.1-1.4 (Questionnaires 1, 2, 3)
	Personal characteristics	3.1-3.7 (Questionnaires 1, 2, 3)
	Leadership	4.1-4.7 (Questionnaires 1, 2, 3)
	Monitoring & evaluation	8.1-8.8 (Questionnaires 1, 2, 3)
	Transparency and responsibility	11.1-11.4 (Questionnaires1,2,3)
	Power and commitments	12.1-12.4 (Questionnaires1,2,3)
Factors related to water providers/Implementing agencies.	Communication skills	13.1-13.3(Questionnaire 1)
	Training & capacity building	5.1-5.3 (Questionnaires 1 & 3), 5.1-5.4 (Questionnaire 2)
	Co-ordination and back-up support	7.1-7.5 (Questionnaires 1 & 2), 7.1-7.4 (Questionnaire 2)
	Monitoring and evaluation	8.1-8.8 (Questionnaires 1, 2, 3)
Factors related to community(beneficiaries)	Wealth of community and awareness	9.1-9.4 (Questionnaires 1, 2, 3)
	Participation in activities	10.1-10.6 (Questionnaires 1, 2, 3)
	Motivation	6.1-6.4 (Questionnaires 1, 2, 3)
	Consumer Profile (Culture ,age, gender etc)	14-18 (Questionnaires 1 & 3)

Table 3-1: Operationalization of Variables (Continued)

Variable Group and concepts	Variable	Questionnaire reference
Factors related to external environment	Economic factors and support Infrastructure	2.1-2.8 (Questionnaires 1 & 3), 2.1-2.7 (Questionnaire 2)
	External factors and environment (water quality & quantity, resources, legal framework, political support etc.)	13.1-13.13(Questionnaires 1 & 2), 14.1-14.13 (Questionnaire 2)

The Fifteen major variables which have been used in this study are further divided into sub variable as shown in Table 3.2.

Table 3-2: Major variables and appropriate sub variables

Variable	Sub Variables	
Skills and abilities of Water committees.	Have technical skills on;	Operation and maintenance
		Repair
		Adequate monitoring
	Have administrative skills on ;	Collect revenue
		Run bank accounts
		Record keeping
		Make payments for services, parts, salaries etc.
	Have Governance skills on;	Problem solving
		Planning
		Leadership
		Informed decision making

Table 3-2: Major variables and appropriate sub variables (Continued)

Variable	Sub Variables	
	Have conflict resolution ability to build consensus and resolve conflicts within community and leaders.	
Economic Factors and Support Infrastructure	Ability to cover recurring cost of operation and maintenance expenses, salaries etc.	
	Well established tariff structure.	
	Acceptable household income to pay for the service continuously.	
	Willingness of pay for the service.	
	Well established mechanism for;	Raising necessary financing
		Alternatives
		Managing funds
		Collect tariff
	Well established institutional structure, well equipped to deal with management & technical issues.	
	Support infrastructure such as;	Office accommodation
		Transport
		Communications
		Electricity
		Copying facilities
		Computers
Personal Characteristics	Ability to work well in groups, know each other properly and developed friendship.	
	Personal will to be trained.	
	Ability to take responsibilities & take up challenges.	
	Having a common interest and accommodate diverse interests.	

Table 3-2: Major variables and appropriate sub variables (Continued)

Variable	Sub Variables	
	Willingness to take leading role	
	Good impression among beneficiaries and outsiders.	
CBO Leadership	Leadership characteristics such as quiet, perspective, very analytical, confidence and provide right ending always.	
	Leadership not controls options and views of others.	
	Change of leadership.	
	Change of committee members during life cycle.	
Training and capacity building.	Community received training on;	Technical skills
		Management skills
		Administration skills
		Financial skills
	Capacity building programmes at the initial stage and throughout the project cycle.	
	Capacity building programmes build innate skills and abilities exist within community and take community perspectives & creativity.	
	On-going training as and when required.	
Motivation	Community motivation programmes.	
	Mechanism to pay monthly salary to operator, care taker etc.	
	Rewarding system for good operation and maintenance.	
Co-ordination and back-up support.	Co-ordination among water providers/Implementing agencies, relevant authorities, water committees and beneficiaries.	
	Social networks and exchanging ideas.	
	Working relationships with existing community structures and their support.	
	Regular back-up support.	

Table 3-2: Major variables and appropriate sub variables (Continued)

Variable	Sub Variables
	Easy access to support.
Monitoring ,evaluation and feedback.	Plan for monitoring at the outset.
	Effective, post-project regular monitoring mechanism.
	Continuous feedback.
	Sufficient information to support decisions.
	Review project status reports regularly.
	Periodical scheme evaluation.
	Annual reporting and on-site monitoring.
Monitoring, and record keeping of CBOs	Mechanisms to collect funds and maintenance.
	Easy & systematic monitoring system.
	Meetings to discuss issues and take decisions.
	Regular meetings to exchange experience and monitor committee performance
	Sufficient information to make good decisions.
	All activities are documented.(meetings, duties, funds etc.)
	Good record keeping system.
	Periodical scheme performance & reporting
Power and commitment committee.	Power conflicts among members.
	Legal arrangements to support issues.
	Uni-lateral decisions and irregular spending.
	Personal commitments of members.
Communication skills	Have good communication skills.
	Communicate project requirement & policies properly.

Table 3-2: Major variables and appropriate sub variables (Continued)

Variable	Sub Variables
	Communicate all necessary information and give clear understanding of tasks required.
Transparency, and responsibility	Transparency in decision making process.
	Transparency in all financial activities.
	Delegation of management tasks and responsibilities among committee members.
	Analyze causes and consequences of problems in open & frank manner
Wealth of community and awareness	Understand the concept of community management and develop attitude to support it.
	Education, knowledge and capacity to manage the system.
	Acceptable household income.
Community participation	Feeling of ownership.
	Participation in activities in the initial stage.
	Participation in activities in the operational stage.
	Satisfaction of water committee activities.
	Active participation in meetings.
Community Profile	Age, Gender, occupation etc.
External Factors	Clear rules, regulations and favorable policies supporting and legal national policy guiding the interventions of the sector.
	Political influence.
	Quality and quantity of source.
	An Institutional formalized mechanism for continuous support.
	Mechanism for capacity building of policy makers.
	Competent resource persons for capacities building of communities.

Table 3-2: Major variables and appropriate sub variables (Continued)

Variable	Sub Variables
	Mechanisms to exchange institutional and community based experiences.
	Technology.
	Spare parts availability.

As shown in the appendix 1, 2 and 3 majority of questions has been measured through Five point Likert scale starting from strongly disagree with value 1 to strongly agree with value 5.Further many of the questions in this study were adopted from literature and expert opinions.

To measure importance of skills and abilities of water committees, four questions with five point Likert Scale has been used. The water committees' technical skills, administrative skills, governance skills and conflict resolution ability have been considered under this factor and the views of implementing agency staff , water committees and beneficiaries were checked

In measuring economic factors and support infrastructure, seven questions have been allocated with five point Likert scale that asked respondents (implementing agency staff, water committees and beneficiaries) about ability to cover recurring cost of operation and maintenance, financing mechanisms and infrastructure facilities.

To measure personal characteristics of water committees, six questions with five point Likert Scale has been used. Personal characteristics have been tested in-terms of ability to work well in groups, training and expertise characteristics of committee members.

Leadership characteristics of committee leadership were checked from four questions with five points Likert Scale tested in-terms how leadership provide guidance to committee membership and how change in leadership affect the scheme function.

In measuring training and capacity building, four questions have been allocated with five point Likert scale that asked water committees and beneficiaries about training

and capacity building they received while staff of implementing agencies were tested how they conduct training and capacity building programmes.

In measuring motivation of water committees and beneficiaries, three questions with five point Likert scale were used .The impact of motivation programmes, rewarding systems and future plans were explored under this factor.

To measure coordination and back-up support, five questions with five point Likert Scale has been used. Co-ordination among water providers/implementing agencies, water committees and beneficiaries, social networks with other agencies and villages and existence of continuous back-up support were measured.

In measuring monitoring and evaluation, six questions with five point Likert scale were used that asked information availability and sharing mechanisms, periodical monitoring and evaluation systems and record keeping. Different questions were formulated for getting views of water providers/implementing agencies and for water management committees.

Similarly to measure communication skills of implementing agency staff, three questions with five point Likert Scale were used. Communication of all required information, project policies and communication links between all stakeholders were explored.

To measure transparency, accountability and responsibility, four questions with five point Likert Scale were used. Under this factor, transparency in decision making process and financial activities and delegation of management tasks and responsibilities were measured.

Impact of community wealth and awareness was measured by four questions with five point Likert which considers factors like community knowledge, education, capacity and household income.

In measuring community participation, three questions with five point Likert scale were used that asked their perception on community management, feeling of ownership, involvement in scheme activities and participation in meetings.

To measure external factors, nine questions with five points Likert Scale were used. This factor has been considered in terms of legal issues, rules and regulations, political interference, source quality and quantity, resource availability etc.

To measure community profile, questions were formulated with nominal scale to select appropriate option while some questions were open ended to give appropriate answer.

Awareness has been limited to two types and they were measured for aware and not aware about the factor with regard to the scheme success. The success of scheme has been measured using one single question (from water committees and beneficiaries) "According to your context, is your water supply scheme is successful" and implementing agencies staff were asked "According to your context, are rural water supply schemes successful".

Finally the views of all stakeholders were taken by asking an open ended question "what are your other comments for successful operation of your scheme".

3.5 Population and Sample

Population in this study represents the management and technical staff of implementing agencies (limited to Rural Water Section and District Rural Water Supply Units of National Water Supply and Drainage Board), Water Management Committees (CBOs) and beneficiaries of the rural water supply schemes.

Systematic random sampling was used to select the samples from populations. Minimum of Fifty samples from each category were selected.

3.6 Data Collection Methodology

The research was designed to collect information from three categories of people namely water users(beneficiaries), water management committees (Community Based Organizations –CBOs) and implementing agencies (RWS Section of NWSDB and District rural water units) regarding management and sustainability of the water

schemes under community management. The data has been collected from questionnaires which were distributed among above categories. The questionnaire has been pre-tested by conducting a pilot study with five professionals from management staff of rural water section of National Water Supply and Drainage Board. Based on their feedback, few modifications have been done for the format, layout and wording of some questions.

3.6.1 Water Management Committees (CBOs)

A structured questionnaire survey and interviews were used to collect information from water management committees. Management committees are, the people who are responsible for the management of water schemes in the villages (planning, managing, setting water tariffs, monitoring of the water systems and O&M of the water infrastructures), were included in the study to get their views on identified key factors. For the water schemes in operation, questionnaires are aimed at getting the views of the management committees on identified critical factors, how management of the water scheme is done, criteria used in setting water charges, how operation and maintenance activities are done etc. Other issues considered important for discussion are transparency of management committees on how communities are informed on income and expenditure of money accrued from water sales, the suitability of water technology in place and management strategies to ensure long term sustainability of the schemes. Others were trainings received in relation to water supply issues, constraints facing management committees concerning water supply services and schemes, operation and maintenance problems, their skills and abilities to manage the scheme effectively. The questionnaire and interview were also aimed to have views of the management committees on what should be done for water schemes to be success under community management and aimed at getting views of management committees on how they get support from implementing agencies to success their scheme, community participation, their management strategies to ensure long term sustainability of the schemes and the impact of external factors. Local language was used to communicate with water management committees.

3.6.2 Implementing agencies / Support Agencies

To get information of implementing agencies, the technical and management staff of RWS Unit of NWSDB and District RWS units were selected and a structured questionnaire (Appendix 2) and interviews were used. The questionnaire and interviews aimed at collecting views from management staff of NWSDB on identified critical factors, issues related to approaches and management strategies employed in implementing and functioning of water schemes in rural areas and other factors for success of the schemes. The way local communities are taken into consideration when planning water projects and their participation in projects (planning, implementation, management and monitoring) was investigated and how well the water committees manage the schemes and external factors related to the management of schemes were explored.

3.6.3 Water users /Beneficiaries

To get information from water users, a structured questionnaire (Appendix 3) was administered. The questionnaire with closed-ended questions was formulated to enable the respondents to express their feelings and knowledge about water providers/implementing agencies and water management committee (CBOs) and their satisfaction of water service. Respondents with piped water in the house were interviewed and were selected randomly. Household-heads or members who are involved in water collection were the main target. Gender aspect was taken into consideration when selecting respondents. The interviews sought respondents' views on critical factors by exploring how they participate in the process of water supply projects (planning, implementations and monitoring). The way communities as end users of water are represented in the water management committees and the way they assess capability of management committees to run the water schemes were explored in the survey. Other crucial issues concerning transparency of management committees on how the system is operated (how funds are managed and accounted for) was investigated as well. The end-users perspectives' regarding the underlying causes of deficiencies and inefficiencies in water supply in rural areas, household characteristics and community wealth were considered important to investigate. Local language was used to communicate with beneficiaries.

3.7 Data Analysis

The study uses descriptive statics which includes frequency statics, cross tabulations, mean and standard deviation in describing the responses for each variable. Simple dot plots, pie charts, bar graphs and line charts are used to illustrate the responses for each variable. SPSS software was used to analyze the data.

3.8 Summary

The study used conceptual model in analyzing different parameters of the critical factors affecting the success of rural water supply projects. The research objectives have been depicted in a model and the model was converted into variables and sub-variables and the questionnaire was developed based on those variables. Questionnaires were distributed to random samples which represent water management and technical staff of implementing agencies, water committees and beneficiaries. The research study used statistical measures in analyzing the data which has been collected through questionnaire. SPSS software was used to analyze data.

4 Data analysis and Results

4.1 Introduction

This chapter discusses the overall analysis of the concepts and variables in detail using descriptive statistics. Statistical analysis and interpretation of results of the data collected were performed using graphs and charts which validates the conceptual model discussed in the previous chapter.

4.2 Sample Characteristics

Figure 4-1and Table 4-1 show the distribution of the sample for CBO officers and beneficiaries based on gender. The gender perspective was considered only for CBO officers and beneficiaries and the sample characteristics are shown below. The CBO sample contains 66% males and 34% females. The sample of beneficiaries contains 28% males and 72% females.

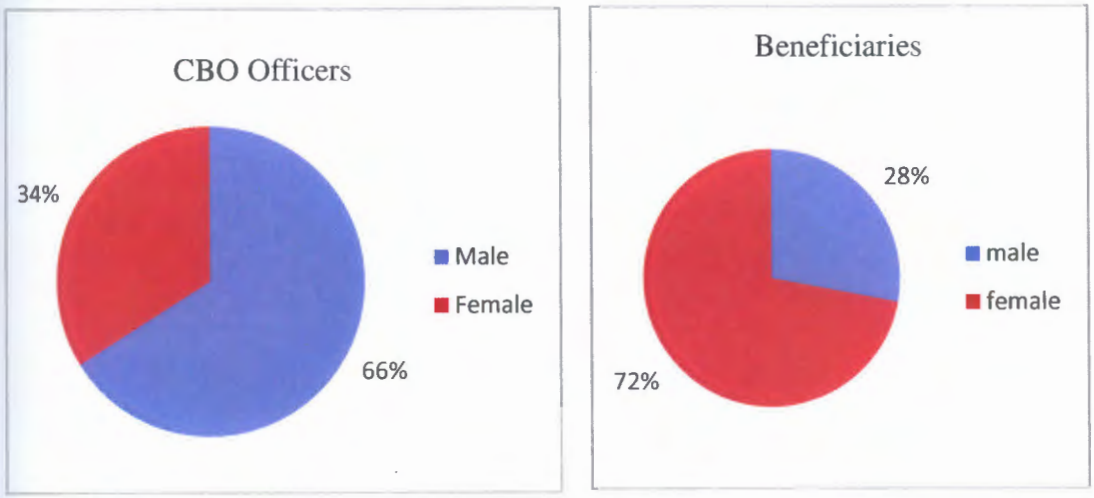

Figure 4-1: Sample characteristics based on gender

Table 4-1: Sample distribution based on gender

	Frequency	Percent	Cumulative percent
CBO officers			
Male	33	66.0	66.0
Female	17	34.0	100.0
Total	50	100.0	
Beneficiaries			
Male	14	28.0	28.0
Female	36	72.0	100.0
Total	50	100.0	

Figure 4-2 and Table 4-2 represent the distribution of the samples for CBO officers and beneficiaries based on age. This aspect also was considered for only samples of CBOs and beneficiaries. The figure represents that the 24% respondents are in age 20-40, 46% are in age 40--60 and 30% are in age over 60 when consider sample of CBO officers .On the other hand 10% are below age 20 years, 36% respondents are in age 20-40, 42% are in age 40-60 and 12% are in age over 60 when consider sample of beneficiaries.

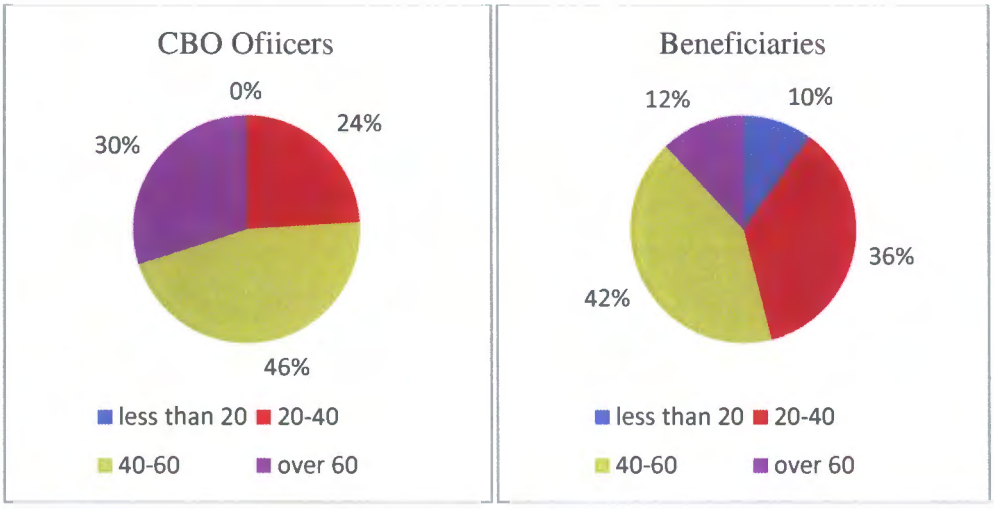

Figure 4-2: Sample distribution based on age

Table 4-2: Sample distribution based on age

Age limit	Frequency	Percent	Cumulative Percent
CBO officers			
less than 20	0	0	0
20-40	12	24	24
40-60	23	46	70
over 60	15	30	100
Total	50	100	
Beneficiaries			
less than 20	5	10	10
20-40	18	36	46
40-60	21	42	88
over 60	6	12	100
Total	50	100	

Figure 4-3 represents the distribution of the sample for CBO officers based on occupation. This aspect was considered for only sample of CBO officers. The figure shows that 16% of respondents have no occupation, 30% are involved in government service (teachers, clerks etc.), and 54% respondents are retired government officers.

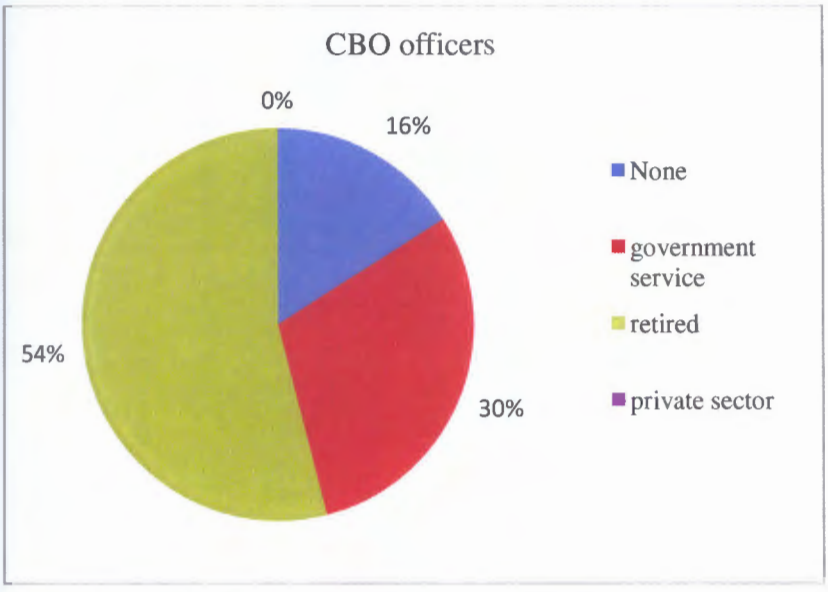

Figure 4-3: Sample characteristics based on occupation.

Table 4-3 represents the distribution of the sample for CBO officers based on occupation.

Table 4-3: Sample distribution based on occupation.

Occupation	Frequency	Percent	Cumulative Percent
None	8	16	16
Government service	15	30	46
Retired	27	54	100
Private sector	0	0	100
Total	50	100	

Figure 4-4 represents the distribution of the sample for CBO officers based on their position/designation in CBO. This aspect was considered only for sample of CBO officers. The figure shows that 24% of respondents were CBO presidents, 24% are secretaries, 20% are Treasurers, 14% are clerks/cashiers and 18% respondents are in executive committee.

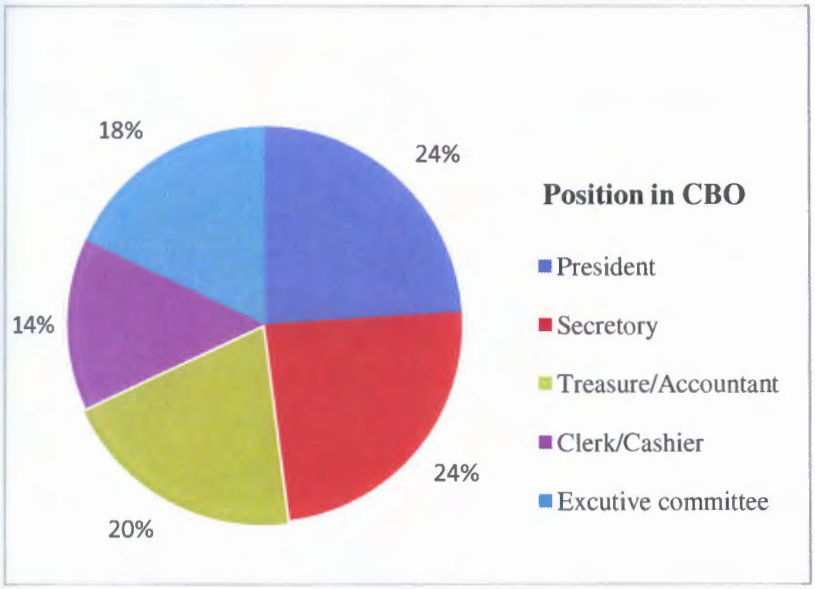

Figure 4-4: Sample characteristics based on Designation of CBO officers

Table 4-4 represents the distribution of the sample for CBO officers based their position/designation in CBO which has shown in Figure 4.4.

Table 4-4: Sample distribution based on designation of CBO officers.

Designation in CBO	Frequency	Percent	Cumulative percent
President	12	24	24
Secretary	12	24	48
Treasure/Accountant	10	20	68
Clerk/Cashier	7	14	82
Executive committee	9	18	100
Total	50	100	

Figure 4-5 represents the distribution of the sample for CBO officers based on their number of years in service in CBO. This aspect was considered for only sample of CBO officers. The figure shows that 18% of respondents have less than 5 years experience, 46% are have 5-10 years, 30% have 10-15 years and 6% have over 15 years experience.

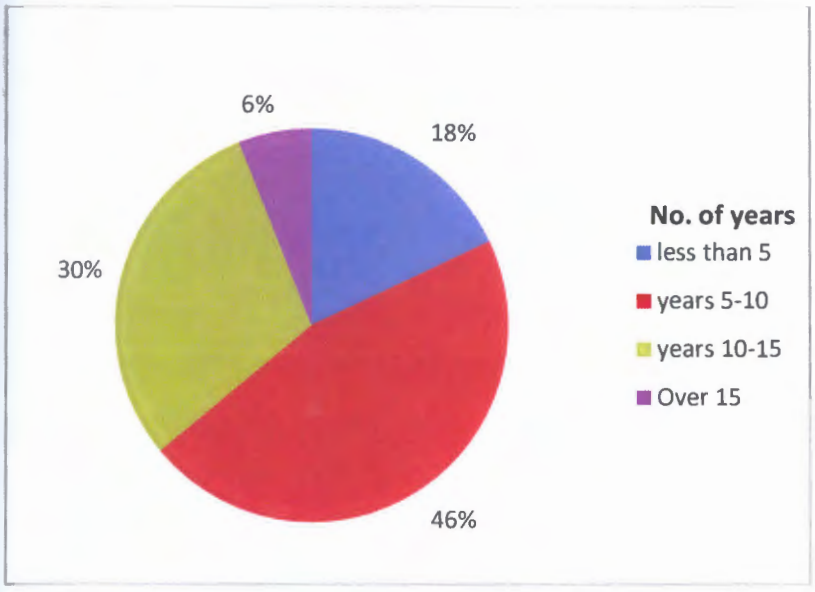

Figure 4-5: Sample Characteristics on year of service of CBO officers

Table 4-5 represents the distribution of the sample for CBO officers based on their years of service in CBO which has graphically shown in figure 4.5.

Table 4-5: Sample distribution based on year of service of CBO officers.

No of years	Frequency	Percent	Cumulative percent
less than 5	9	18	18
years 5-10	23	46	64
years 10-15	15	30	94
Over 15	3	6	100
	50	100	

Figure 4-6 represents the distribution of the sample for implementing agency staff (RWSS of NWSDB) based on their designation. The figure shows that 20% of respondents are category of manager level and above, 30% are engineers, 20% are sociologists, 14% are technical officers and 16% respondents are in other categories like clerical staff etc.

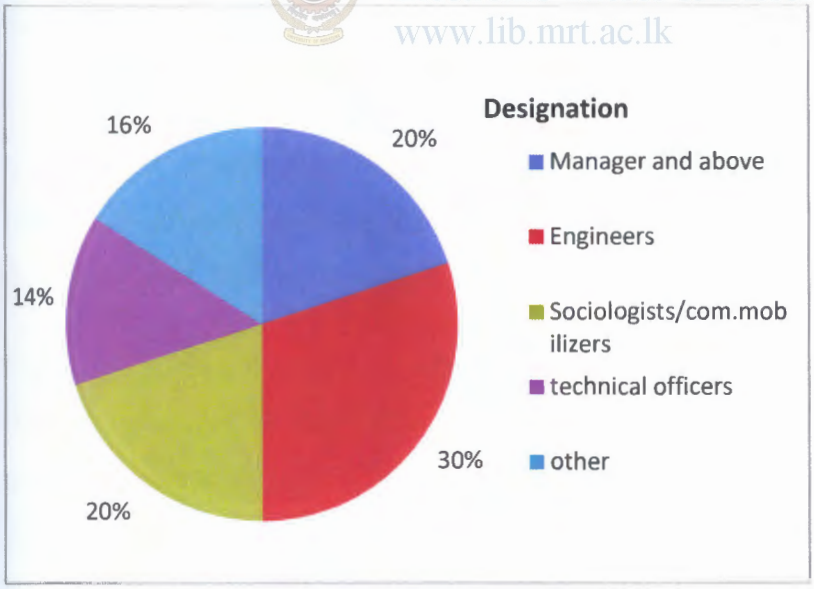

Figure 4-6: Sample characteristics on designation of supporting staff

Table 4-6 represents the distribution of the sample for implementing agency staff based on their designation, which has graphically represented in figure 4.6.

Table 4-6: Sample characteristics on designation of supporting staff

Designation	Frequency	Percent	Cumulative percent
Manager and above	10	20	20
Engineers	15	30	50
Sociologists/community mobilizes	10	20	70
technical officers	7	14	84
other	8	16	100
	50	100	

4.3 Rural Water Schemes Success

Rural water schemes success was measured through a single question in the questionnaire and figure 4.7 represents the distribution of responses for project success. Table 4-7 shows the frequency statistics of the responses.

The responses of Implementing agency staff, CBO members and beneficiaries were considered separately. The responses of CBO members represent their view on their individual projects whereas the implementing agencies (NWS&DB) gave their overall view on rural water schemes success.

Figure 4-7 shows that 68% of the staff of implementing agencies said RWSS are success ,whereas 30% said partially successful and 4% don't have an idea of whether they are success or not. When consider CBO officers responses 64% of them are success, 26% are partially successful whereas 10% are not successful. According to the responses of beneficiaries, 62% are successful and 24% are partially successful whereas 14% are not successful.

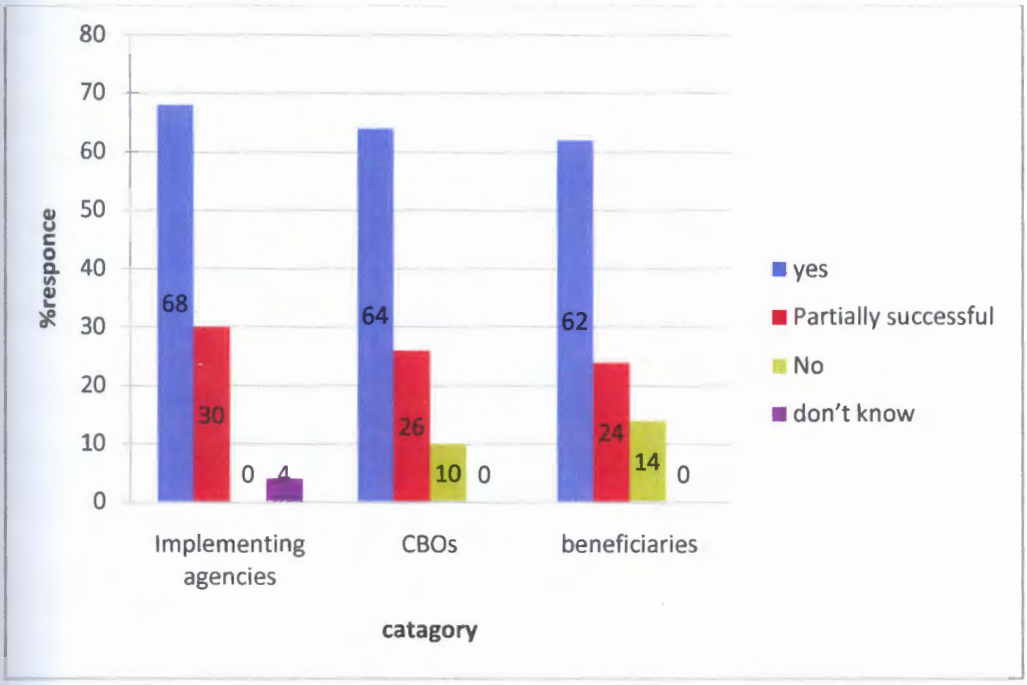

Figure 4-7: Success Responses

Table 4-7: Summary of success responses

Success Responses		Implementing agency staff		CBOs		Beneficiaries	
		frequency	Percent	frequency	Percent	frequency	Percent
Valid	Yes	34	68	32	64	31	62
	Partially success	14	28	13	26	12	24
	No	0	0	5	10	7	14
	Don't know	2	4	0	0	0	0
	Cumulative %	50	100	50	100	50	100

4.4 Awareness of Critical Fcators.

This section discusses the awareness of the Implementing agency staff, CBO officers and RWSS beneficiaries regarding critical factors with regards to RWSS success. The responses on each factor from all three categories are discussed below.

4.4.1 Skills and Abilities

Figure 4-8 represents the percentage responses of implementing agency staff, CBO officers and beneficiaries for awareness about the factor "skills and abilities "for RWSS success.

Accordingly, 94% of implementing agency staff, 70% of CBO officers and 60% of beneficiaries are aware about this factor with regard to scheme success.

On the other hand 6% of implementing agency staff, 30% of CBO Officers and 40% of beneficiaries are not aware about this factor.

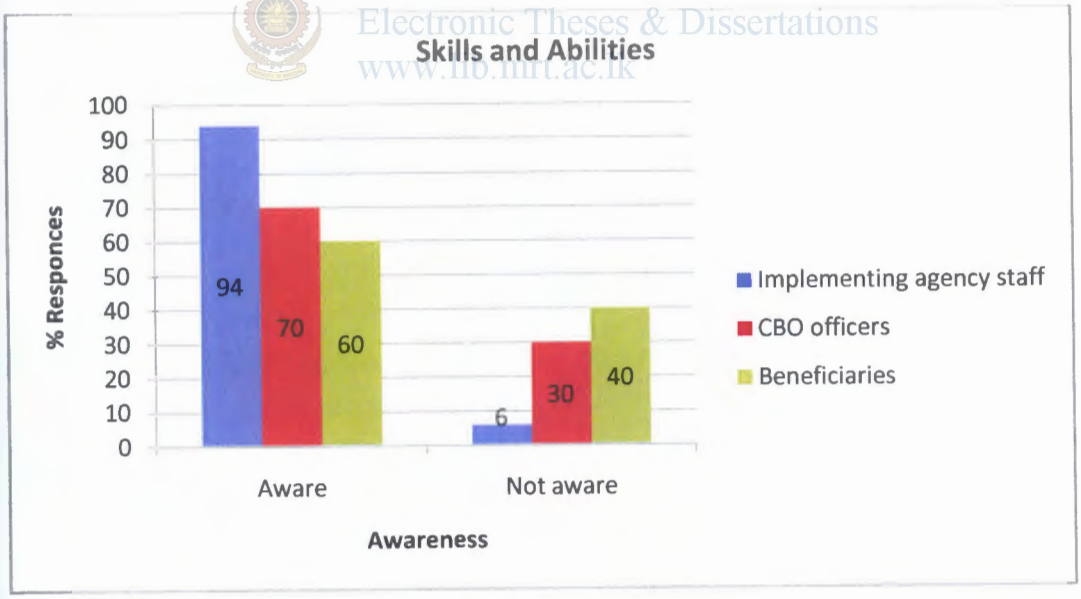

Figure 4-8: Awareness on skills and abilities

4.4.2 Economic Factors and Support Infrastructure

Figure 4-9 indicates the responses for factor "Economic factors and support infrastructure" with regard to project success.

According to the figure, 84% of implementing agency staff, 80% of CBO officers and 54% of RWSS beneficiaries are aware about this factor ,whereas 16% of implementing staff, 20% of CBO officers and 46% of beneficiaries are not aware of it.

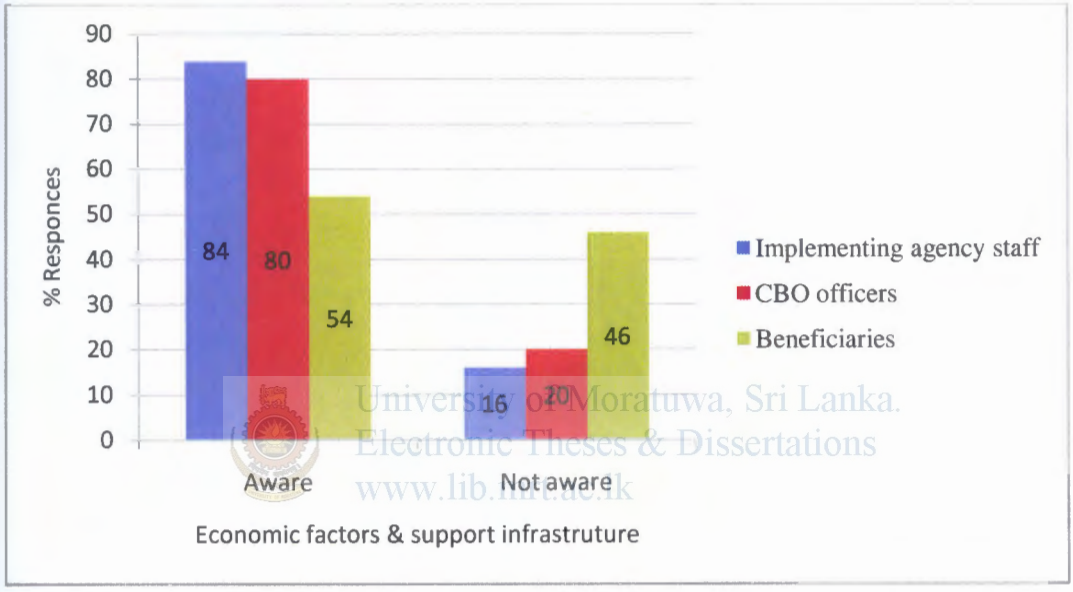

Figure 4-9: Awareness on economic factors and support infrastructure.

4.4.3 Personnel Characteristics of CBO Officers.

Figure 4-10 represents the percentage responses for factor "Personnel Characteristics of CBO officers" with reference to the project success.

It indicates that 90% of implementing agency staff, 60% of CBO officers and 40% of RWSS beneficiaries are aware about this factor. On the other hand 10% of implementing staff, 40% of CBO officers and 60% of beneficiaries are not aware of it. Accordingly majority of implementing agency staff are aware of it and on controversy majority of beneficiaries are not aware of it.

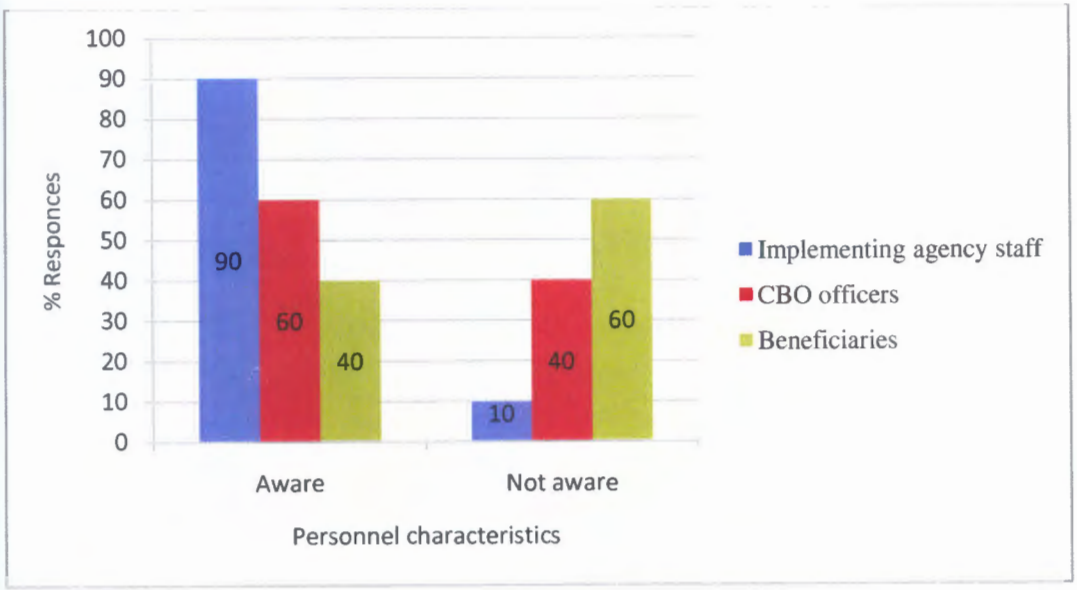

Figure 4-10: Awareness on personnel characteristics.

4.4.4 Training and Capacity Building.

Figure 4-11 shows the percentage responses for factor "Training and Capacity building" on RWSS success.

It indicates, 100% of implementing agency staff, 76% of CBO officers and 66% of RWSS beneficiaries are aware about this factor. But 24 % of CBO officers and 34% of beneficiaries are not aware of it. The responses clearly indicate that most of the implementing agency staff thinks this factor as a major factor with regard to rural water supply schemes success.

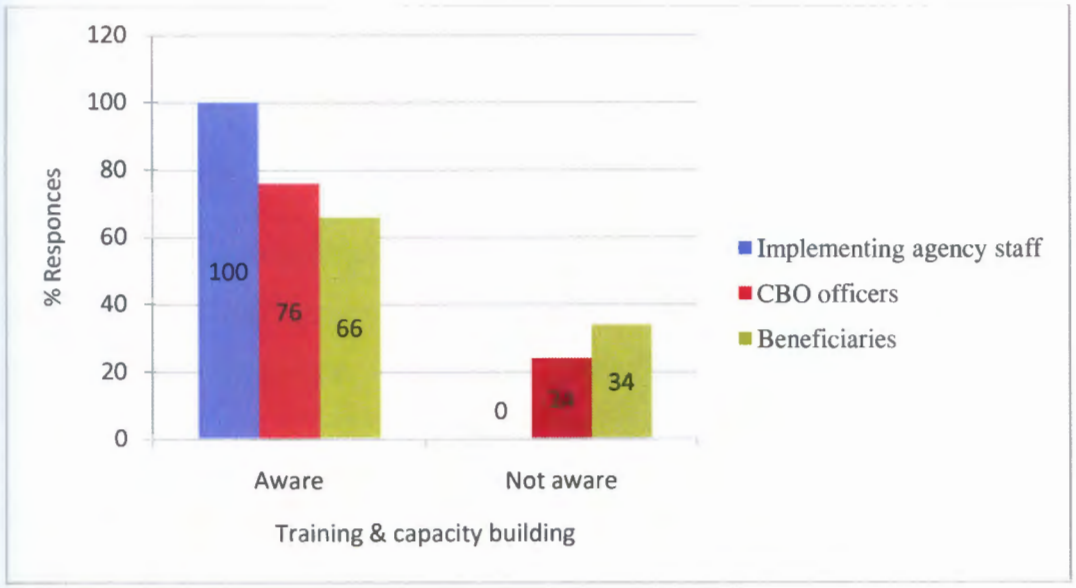

Figure 4-11: Awareness on training and capacity building

4.4.5 Motivation.

Figure 4-12 represents the percentage responses on factor "Motivation".

Accordingly, 92 % of implementing agency staff, 56% of CBO officers and 50% of RWSS beneficiaries are aware about this factor. On the other hand 8 % of implementing agency staff, 44% of CBO officers and 50% of beneficiaries are not aware of it.

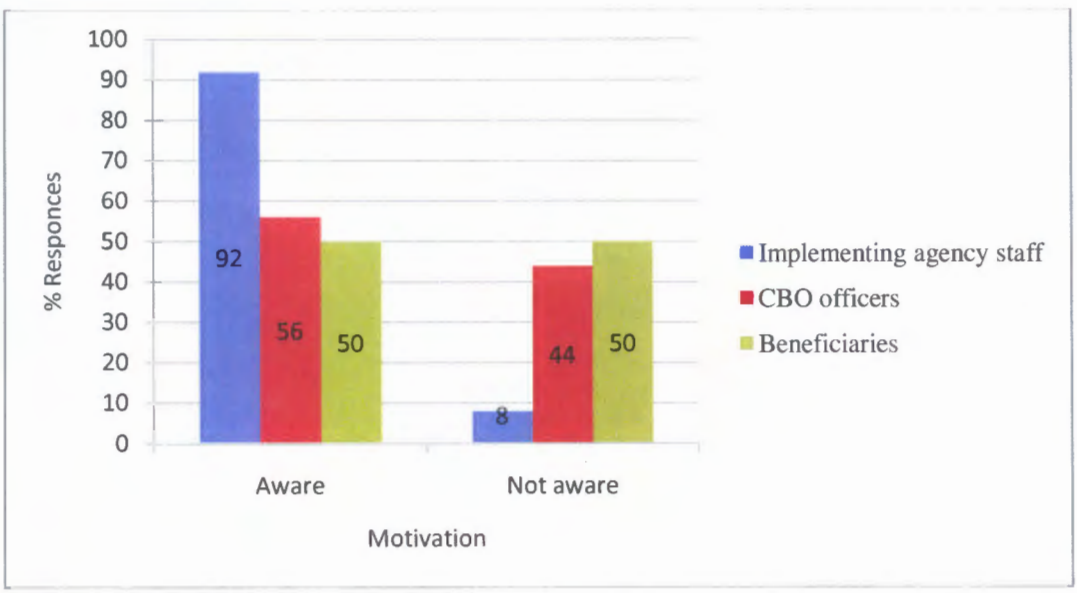

Figure 4-12: Awareness on Motivation

4.4.6 Coordination and Backup Support.

Figure 4-13 represents the percentage responses on factor "Coordination and backup support" with regard to RWSS success.

It indicates that 76% of implementing agency staff, 50% of CBO officers and 44% of RWSS beneficiaries are aware about this factor. On the other hand 24 % of implementing agency staff, 50% of CBO officers and 56% of beneficiaries are not aware of it. Accordingly, majority of beneficiaries are not aware this factor is important for their water schemes success.

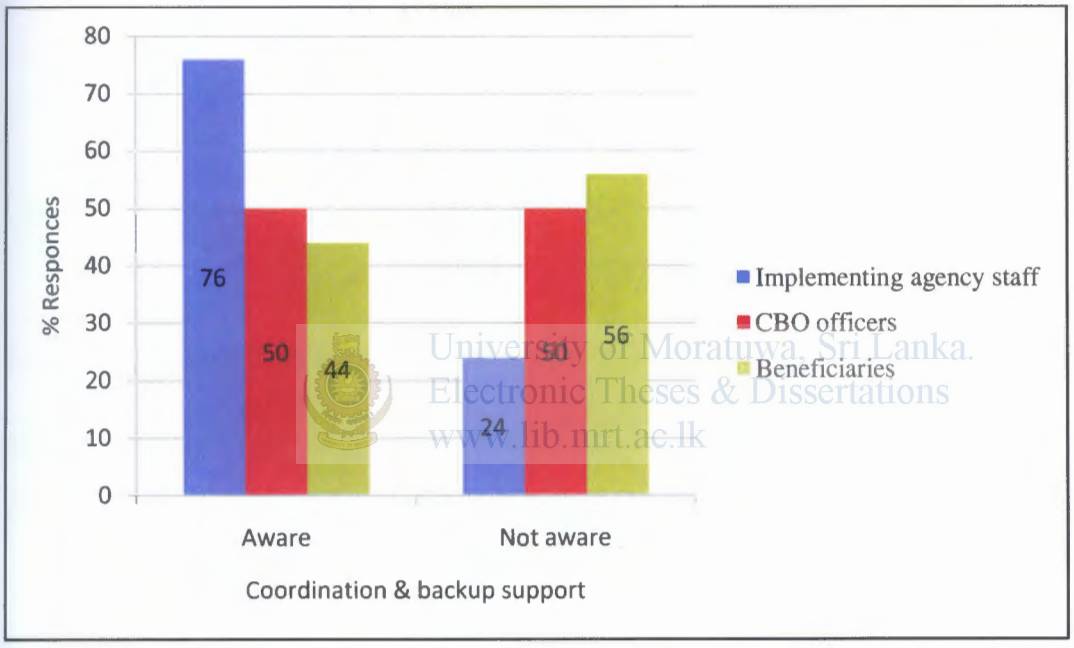

Figure 4-13: Awareness on coordination and backup support

4.4.7 Monitoring and Evaluation.

Figure 4-14 shows the percentage responses on factor "Monitoring and evaluation" on RWSS success.

According to this figure, 86% of implementing agency staff, 30% of CBO officers and 20% of RWSS beneficiaries are aware about this factor. When it comes to not awareness of this factor, 14 % of implementing agency staff, 70% of CBO officers and 80% of beneficiaries are not aware of it. The results indicate that, majority of

CBO officers and beneficiaries are not aware this factor as important with regard to their water schemes success.

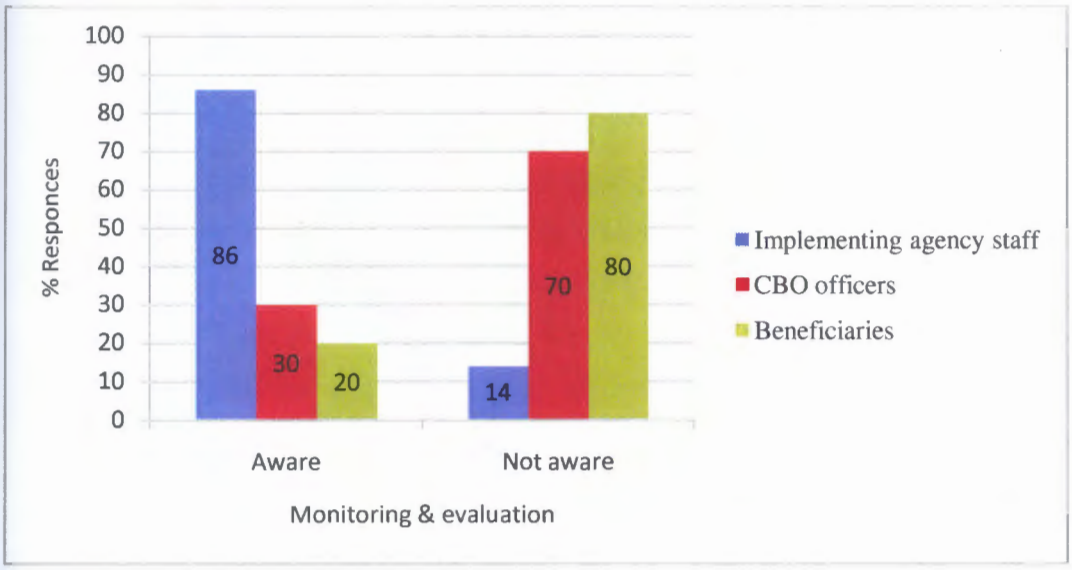

Figure 4-14: Awareness on monitoring and evaluation

4.4.8 Power and Commitment of CBO Officers.

Figure 4-15 represents the percentage responses of awareness on factor "Power and commitment" with regard to RWSS success.

It indicates that, 90% of implementing agency staff, 80% of CBO officers and 80% of RWSS beneficiaries are aware about this factor. But 6 % of implementing agency staff, 20% of CBO officers and beneficiaries are not aware this factor is important for RWSS success.

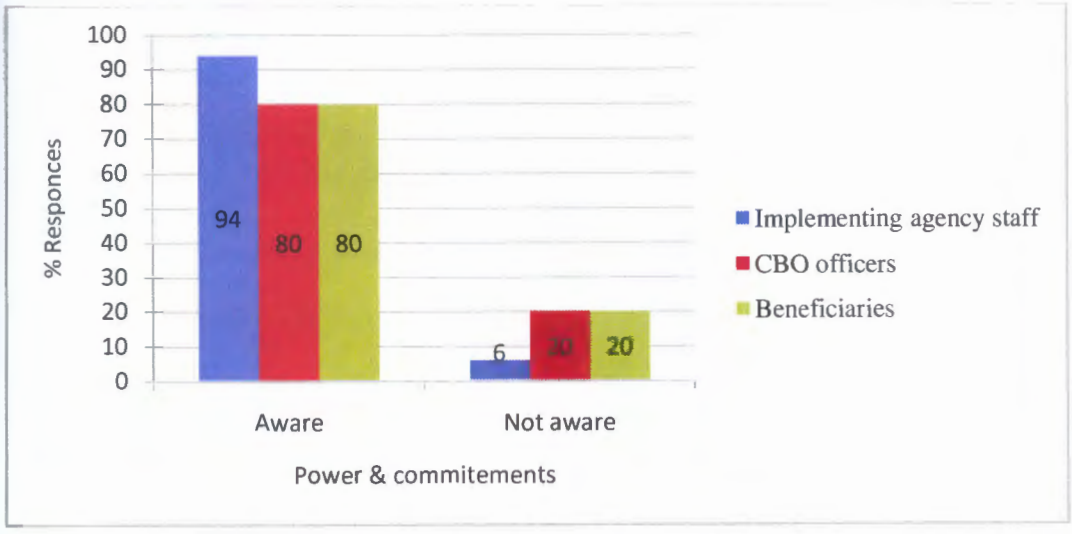

Figure 4-15: Responses on power and commitments

4.4.9 CBO Leadership.

Figure 4-16 shows the percentage responses of awareness on factor "CBO Leadership" on RWSS success.

According to this figure, 78% of implementing agency staff, 84% of CBO officers and 68% of RWSS beneficiaries are aware about this factor. On the other hand, 22 % of implementing agency staff, 16% of CBO officers and 32% of beneficiaries are not aware of this factor. The responses distribution shows that majority of all three categories of respondents are aware this factor as an important one with regard to RWSS success.

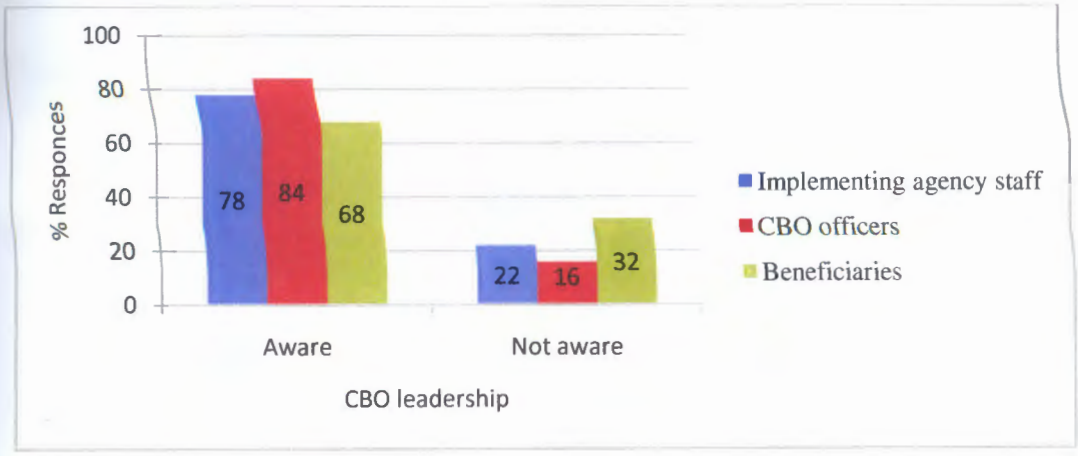

Figure 4-16: Awareness on CBO Leadership

4.4.10 Transparency and Responsibility.

Figure 4-17 indicates the percentage responses of awareness on factor "Transparency and responsibility of CBO activities" with regard to rural water schemes success.

Accordingly, 82% of implementing agency staff, 88% of CBO officers and 92% of RWSS beneficiaries are aware about this factor.When it comes to not awareness,18 % of implementing agency staff, 12% of CBO officers and 8% of beneficiaries are not aware of this factor. The responses distribution indicates that the majority of all three categories of respondents are aware these factors as an important one, specially the awareness of beneficiaries are at a higher level when comparing their responses for other factors.

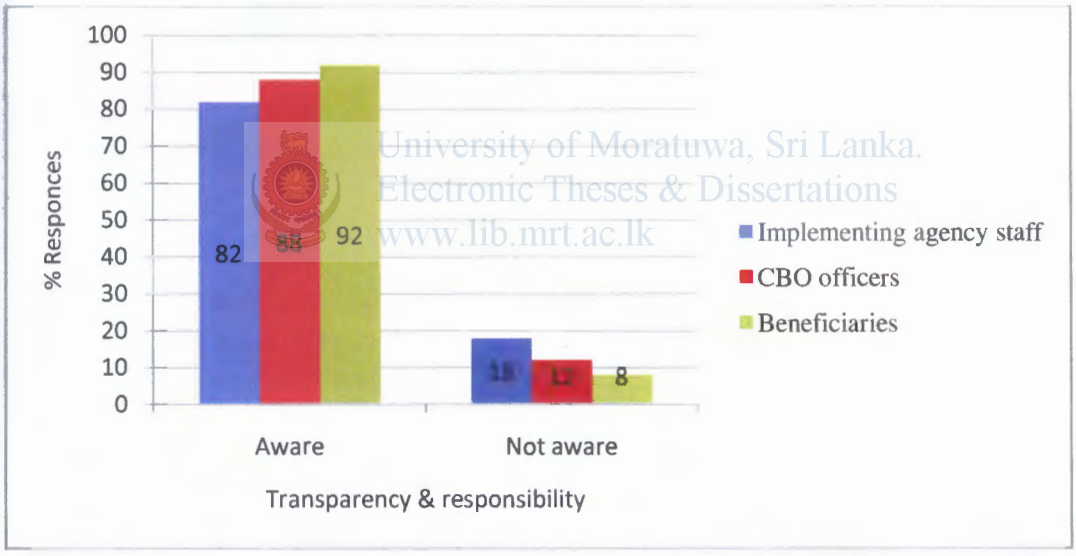

Figure 4-17: Awareness on transparency and responsibility

4.4.11 Communication Skills.

Figure 4-18 represents the percentage responses of awareness on factor "Communication Skills" on RWSS success.

According to this figure, 68% of implementing agency staff, 56% of CBO officers and 40% of RWSS beneficiaries are aware about this factor. On the other hand, 32 % of implementing agency staff, 44% of CBO officers and 60% of beneficiaries are not aware of this factor.

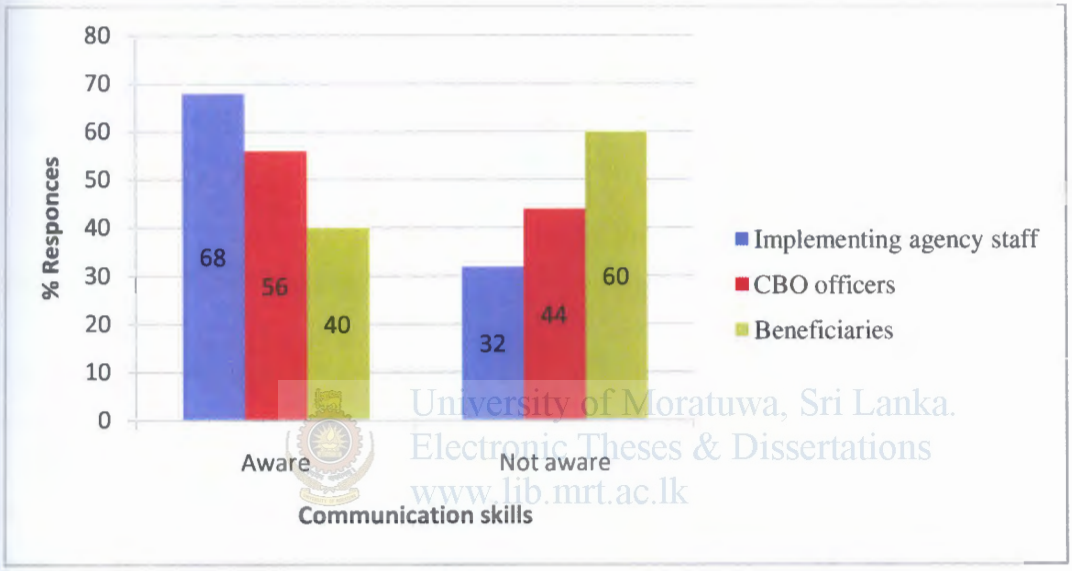

Figure 4-18: Awareness on communication skills

4.4.12 Community Wealth and awareness.

Figure 4-19 shows the percentage responses of awareness on factor "Community Wealth and awareness" with regard to project success.

The figure indicates that only 30% of implementing agency staff, 24% of CBO officers and 36% of RWSS beneficiaries are aware about this factor.

When it comes to not awareness, 70 % of implementing agency staff, 76% of CBO officers and 64% of beneficiaries are not aware of this factor. The results indicate that all three categories of respondents are not much aware of this factor as relevant to RWSS success.

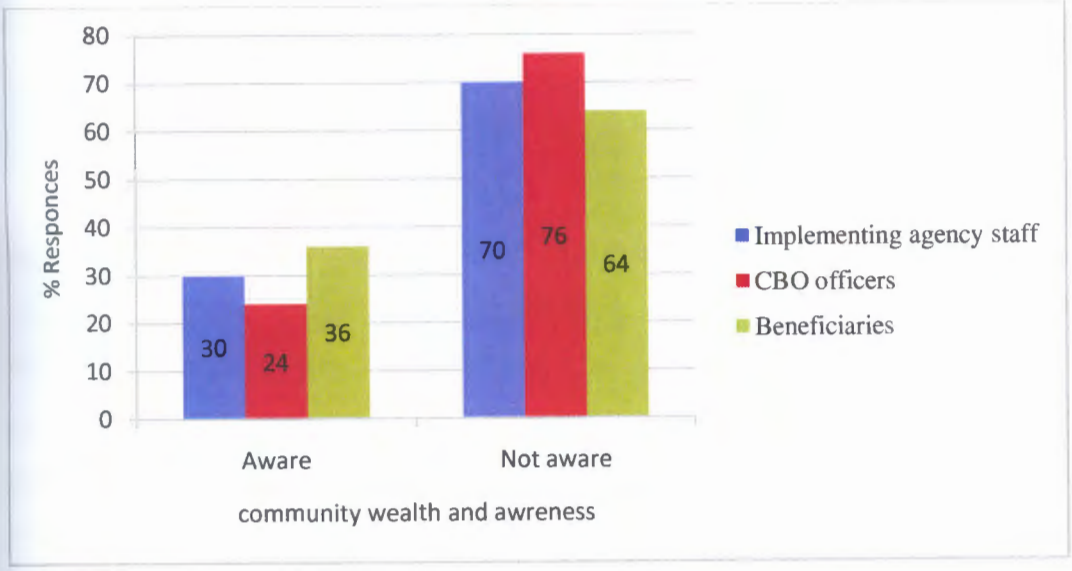

Figure 4-19: Awareness on community wealth and awareness

4.4.13 Community Participation.

Figure 4-20 indicates the percentage responses of awareness on factor "Community Participation" to project success.

The figure shows that 86% of implementing agency staff, 76% of CBO officers and 50% of RWSS beneficiaries are aware about this factor. But, 14 % of implementing agency staff, 24% of CBO officers and 50% of beneficiaries are not aware of this factor.

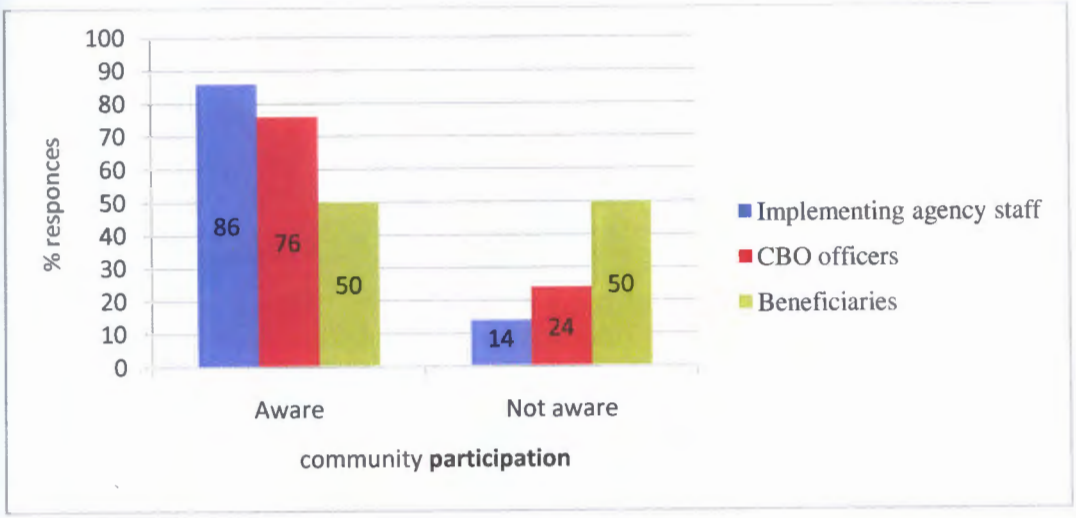

Figure 4-20: Awareness on community participation

4.4.14 Community Profile.

Figure 4-21 represents the percentage responses of awareness on factor "Community Profile" on RWSS success.

According to this figure, only 12% of implementing agency staff, 10% of CBO officers and 4% of RWSS beneficiaries are aware about this factor. On the other hand, 88% of implementing agency staff, 90% of CBO officers and 96% of beneficiaries are not aware of this factor. The figure is an indication that most of implementing agency staff, CBO officers and beneficiaries are not consider the factor "community profile" as an important for rural water schemes success.

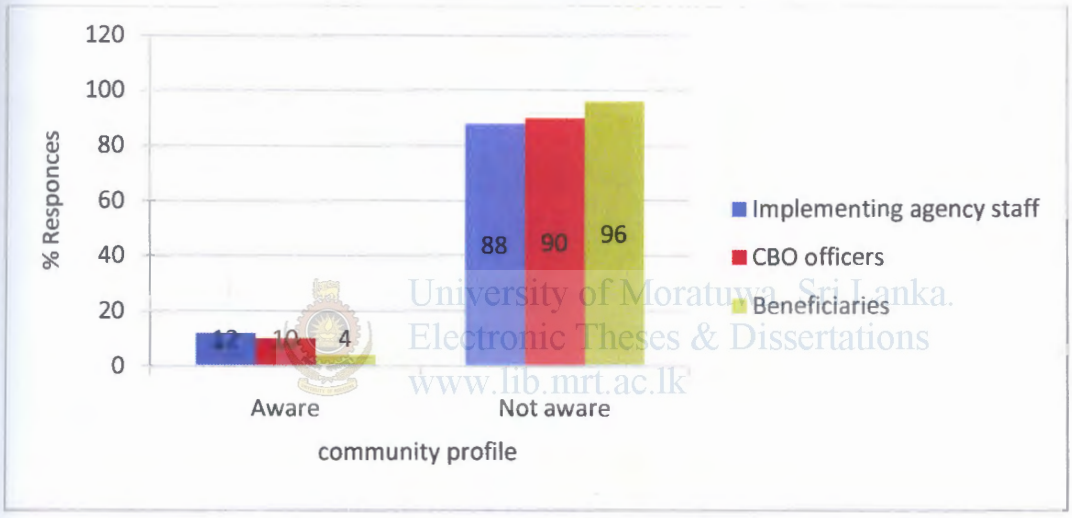

Figure 4-21: Awareness on community profile

4.4.15 External Factors.

Figure 4-22 indicates the percentage responses of awareness on factor "External Factors" with regard to RWSS success.

Accordingly, 90% of implementing agency staff, 86% of CBO officers and 64% of RWSS beneficiaries are aware about this factor.

But, 10% of implementing agency staff, 14% of CBO officers and 36% of beneficiaries are not aware of this factor. The figure shows most of the respondents of all three categories are aware on this factor as important for RWSS success.

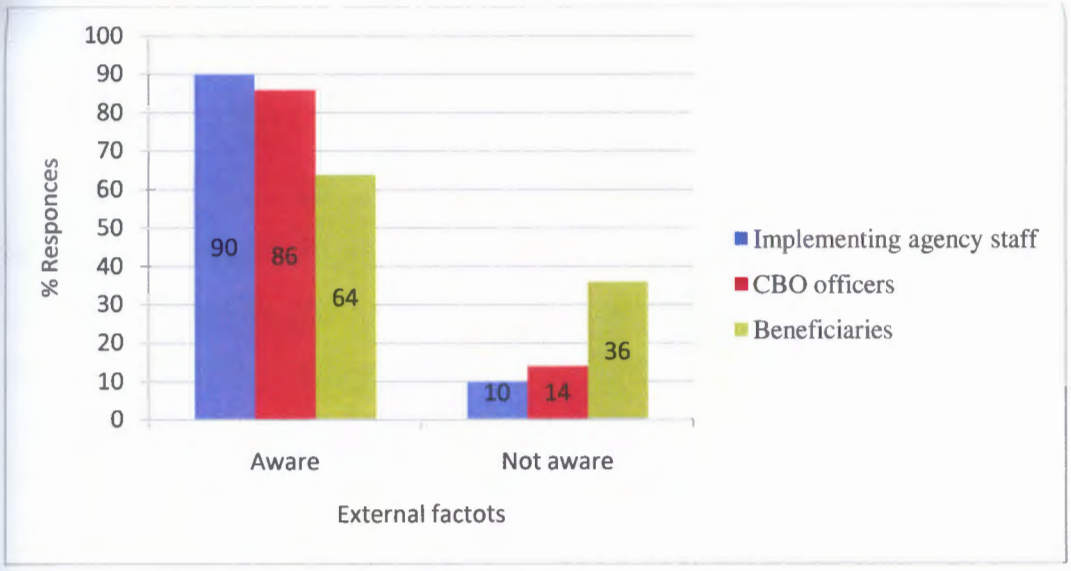

Figure 4-22: Awareness on external factors

4.5 Summary of Awareness on Critical Factors

4.5.1 Summary of awareness on critical factors of implementing agency staff

Figure 4-23 represents the overall awareness of staff of RWSS implementing agencies on all identified critical factors. As indicated in the figure, most of the factors are known by most of the implementing agency staff. But, most of them are not aware of factor "community wealth and awareness" is important for these schemes success. The awareness on factor "community profile" shows a drastic variation from other factors with higher responses for not awareness.

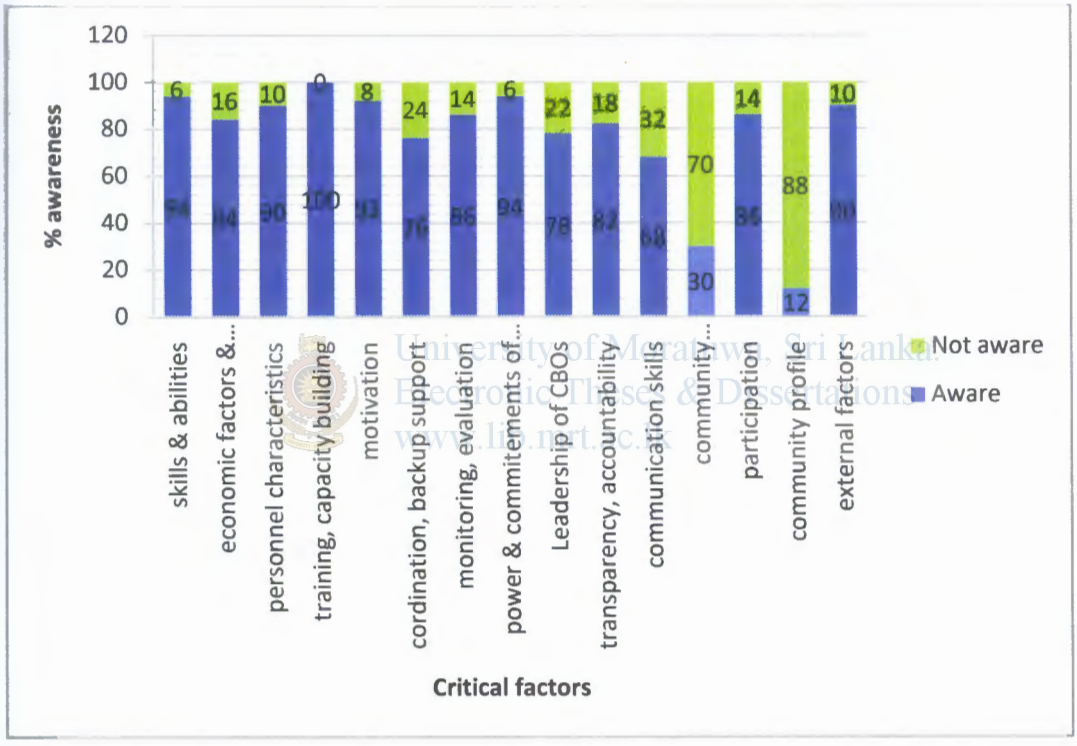

Figure 4-23: Awareness of Critical Factors (Implementing agency staff)

4.5.2 Summary of awareness on critical factors of water management committees (CBOs)

Figure 4-24 represents the overall awareness of water management committee officers' on all identifies factors.

Accordingly, the awareness of CBO officer's on factors like skills and abilities, economic factors and support infrastructure, personnel characteristics, training and capacity building, motivation, power and commitments, leadership, transparency and responsibility, community participation and external factors are at a higher level. On the other hand most of them are not aware of factors like monitoring and evaluation, communication skill and community wealth are important for RWSS success. The awareness on factor "community profile" shows a drastic variation when compare with others indicating not awareness is much higher than the awareness.

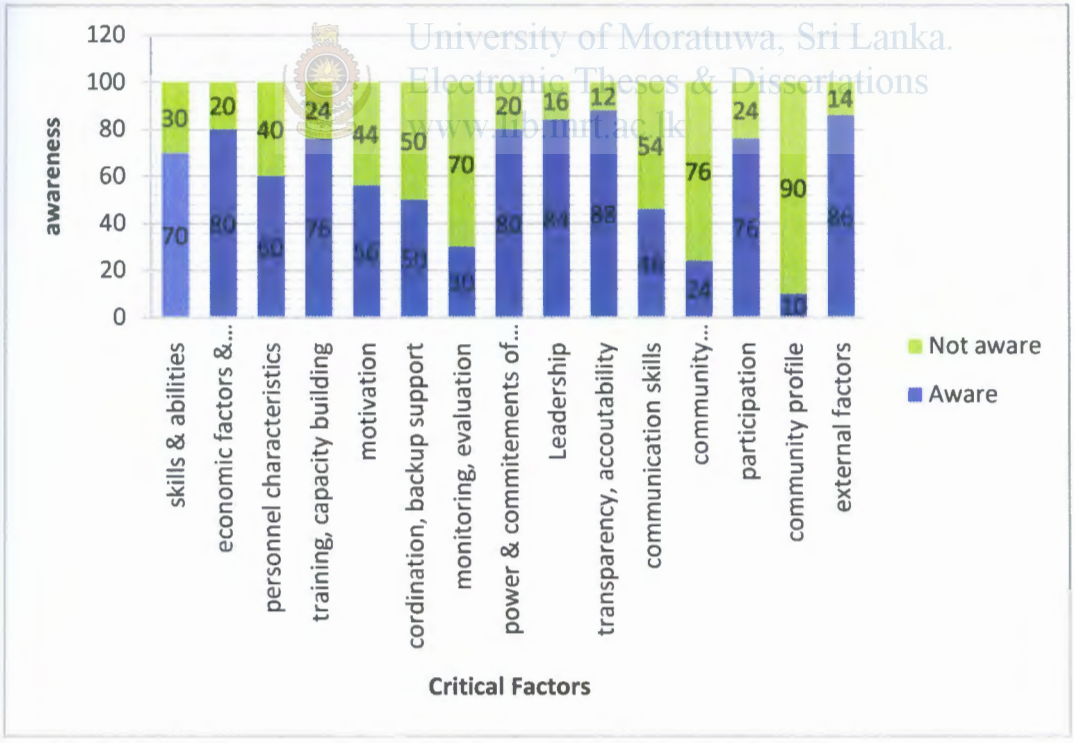

Figure 4-24: Awareness of Critical Factors (Water Committees-CBOs)

4.5.3 Summary of awareness on critical factors of Beneficiaries

Figure 4-25 represents the summary of awareness of beneficiaries on critical factors on regard with rural water schemes success.

The figure indicates that the awareness of beneficiaries on factors like skills and abilities, economic factors and support infrastructure, training and capacity building, power and commitments, leadership, transparency and accountability, , community wealth and awareness and external factors are at a higher level. When consider awareness of factors "motivation" and community participation" 50% of respondents aware of them and 50% are not aware of them with reference to RWSS success. But most of them are not aware of factors like personnel characteristics, Coordination and backup support, monitoring and evaluation and communication skills are important for RWSS success. When considering awareness of factor "community profile", it shows a drastic variation which indicates not awareness is much higher than the awareness.

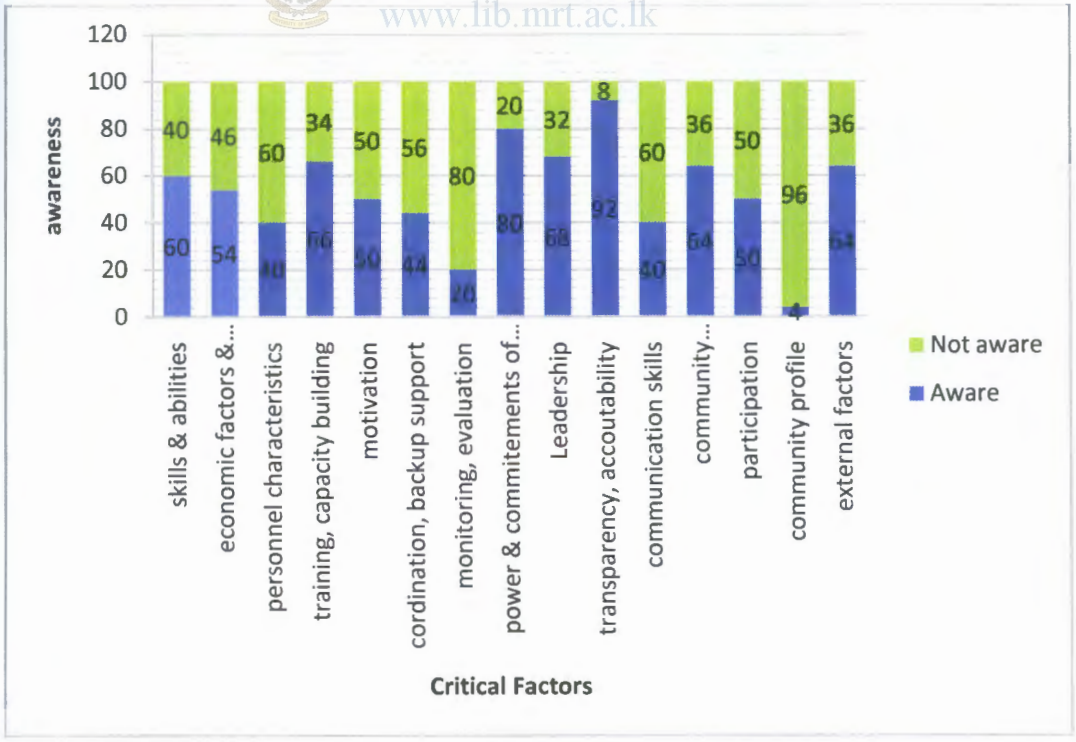

Figure 4-25: Awareness of Critical Factors (Beneficiaries)

4.5.4 Overall summary of awareness on critical factors

Figure 4-26 shows the summary of awareness of all three categories of respondents on each factor and the table 4.8 summarizes the distribution awareness of each factor.

The figure and table shows that, the majority of all three categories of respondents are aware of factors skills and abilities, economic factors and support infrastructure, personnel characteristics, training and capacity building, motivation, power and commitments, leadership, transparency and responsibility, community participation, and external factors are at a higher level. When it comes to coordination and backup support and communication skills, the results has been changed slightly indicating that some of stakeholders are aware of this factors while some are not aware of them. When consider overall response for "monitoring and evaluation" and "community wealth", the not awareness is higher than the awareness. The results show a drastic variation when it comes to factor "community profile" indicating that not awareness on this factor is much higher than the awareness.

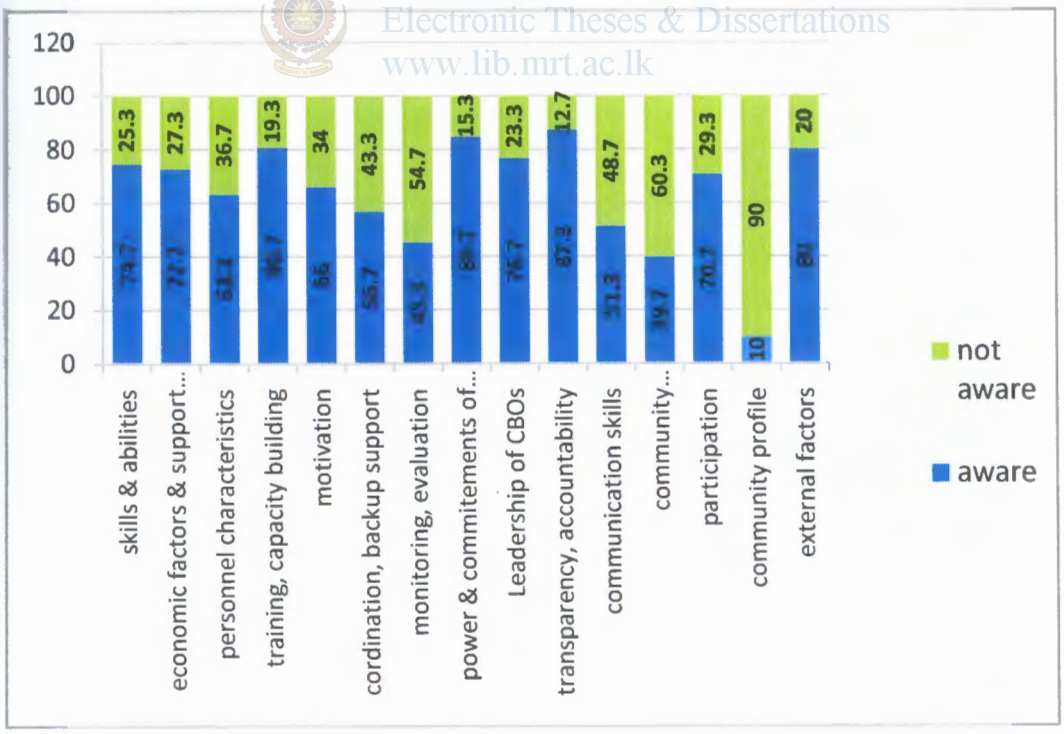

Figure 4-26: Summary of awareness of factors

Table 4-8: Summary of awareness of factors.

Factor	awareness	water providers		CBOs		users		Summary/Total	Summary /%
		Count	%	Count	%	Count	%		
skills & abilities	Aware	47	94	35	70	30	70	112	74.7
	Not aware	3	6	15	30	20	30	38	25.3
economic factors & support infrastructure	Aware	42	84	40	80	27	54	109	72.7
	Not aware	8	16	10	20	23	46	41	27.3
personnel characteristics	Aware	45	90	30	60	20	40	95	63.3
	Not aware	5	10	20	40	30	60	55	36.7
training, capacity building	Aware	50	100	38	76	33	66	121	80.7
	Not aware	0	0	12	24	17	34	29	19.3
motivation	Aware	46	92	28	56	25	50	99	66.0
	Not aware	4	8	22	44	25	50	51	34.0
coordination, backup support	Aware	38	76	25	50	22	44	85	56.7
	Not aware	12	24	25	50	28	56	65	43.3
monitoring, evaluation	Aware	43	92	15	30	10	20	68	45.3
	Not aware	7	8	35	70	40	80	82	54.7
power & commitments of CBO	Aware	47	94	40	80	40	80	127	84.7
	Not aware	3	6	10	20	10	20	23	15.3
Leadership	Aware	39	78	42	84	34	68	115	76.7
	Not aware	11	22	8	16	16	32	35	23.3
transparency, accountability	Aware	41	96	44	90	46	86	131	87.3
	Not aware	9	4	6	10	4	14	19	12.7
communication skills	Aware	34	90	23	40	20	56	77	51.3
	Not aware	16	10	27	60	30	44	73	48.7
community wealth, awareness	Aware	15	70	12	24	18	36	59	39.7
	Not aware	35	30	38	76	32	64	91	60.3
participation	Aware	43	86	38	76	25	50	106	70.7
	Not aware	7	14	12	24	25	50	44	29.3
community profile	Aware	6	20	5	10	2	8	13	10.0
	Not aware	44	80	45	90	48	92	137	90.0
external factors	Aware	45	90	43	86	32	64	120	80.0
	Not aware	5	10	7	14	18	36	30	20.0

4.6 Impact of Critical Factors

4.6.1 Skills and Abilities of CBOs

Table 4-9: Mean Values of responses for skills and abilities of CBOs

	Mean	Std. Deviation	N
Technical skills to operation & maintenance, repair, adequate monitoring etc.)	4.24	.552	150
administrative skills to collect revenue, run bank accounts, record keeping, make payments for services etc.	4.17	.549	150
governance skills for problem solving, planning, decision making etc	4.29	.659	150
conflict resolution ability	4.23	.536	150

Table 4-10: Correlation between Skills & abilities of CBOs and Scheme Success

Technical skills to operation & maintenance, repair, adequate monitoring etc.)	Pearson Correlation	.500**
	Sig. (2-tailed)	.000
	N	150
Administrative skills to collect revenue, run bank accounts, record keeping, make payments for services etc.	Pearson Correlation	.445**
	Sig. (2-tailed)	.000
	N	150
Governance skills for problem solving, planning, decision making etc	Pearson Correlation	.352**
	Sig. (2-tailed)	.000
	N	150
Conflict resolution ability	Pearson Correlation	.505**
	Sig. (2-tailed)	.000
	N	150
Skills and abilities - Average	Pearson Correlation	.697**
	Sig. (2-tailed)	.000
	N	150

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4-10 shows the correlation between skills and abilities of CBO officers and after scheme success. The results show that all four questions which describe skills and abilities of CBO officers positively correlate with RWSS success. Further, average of these all questions shows a positive relationship which is significant at

99% confidence level. Therefore there is a significant positive relationship between skills and abilities of CBO officers and rural water schemes success.

4.6.2 Economic Factors and Support Infrastructure

Table 4-11: Mean values of responses for Economic factors & support Infrastructure

	Mean	Std. Deviation	N
Ability to cover recurring cost of Operation & maintenance, salaries etc.	4.19	.631	150
Well established tariff structure based on consumption	3.69	.750	150
Communities willingness to pay for service	4.53	.501	150
Well established mechanism to raising, collect & manage funds	4.41	.493	150
Well established institutional structure to manage & support issues	3.43	.870	150
Support infrastructure such as offices, electricity, telephone etc.	4.17	.740	150

Table 4-12: Correlation between Economic factors and Support Infrastructure with Scheme Success

Ability to cover recurring cost of Operation & maintenance, salaries etc.	Pearson Correlation	.661**
	Sig. (2-tailed)	.000
	N	150
Well established tariff structure based on consumption	Pearson Correlation	.593**
	Sig. (2-tailed)	.000
	N	150
Communities willingness to pay for service	Pearson Correlation	.732**
	Sig. (2-tailed)	.000
	N	150
Well established mechanism to raising, collect & manage funds	Pearson Correlation	.932**
	Sig. (2-tailed)	.000
	N	150

Table 4-12: Correlation between Economic Factors and Support Infrastructure (Continued)

Well established institutional structure to manage & support issues	Pearson Correlation	.638**
	Sig. (2-tailed)	.000
	N	150
Support infrastructure such as offices, electricity, telephone etc.	Pearson Correlation	.679**
	Sig. (2-tailed)	.000
	N	150
Economic Factors and support infrastructure - Average	Pearson Correlation	.612**
	Sig. (2-tailed)	.000
	N	150

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4-12 represents the correlation between Economic Factors and Support Infrastructure with water scheme success. The results show that all six questions which describe economic factors and support infrastructure are positively correlate with RWSS success. The average of these all questions shows a strong relationship which is significant at 99% confidence level. Therefore there is a significant positive relationship between Economic Factors and Support Infrastructure and rural water schemes success.

4.6.3 Personal Characteristics of CBO Officers.

Table 4-13: Mean values of responses for Personal Characteristics of CBO Officers

	Mean	Std. Deviation	N
Ability to work well in groups	4.05	.703	150
Personal will to be trained	4.15	.391	150
Ability to take responsibilities & challenges	3.99	.660	150
Have common interest and accommodate diverse interests	4.19	.775	150
Willingness to take leading roles	4.23	.787	150
Good impression among beneficiaries & outsiders	4.26	.798	150

Table 4-14: Correlation between Personnel Characteristics and Scheme Success

Ability to work well in groups	Pearson Correlation	.405**
	Sig. (2-tailed)	.000
	N	150
Personal will to be trained	Pearson Correlation	.358**
	Sig. (2-tailed)	.000
	N	150
Ability to take responsibilities & challenges	Pearson Correlation	.439**
	Sig. (2-tailed)	.000
	N	150
Have common interest and accommodate diverse interests	Pearson Correlation	.421**
	Sig. (2-tailed)	.000
	N	150
Willingness to take leading roles	Pearson Correlation	.441**
	Sig. (2-tailed)	.000
	N	150
Good impression among beneficiaries & outsiders	Pearson Correlation	.416**
	Sig. (2-tailed)	.000
	N	150
Personnel Characteristics - average	Pearson Correlation	.309**
	Sig. (2-tailed)	.000
	N	150

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4-14 shows the correlation between Personnel characteristics of CBO officer with water scheme success. The results show that all six questions which describe personnel characteristics positively correlate with RWSS success. Further average of these all questions shows a positive relationship which is significant at 99% confidence level. Therefore there is a significant positive relationship between personnel characteristics of CBO members and rural water schemes success.

4.6.4 Training and Capacity Building

Table 4-15: Mean values of responses for Training and Capacity building

	Mean	Std. Deviation	N
Training on technical, management, administration & financial skills	4.12	.326	150
Capacity building programmes at the initial stage	4.15	.362	150
On-going training as and when required.	3.30	.683	150
Communities bring own prospective to capacity building process.	4.08	.444	50

Table 4-16: Correlation between Training & Capacity building and Scheme Success

Training on technical, management, administration & financial skills	Pearson Correlation	.669**
	Sig. (2-tailed)	.000
	N	150
Capacity building programmes at the initial stage	Pearson Correlation	.684**
	Sig. (2-tailed)	.000
	N	150
On-going training as and when required.	Pearson Correlation	.567**
	Sig. (2-tailed)	.000
	N	150
Communities bring own prospective to capacity building process.	Pearson Correlation	.432**
	Sig. (2-tailed)	.002
	N	50
Training and Capacity building - average	Pearson Correlation	.587**
	Sig. (2-tailed)	.002
	N	50

** Correlation is significant at **the 0.01 level (2-tailed).**

Table 4-16 shows the correlation between training and capacity building and RWSS success. The results show all four questions which represent the above factor have positive relationship with major factor. The average of all four factors shows a positive relationship which is significant at 99% level. Therefore, training and capacity building has a significant positive impact on RWSS success

4.6.5 Community Motivation

Table 4-17: Mean values of responses for Community Motivation

	Mean	Std. Deviation	N
Motivation programmes at the initial stage as well as life cycle.	4.07	.435	150
Pay monthly salary for care taker etc.	3.97	.601	150
Rewarding system for good operation & maintenance	4.20	.449	150

Table 4-18: Correlation between Motivation and Scheme Success

Motivation programmes at the initial stage as well as life cycle.	Pearson Correlation	.570**
	Sig. (2-tailed)	.000
	N	150
Pay monthly salary for care taker etc.	Pearson Correlation	.402**
	Sig. (2-tailed)	.000
	N	150
Rewarding system for good operation & maintenance	Pearson Correlation	.640**
	Sig. (2-tailed)	.000
	N	150
Motivation - average	Pearson Correlation	.531**
	Sig. (2-tailed)	.000
	N	150

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4-18 shows the correlation between factor Motivation and scheme success. The results show all three questions which represent motivation have significant positive relationship with major factor.

The average of all three factors shows a positive relationship which is significant at 99% level. Therefore, motivation has a positive significant impact on RWSS success.

4.6.6 Coordination and back-up Support

Table 4-19: Mean values of responses for Coordination and back-up support

	Mean	Std. Deviation	N
Coordination among implementing agencies, local authorities, CBOs and communities.	4.16	.465	150
Social networks of CBOs (with other CBO & villages)	4.00	.201	150
Good working relationships with existing village community structures.	4.05	.496	150
Regular back-up support	4.03	.502	100
Easy access to support	4.38	.632	100

Table 4-20: Correlation between Coordination & back-up support and Scheme success

Coordination among implementing agencies, local authorities, CBOs and communities.	Pearson Correlation	.593**
	Sig. (2-tailed)	.000
	N	150
Social networks of CBOs (with other CBO & villages)	Pearson Correlation	.230**
	Sig. (2-tailed)	.005
	N	150
Good working relationships with existing village community structures.	Pearson Correlation	.472**
	Sig. (2-tailed)	.000
	N	150
Regular back-up support	Pearson Correlation	.364**
	Sig. (2-tailed)	.000
	N	100
Easy access to support	Pearson Correlation	.544**
	Sig. (2-tailed)	.000
	N	100
Coordination and backup support - average	Pearson Correlation	.581**
	Sig. (2-tailed)	.000
	N	100

** Correlation is significant at the 0.01 level (2-tailed).

Table 4-20 shows the correlation between coordination and backup support and scheme success. The results show all five questions which represent coordination and backup support has a significant positive relationship with major factor. The average

of all five factors shows a significant relationship which is significant at 99% level. Therefore, training and capacity building has a significant positive impact on RWSS success.

4.6.7 Monitoring and evaluation of CBOs

Table 4-21: Mean values of responses for Monitoring and evaluation of CBOs

	Mean	Std. Deviation	N
Maintain timetable for Bill collection and maintenance.	3.99	.460	100
Periodical meetings take decisions and scheme evaluation	4.20	.471	100
Sufficient information for o&m , repairs etc.	4.17	.451	100
Keep records on all activities.	3.96	.400	100
Annual accounts auditing.	4.27	.446	100
Annual budget presentation to general membership	4.04	.315	100

Table 4-22: Correlation between Monitoring & evaluation of CBOs and Scheme Success

Maintain timetable for Bill collection and maintenance.	Pearson Correlation	.300**
	Sig. (2-tailed)	.002
	N	100
Periodical meetings take decisions and scheme evaluation	Pearson Correlation	.488**
	Sig. (2-tailed)	.000
	N	100
Sufficient information for operation and maintenance , repairs etc.	Pearson Correlation	.363**
	Sig. (2-tailed)	.000
	N	100
Keep records on all activities.	Pearson Correlation	.313**
	Sig. (2-tailed)	.002
	N	100
Annual accounts auditing.	Pearson Correlation	.384**
	Sig. (2-tailed)	.000
	N	100

Table 4-22: Correlation between Monitoring & Evaluation (Continued)

Annual budget presentation to general membership	Pearson Correlation	.367**
	Sig. (2-tailed)	.000
	N	100
Monitoring evaluation of CBOs - average	Pearson Correlation	.359**
	Sig. (2-tailed)	.000
	N	100

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4-22 shows the correlation between monitoring and evaluation of CBO s and scheme success. The results show all six questions which represent monitoring and evaluation have significant positive relationships with the major factor. The average of all six factors shows a positive relationship which is significant at 99% level. Therefore, monitoring and evaluation of CBOs has a significant positive impact on RWSS success.

Table 4-23: Mean values of responses for Monitoring and Evaluation of Implementing agencies.

	Mean	Std. Deviation	N
Plan information monitoring at the beginning	4.14	.495	50
Post-project, regular monitoring system	4.18	.523	50
Continuous feedback from CBO	4.16	.510	50
Sufficient information to CBOs	4.08	.396	50
Review regular project statue reports.	4.22	.418	50
Periodical scheme evaluation	4.10	.416	50
Annual reporting requirement set at the outset.	4.16	.468	50

Table 4-24: Correlation between Monitoring & evaluation of implementing agencies and Scheme Success

Plan information monitoring at the beginning	Pearson Correlation	.317*
	Sig. (2-tailed)	.025
	N	50
Post-project, regular monitoring system	Pearson Correlation	.619**
	Sig. (2-tailed)	.000
	N	50
Continuous feedback from CBO	Pearson Correlation	.472**
	Sig. (2-tailed)	.001
	N	50
Sufficient information to CBOs	Pearson Correlation	.483**
	Sig. (2-tailed)	.000
	N	50
Review regular project statue reports.	Pearson Correlation	.719**
	Sig. (2-tailed)	.000
	N	50
Periodical scheme evaluation	Pearson Correlation	.545**
	Sig. (2-tailed)	.000
	N	50
Annual reporting requirement set at the outset.	Pearson Correlation	.413**
	Sig. (2-tailed)	.003
	N	50
Monitoring, evaluation and feedback of implementing agencies - average	Pearson Correlation	.441**
	Sig. (2-tailed)	.003
	N	50

Table 4-24 shows the correlation between Monitoring and Evaluation of Implementing agencies and scheme success. The results show all seven questions which represent above factor have positive relationship with major factor. Some of them have a strong relationship while some have a good relationship. When consider the average of all factors, it shows a positive relationship which is significant at 99% level. Therefore, monitoring and evaluation has a significant positive impact on RWSS success.

Table 4-25: Mean values of responses for power and commitment of CBOs

	Mean	Std. Deviation	N
Power conflicts does not arise among committee members	4.48	.505	150
Legal power to resolve issues.	3.38	.805	150
Not take uni-lateral decisions	4.40	.535	150
Office bearers of CBO benefited from scheme and higher personal commitment	4.00	.705	150

Table 4-26: Correlation between power and commitment of CBOs and Scheme Success

Power conflicts does not arise among committee members	Pearson Correlation	.690**
	Sig. (2-tailed)	.000
	N	150
Legal power to resolve issues.	Pearson Correlation	.501**
	Sig. (2-tailed)	.000
	N	150
Not take uni-lateral decisions	Pearson Correlation	.522**
	Sig. (2-tailed)	.000
	N	150
Office bearers of CBO benefited from scheme and higher personal commitment	Pearson Correlation	.445**
	Sig. (2-tailed)	.000
	N	150
Power and commitment of CBO- Average	Pearson Correlation	.531**
	Sig. (2-tailed)	.000
	N	150

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4-26 shows the correlation between power and commitment of CBOs and scheme success. The results show all four questions which represent above factor have a positive relationship with major factor. Some of them have a strong relationship while some have a good relationship. When consider the average of all factors, it shows a significant positive relationship which is significant at 99% level. Therefore, power and commitment of CBOs has a positive impact on RWSS success.

4.6.8 CBO Leadership

Table 4-27: Mean values of responses for CBO leadership

	Mean	Std. Deviation	N
Leadership characteristics	4.25	.436	150
Does not control views of other members.	3.11	.998	150
Change of leadership.	2.70	1.022	150

Table 4-28: Correlation between Leadership and Scheme Success

Leadership characteristics such as quiet, confidence etc	Pearson Correlation	.644**
	Sig. (2-tailed)	.000
	N	150
Does not control views of other members.	Pearson Correlation	.114
	Sig. (2-tailed)	.165
	N	150
Change of leadership.	Pearson Correlation	.220**
	Sig. (2-tailed)	.007
	N	150
CBO Leadership -average	Pearson Correlation	.641**
	Sig. (2-tailed)	.007
	N	150

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4-28 shows the correlation between leadership of CBOs and scheme success. The results show factor "leadership characteristics "has a strong positive relationship with major factor, factor "leadership" does not control options of others" has not significant relationship and "change of leadership" has a slight positive relationship with major factor. When consider the average of all factors, it shows a significant relationship which is significant at 99% level. Therefore, CBO leadership has a positive impact on RWSS success.

4.6.9 Communication Skills of Implementers

Table 4-29: Mean values of responses for Communication Skills

	Mean	Std. Deviation	N
High level of communication links between partner organization, CBOs and communities	4.20	.404	50
Proper communication of project policies and requirement initially.	4.24	.431	50
Communicate all necessary information and give clear understanding of tasks required.	4.32	.471	50

Table 4-30: Correlation between Communication Skills and Scheme Success

High level of communication links between partner organization, CBOs and communities	Pearson Correlation	.612**
	Sig. (2-tailed)	.000
	N	50
Proper communication of project policies and requirement initially.	Pearson Correlation	.588**
	Sig. (2-tailed)	.000
	N	50
Communicate all necessary information and give clear understanding of tasks required.	Pearson Correlation	.540**
	Sig. (2-tailed)	.000
	N	50
Communication skills - average	Pearson Correlation	.531**
	Sig. (2-tailed)	.000
	N	50

** Correlation is significant at the 0.01 level (2-tailed).

Table 4-30 represents the correlation between communication skills of implementing agency staff and scheme success. The results show all four variables which represent the communication skills have significant positive relationships with main variable. When consider the average of all factors, it shows a significant relationship which is significant at 99% level. Therefore, communication skills have a significant positive relationship with RWSS success.

4.6.10 Transparency and Responsibility

Table 4-31: Mean values of responses for Transparency and Responsibility

	Mean	Std. Deviation	N
Transparency of decision making	4.25	.433	150
Transparency of financial activities	4.24	.429	150
Clearly delegated tasks and responsibilities	4.03	.555	150
Open and frank causes and consequences analysis	3.74	.650	150

Table 4-32: Correlation between Transparency and Responsibility and Scheme Success

Transparency of decision making	Pearson Correlation	.566**
	Sig. (2-tailed)	.000
	N	150
Transparency of financial activities	Pearson Correlation	.617**
	Sig. (2-tailed)	.000
	N	150
Clearly delegated tasks and responsibilities	Pearson Correlation	.561**
	Sig. (2-tailed)	.000
	N	150
Open and frank causes and consequences analysis	Pearson Correlation	.469**
	Sig. (2-tailed)	.000
	N	150
Transparency and Responsibility- average	Pearson Correlation	.553**
	Sig. (2-tailed)	.000
	N	150

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4-32 shows the correlation between transparency and responsibility and scheme success. The results show all four variables which represent the above factor have significant relationship with it. When consider the average of all factors, it shows a significant relationship which is significant at 99% level. Therefore, transparency and responsibility has a significant relationship with RWSS success.

4.6.11 Wealth and Awareness

Table 4-33: Mean values of responses for Wealth and Awareness

	Mean	Std. Deviation	N
Community understands the community management concept & develop attitude to support.	4.04	.197	150
Communities' knowledge.	4.03	.199	150
Community education level	3.70	.528	150
Community Capacity	3.89	.480	150
Acceptable household income to pay continuously.	3.96	.416	150

Table 4-34: Correlation between Wealth & Awareness and Scheme Success

Community understands the community management concept & develop attitude to support.	Pearson Correlation	.247**
	Sig. (2-tailed)	.002
	N	150
Communities' knowledge.	Pearson Correlation	.281**
	Sig. (2-tailed)	.000
	N	150
Community education level	Pearson Correlation	.025
	Sig. (2-tailed)	.025
	N	150
Community Capacity	Pearson Correlation	.092
	Sig. (2-tailed)	.000
	N	150
Acceptable household income to pay continuously.	Pearson Correlation	.084
	Sig. (2-tailed)	.000
	N	150
Wealth and awareness - average	Pearson Correlation	.208**
	Sig. (2-tailed)	.000
	N	150

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4-34 shows the correlation between wealth and awareness of beneficiaries and scheme success. The results show only variables "community understands concepts" and "community knowledge" which represent above factor have minor positive relationships with major factor. But community education level, capacity and income level does not have significant relationships with major factor. When consider the

average of all factors, it shows a positive relationship , but not much significant. Therefore, community wealth and awareness does not have a significant impact on RWSS success.

4.6.12 Community Participation

Table 4-35: Mean values of responses for Community Participation

	Mean	Std. Deviation	N
Feeling of ownership	4.37	.499	150
Community participation at initial stage.	4.17	.374	150
Community participation at operational stage.	3.26	.746	150
Participation in meetings.	3.23	.755	150

Table 4-36: Correlation between Community Participation and Scheme Success

Feeling of ownership	Pearson Correlation	.773**
	Sig. (2-tailed)	.000
	N	150
Community participation at initial stage.	Pearson Correlation	.609**
	Sig. (2-tailed)	.000
	N	150
Community participation at operational stage.	Pearson Correlation	.067
	Sig. (2-tailed)	.414
	N	150
Participation in meetings.	Pearson Correlation	.227**
	Sig. (2-tailed)	.005
	N	150
Community Participation - average	Pearson Correlation	.419**
	Sig. (2-tailed)	.005
	N	150

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4-36 represents the correlation between community participation and scheme success. The results show variables "feeling of ownership" and "community participation at initial stage" has significant relationships with the major factor while factor "participation in meetings" has a positive relationship with major factor, but significance is lesser as compare with others. But community participation at operational stage does not have a significant relationship with major factor. When consider the average of all factors, it shows a significant positive relationship with scheme success. Therefore, community participation has a significant positive impact on RWSS success.

4.6.13 External Factors

Table 4-37: Mean values of responses for External Factors

	Mean	Std. Deviation	N
Clear rules, regulations and favorable policies to support sector.	4.26	.505	100
Political influences.	3.14	.569	100
Quality and quantity of source.	4.39	.490	100
Institutional formalized mechanism for continuous support.	3.05	.892	100
Mechanism for capacity building of policy makers.	3.17	.533	100
Competent resource persons for capacity building programmes.	3.52	.643	100
Exchange institutional and community based experience	3.65	.479	100
Spare parts availability	4.00	.376	100
Simple technology options.	4.32	.471	50

Table 4-38: Correlation between External Factors and Scheme Success

Clear rules, regulations and favorable policies to support sector.	Pearson Correlation	.553**
	Sig. (2-tailed)	.000
	N	100
Political influences.	Pearson Correlation	.270**
	Sig. (2-tailed)	.007
	N	100
Quality and quantity of source.	Pearson Correlation	.811**
	Sig. (2-tailed)	.000
	N	100
Institutional formalized mechanism for continuous support.	Pearson Correlation	.626**
	Sig. (2-tailed)	.000
	N	100
Mechanism for capacity building of policy makers.	Pearson Correlation	.248*
	Sig. (2-tailed)	.013
	N	100
Competent resource persons for capacity building programmes.	Pearson Correlation	.538**
	Sig. (2-tailed)	.000
	N	100
Exchange institutional and community based experience	Pearson Correlation	.527**
	Sig. (2-tailed)	.000
	N	100
Spare parts availability	Pearson Correlation	.339**
	Sig. (2-tailed)	.001
	N	100
Simple technology options.	Pearson Correlation	.449**
	Sig. (2-tailed)	.001
	N	50
External Factors - average	Pearson Correlation	.514**
	Sig. (2-tailed)	.001
	N	50

**. Correlation is significant at the 0.01 level (2-tailed).

Table 4-38 shows the correlation between external factors and scheme success. The results show the variable "quality and quantity of water source" has a strong relationship with main variable. The variables: Clear rules, regulations and favorable policies to support sector, Institutional formalized mechanism for continuous support Competent resource persons for capacity building programmes, Exchange

institutional and community based experience ,Spare parts availability and Simple technology options have significant relationships, but significance is lesser than above factors. The variables "Political influences", and "Mechanism for capacity building of policy makers" have minor relationships with the major variable .When consider the average of all factors, it shows a positive relationship which is significant at 99% level. Therefore, external factors have a significant positive relationship with RWSS success.

4.7 Summary of Correlation of Factors with RWSS Success

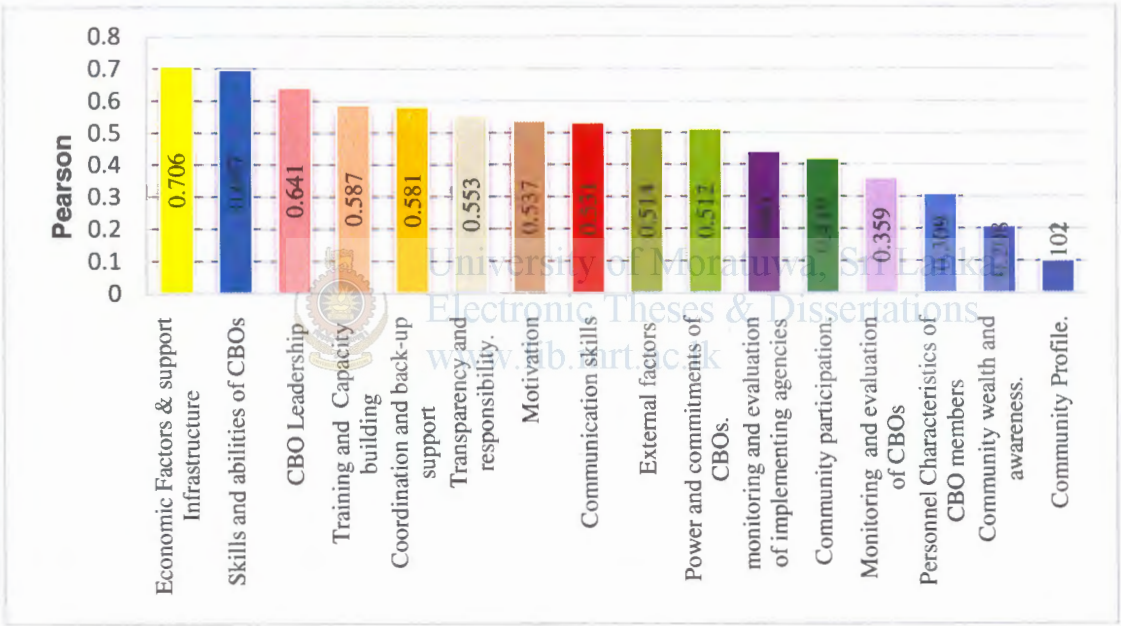

Figure 4-27: Summary of Correlation of Factors with RWSS Success

Figure 4-27 represents the summary of correlation of critical factors with rural water schemes success. The figure indicates that "Economic factors and support infrastructure", Skills and abilities of water management committees (CBOs)", "CBO leadership", "Training and capacity building", "Coordination and back-up support" and "Transparency and responsibility" are major influencing factors for rural water schemes success. In addition to that "motivation", communication skills of implementing agencies", "external factors", "power and commitment of CBOs", "monitoring and evaluation" and "community participation" have significant positive

relationships with rural water schemes success. Moreover "personnel characteristics of CBO officers" has a significant positive relationship but it is not as much significant as above factors. "Community wealth and awareness" and "community profile" positively correlate with rural water schemes success but the relationships are not significant.

4.8 Responces for open-ended questions.

Table 4-39: Responses for questions for general comments. (Open ended questions)

	Implementing agency staff		CBO Officers		Beneficiaries		Cumulative	
	Frequency	Percent	Frequency	Percent	Frequency	Percent	Frequency	Percent
Responded	43	86	38	76	23	46	104	69.33
Not Responded	7	14	12	24	27	54	46	30.67
Total	50	100		100	50	100	150	100

Figure 4-27 represents the summary of correlation of critical factors with rural water schemes success. The figure indicates that "Economic factors and support infrastructure", Skills and abilities of water management committees (CBOs)", "CBO leadership", "Training and capacity building", "Coordination and back-up support" and "Transparency and responsibility" are major influencing factors for rural water schemes success. In addition to that "motivation", communication skills of implementing agencies", "external factors", "power and commitment of CBOs", "monitoring and evaluation" and "community participation" have significant positive relationships with rural water schemes success. Moreover "personnel characteristics of CBO officers" has a significant positive relationship but it is not as much significant as above factors. "Community wealth and awareness" and "community profile" positively correlate with rural water schemes success but the relationships are not significant.

4.9 Responces for open-ended questions.

Table 4-39 shows the percentage distribution of responses for open ended questions that asked the stakeholders general comments for rural water schemes success. When consider the responses of all three categories, following comments can be made.

The implementing agency staffs were on the view that competent and motivated people are needed for effective management of rural water schemes. In addition, they highlighted that the National Water Policy of Sri Lanka demands community management of rural schemes and the implementation of District Rural Water offices is a good step taken to provide back-up support to these schemes for their proper management. The implementing agencies also believed that, since communities participate in project activities, they feel part of the process and include a sense of ownership of the water scheme and so become committed and responsible people. They also have highlighted that continuous support to these schemes is lagging due to resource restrictions and due recognition to be given and resources to be equally distributed and financing to be raised without disparity from large urban schemes. And there should be environmental protection programmes to protect water sources for continues functioning with adequate quality and quantity.

The CBO officers commented that due recognition to CBOs to be given island-wide or at least regional-wise and establishment of a development fund for CBOs for taking loan etc. for urgent works is required .They highlighted factors like maintain links with other relevant agencies , post-project involvement of implementing agencies, keep interest of beneficiaries once the scheme is operational and diversify CBO activities to other activities to keep the community engaged and proper mechanism to raise and manage funds etc contribute to success. Some of they were on the view that the sustainability of the scheme is dependent on a few key individuals and there should be a mechanism to engaging others effectively in system activities, train the people to future activities and keeping the trained personnel without leaving the community. They also highlighted the fact of protecting water sources is as a major factor.

The beneficiaries highlighted the facts such as trust in CBO leadership by the community, transparency and accountability of CBO activities, positive support from

village leaders etc. are contributed to the water scheme success. The responses also showed that majority of them are not participating in the operational stage compared to the planning and implementation stage.

4.10 Summary

The results show that some factors are critical for rural water scheme success while some of them are not much relevant. The results confirms economic factors and support infrastructures, skills and abilities , CBO leadership ,training and Capacity building, coordination and backup support, transparency and responsibility ,motivation, communication skills of implementing agency ,external factors ,power and commitment CBOs, Monitoring and evaluation, effective community participation and personnel characteristics of CBO officers have significant impact on RWSS success.

5 Conclusions, Limitations and Recommendations

5.1 Conclusions

The study identified the critical factors influencing community managed rural water supply schemes success and analyzed those factors in view of awareness and the impact in detail. The critical factors have been categorized in terms of 'Factors related to implementing agencies', 'Factors related to Water management Committees (CBOs)', 'Factors related to the beneficiaries' and 'External Factors' .While considering about the rural water schemes success, the results showed that majority of implementing agency staff view is that they are successful or partially successful.

Based on the research findings, following conclusions can be made.

1. The result shows that most of the factors are known by most of the implementing agency staff. Most of them are aware of factors skills and abilities of CBOs, economic factors and support infrastructures, personnel characteristics of CBO officers, CBO leadership, training and capacity building, motivation, coordination and backup support, monitoring and evaluation, transparency and responsibility of CBO activities, power and commitment of CBOs, communication skills, community participation and external factors are critical for rural water schemes success. But, most of them are not aware of factors "community wealth & awareness and community profile" are important for RWSS success.

   The awareness of CBO officers on factors like skills and abilities, economic factors and support infrastructure, personnel characteristics, training and capacity building, motivation, power and commitments, leadership, transparency and accountability, community participation and external factors are at a higher level. On the other hand most of them are not aware of factors monitoring and evaluation, communication skills, community wealth and community profile are critical for their scheme success.

   Most of the beneficiaries are aware of factors skills and abilities of CBOs, economic factors and support infrastructure, training and capacity building, motivation, power and commitments of CBOs, CBO leadership, transparency and accountability, community participation and external factors are critical

for their water schemes success. But most of them are not aware factors personnel characteristics, Coordination and backup support, monitoring and evaluation, communication skills, community wealth and community profile are important for RWSS success.

When considering results on overall responses, the majority of all three categories of respondents are aware of factors skills and abilities, economic factors and support infrastructure, personnel characteristics, training and capacity building, motivation, power and commitments, leadership, transparency and accountability, community participation, and external factors are at a higher level. When it comes to coordination and backup support and communication skills the results has been changed slightly indicating that some of stakeholders are aware of this factors while some are not aware of them. When consider overall response for monitoring and evaluation and community wealth the not awareness is higher than the awareness. The results shows a drastic variation when it comes to factor community profile. Majority of the stakeholders are not aware that community profile is critical for rural water schemes success.

2. Under the "Factors related to water management committees" , the study tested six critical factors ; namely skills and abilities of CBO officers, personnel characteristics of CBO officers, CBO leadership, monitoring and evaluation, transparency and responsibility, power and commitments of CBO officers. The results showed that all six factors are significantly positively related with project success. The factors 'skills and abilities of CBO officers", "CBO leadership" and "transparency and responsibility" have strong positive correlation with success. It was also noted that factors, "power and commitments" and "monitoring and evaluation of CBOs" have significant positive relationships with scheme success. Moreover the factor "personnel characteristics of CBO officers" has a positive relationship with success but not as significant as other factors.

When evaluating "Factors related to RWSS Implementing agencies", four critical factors were tested; they are communication skills, training and capacity building, coordination and backup support and monitoring and

evaluation. The results showed that these four critical factors are significantly positively related to rural water schemes success. Thus it confirmed that these four factors have positive impact on RWSS success.

Further the "factors related to RWSS beneficiaries" tested were wealth and awareness of community, motivation, participation in activities and consumer profile. The results showed that "motivation" and "participation in activities" have significant relationships with rural water schemes success while there is no significant impact for success from the factors "wealth and awareness of community" and "consumer profile". Therefore, it was confirmed that only factors motivation and participation in activities have positive impact on scheme success.

Moreover the study tested the "factors related to external environment" with two major critical factors namely economic factors and support infrastructure and external factors. The results showed that "economic factors and support infrastructure" has a strong positive relationship with schemes success. The results also showed that external factors also have a significant positive relationship with scheme success. Therefore, it was confirmed from the results that the factors such as water source, clear rules and regulations, institutionalized formalized mechanism to continuous support , simple technology etc. which represents "external factors" and "economic factors and support infrastructure " have positive impact on rural water schemes success.

The study concludes that majority of stakeholders (implementing agencies, water management committees and beneficiaries) are aware of factors skills and abilities, economic factors and support infrastructure, personnel characteristics, training and capacity building, motivation, power and commitments, leadership, transparency and accountability, community participation, and external factors are critical for rural water schemes success. These factors have significant positive relationships with success of rural water schemes. The overall awareness on coordination and backup support and communication skills are slightly higher than not awareness and these factors also have significant positive relationships with schemes success which confirms they are also critical factors. When consider overall response for monitoring

and evaluation and community wealth, the not awareness is higher than the awareness. Monitoring and evaluation also has a good relationship with RWSS success which indicates it is also critical. But, community wealth does not have a significant relationship with schemes success thus leading to the conclusion that it is not critical with regard to rural water schemes success. Majority of the stakeholders are not aware that factor community profile is critical for rural water schemes success and the results on correlation also indicates that there is no significant relationship with rural water schemes success. Therefore, the factor community profile is not critical with reference to RWSS success.

From the findings of the study it can be identified that "Economic factors and support infrastructure", Skills and abilities of water management committees (CBOs)", "CBO leadership", "Training and capacity building", "Coordination and back-up support" and "Transparency and responsibility" are major influencing factors for rural water schemes success. In addition to that "motivation", communication skills of implementing agencies", "external factors", "power and commitment of CBOs", "monitoring and evaluation" and "community participation" have significant positive relationships with rural water schemes success. Moreover "personnel characteristics of CBO officers" has a significant positive relationship but it is not as much significant as above factors. "Community wealth and awareness" and "community profile" positively correlate with rural water schemes success but the relationships are not significant.

5.2 Limitations

This study only focused on fifteen major critical factors which were identified by experts' opinions and past literature. The sub factors under these major factors were extracted from literature. There can be many other critical factors which have an impact on rural water schemes success but those factors have not been highlighted in this study. However, the link between these factors in different phases of RWS implementation viz; mobilization, planning, design, construction, operation and management can be identified by carrying out case studies to cover different scales of RWS.

The study identified the critical factors and sub factors under each major factor and analyzed the awareness of different stakeholders in this sector on these factors and analyzed the impact of these factors on rural water schemes success. The perceived importance of these factors and the interaction between critical factors were not analyzed in this study.

5.3 Recommendations

The research findings concluded that even though many stakeholders of rural water sector are aware about the success factors, the actual impact of these factors on project success varies. The awareness of these critical factors and recognition of their actual impact on project success are much important for proper implementation, proper management and sustainability of rural water supply schemes. The findings of this study are useful to demonstrate certain recommendations that may be applicable to sector as a whole. Following recommendations are drawn analyzing the responses on identified major critical factors and answers given by different stakeholders (implementing agency staff, water management committees and beneficiaries) to open-ended questions, that asked the constrains for rural water schemes success and their comments for rural water schemes success.

As per the findings of the study, the critical factors which affects rural water schemes success are Economic factors and support infrastructures, skills and abilities of water management committee, Leadership of Water management committee (CBO leadership), training and Capacity building, coordination and backup support , transparency and responsibility , motivation, Communication skills of implementing agency staff, external factors, power and commitment of water management committees, monitoring and evaluation , effective community participation and personnel characteristics of water management committee members. Above factors are a collection of factors which are related to implementing/support organizations, water committees and beneficiaries. Therefore, it is evident that the rural water schemes success is not a responsibility of only of a one group and it is a collective effort of all of them. All stakeholders of the sector should aware of these critical factors and sub-factors and should understand the significance of them for rural water schemes success.

When analyzing the impact of above critical factors, following recommendations can be made. When consider factor "CBO leadership ", if there is a strong leadership at the start and systems are up and running, it is easier to continue effectively. If leadership changes, there are a greater chance of the effective management is continuing in a scheme where monitoring had been done and proper records has maintained. If the relevant government officials or implementing agencies engage in effective post-project monitoring, and the CBO leadership is held responsible, there will be a need to maintain efficient records and the leadership will pay more attention to manage the system effectively. Further, if their performance is monitored by an external agency (or by implementing agency), problems could be identified and rectified early. Further, as highlighted earlier, regular monitoring, by responsible government authorities or implementing agencies, on maintenance of facilities, ensuring that water quality testing is done, and financial records are maintained and audited, will ensure that the CBO and its leadership fulfill its obligations. Therefore, special attention to be given for effective long-term monitoring and it should be planned at the outset of the project. The recent initiatives by the NWSDB by establishing District Rural Water Units to initiate regular monitoring is commendable. However, efforts should be made to strengthen the capacity of local government as well, as it is unlikely that the district RWSS units of NWS&DB manned with a few office staff could provide effective monitoring of the entire district. When consider skills and abilities of CBOs, it requires continuous upgrading and training and this cannot be done unless officials maintain some contacts with the community. There should also be real enthusiasm on the part of the trained personnel to impart their knowledge to others. Moreover, it is evident that all critical factors identified in the study have links with other factors and this aspect to be understood by all the stakeholders in the sector.

The answers received for open-ended questions, also highlights some important implications in this sector. One major comment received from implementing agency staff was that the rural water schemes are not given due recognition as compared with large urban schemes in Sri Lanka and resources are not equally distributed to urban and rural water sectors. They also highlighted that it requires continues upgrading and training for effective management of rural water schemes , but these are lagging due to financial restrictions. The CBO officers commented that due recognition to CBOs to be given island-wide or at least regional-wise and establishment of a development fund for CBOs for taking loan etc. for urgent works is required .These factors are much relevant to policy makers in the water sector when implementing future

projects. Other important aspect which was highlighted by implementing agency staff and Water Committees was there should be effective environmental protection programmes to protect water sources for continues functioning of these rural water schemes with adequate quality and quantity.

Some of the CBO officers have commented that to keep interest of beneficiaries once the water scheme is operational, it is important diversify CBO activities to other water related activities. Some of they were on the view that the sustainability of the scheme is dependent on a few key individuals and there should be a mechanism to engaging others effectively in system activities, train the people to future activities and keeping the trained personnel without leaving the community. These aspects are also much important and it is recommended to rural water schemes implementing/support agencies to consider these aspects when implementing future projects. The water management committees (CBOs) also should take steps to diversify their activities to keep interest of beneficiaries on their water schemes.

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Annex 01:

Water Management Committee (CBO) officers

Questionnaire for assessment of critical factors for effective management of rural water Schemes in Sri Lanka.

Water Scheme Success is defined as, the water scheme is functioning to deliver its intended benefits over the long-term and fulfill 24-hour water demand of all beneficiaries throughout the design life of the water supply system.

If the water scheme gives an acceptable level of service, which marginally satisfies the water demand of beneficiaries the water scheme is "partially successful".

If the scheme does not deliver its' intended benefits over the design life, the scheme is "Not successful".

1. According to your context, is your Water Supply System successful?
   a) Yes
   b) No
   c) Partially successful
   d) Don't know

Section 1: Awareness of success factors

Several essential factors exist to successfully manage rural water schemes. This section asks questions about the awareness of the critical factors for rural water schemes success.

Were you aware that following factors were critical to success of your scheme?

Key Factors	Aware	Not aware
Skills and abilities of water committees		
Economic Factors and support Infrastructure		
Personnel Characteristics of CBO members		
Training and Capacity building		
Motivation		
Coordination and back-up support		
Monitoring and evaluation		
Power and commitments of CBOs.		
Leadership characteristics.		
Transparency, accountability and responsibility.		
Communication skills of implementing agency staff.		
Community wealth and awareness.		
Community participation.		
Community Profile.		
External factors and the environment (quality & quantity of source, resources, political issues, legal issues, rules & regulations etc.)		

Annex 01:

Section 2: Impact of critical factors.

This section asks questions about the Impact of the critical factors on your scheme success. For each statement please mark "X" for the best option that reflect your level of agreement.

Part 1: This section asks questions regarding "**Skills and Abilities of CBO**"

			Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
1.0	**Skills and abilities of CBO officers**						
1.1	We have **technical skills** on ;	operation and maintenance,					
		repair					
		adequate monitoring					
1.2	We have **administrative skills** on,	collect revenue					
		run bank accounts					
		record keeping					
		make payments for services/parts/salaries etc.					
1.3	Have **Governance skills** on;	problem solving					
		planning					
		leadership					
		Informed decision making.					
1.4	Have **conflict resolution ability** to build consensus and resolve conflicts within community and leaders.						

Part 2: This section asks questions regarding "**Economic Factors and Support Infrastructure**"

			Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
2.0	**Economic Factors and Support Infrastructure**						
2.1	Have ability to cover recurring cost of operation & maintenance expenses, salaries etc.(revenue flow)						
2.2	Have well established tariff structure based on consumption.						
2.3	Wealth of community is acceptable to ensure sufficient household income to pay continuously.						
2.4	Communities are willing to pay for the service.						
2.5	Already there is a well established mechanism for, .	raising necessary financing					
		Alternatives.					
		manages funds					

Annex 01:

			Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
		Collect tariff.					
2.6	Have well established institutional structure, well equipped to deal with management and technical issues.						
2.7	Have support infrastructure such as;	office accommodation,					
		transport					
		communications,					
		electricity					
		copying facilities					
		Computers.					

Part 3: This section asks questions regarding "**Personal Characteristics of committee members**"

			Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
3.0	**Personal Characteristics of committee members**						
3.1	Have ability to;	work well in groups					
		know each other properly					
		Have developed friendship.					
3.2	Have personal will to be trained.						
3.3	Have ability to take responsibilities and take up challenges.						
3.4	Have a common interest and accommodate diverse interests.						
3.5	Have willingness to take leading role						
3.6	Have created good impressions among beneficiaries and outsiders.						
3.7	Have capacity to garner support from, within and outside of the community.(existence of social networks)						

Part 4: This section asks questions regarding "CBO **Leadership"**

			Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
4.0	**CBO Leadership.**						
4.1	Have leadership characteristics such as;	quiet					
		perspective					
		very analytical					
		confidence					
		provide right ending always					
4.2	Leadership does not control options and views of other						

Annex 01:

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
	members.					
4.3	During project cycle CBO leadership has not changed.					
4.4	During project cycle CBO members have not left the village.					

Part 5: This section asks questions regarding "**Training and Capacity building**" of CBO members.

			Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
5.0	**Training and Capacity building**						
5.1	Have received required training such as;	Technical skills					
		Management skills					
		Administration skills					
		financial skills					
5.2	Have enough capacity building programmes throughout project life cycle.						
5.3	Receive on-going training as and when required.						

Part 6: This section asks questions regarding "**Motivation**" of CBO members.

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
6.1	Community motivation programmes are implemented at the initial stage as well as during life cycle.					
6.2	Pay monthly salary to care taker.					
6.3	There is a rewarding system for good operation and maintenance.					

Annex 01:

Part 7: This section asks questions regarding "**Co-ordination and back-up support"**

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
7.0	**Co-ordination and back-up support**					
7.1	Good co-ordination exists among water providers, local authorities, CBO and communities.					
7.2	Have good social networks and exchange ideas with other CBOs and other villages.					
7.3	Have good working relationships with existing community structures of the village and receive their participation.					
7.4	Receive back-up support from relevant authorities (NWSDB, local authorities etc.) regularly.					
7.5	Have easy access to support (technical, managerial) and spare parts. (maintenance and repair)					

Part 8: This section asks questions regarding "**Monitoring and Evaluation "**

			Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
8.0	**Monitoring and Evaluation**						
8.1	Keep seasonal calendar to determine when to collect funds and maintenance.						
8.2	Have easy and systematic monitoring system						
8.3	Meeting held regularly to discuss issues and take decisions.						
8.4	Have sufficient information to make good decisions. Ex: tariff, service level, develop maintenance schedule, repair or replace something.						
8.5	All activities have documented and have good record keeping system.	meetings,					
		duties of each members					
		funds					
8.6	Scheme evaluation done periodically and give feedback to water providers.						

Part 9: This section asks questions regarding "**Wealth of community and awareness"**

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
9.0	**Wealth of community and awareness**					
9.1	Community can understand the concept of community management and develop attitude to support it.					
9.2	Community has knowledge to manage the system.					

Annex 01:

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
9.3	Community has education to manage the system					
9.4	Community has capacity to manage the system.					
9.5	Household income of most of users is at an acceptable level to pay continuously for the service.					

Part 10: This section asks questions regarding "**community participation"**

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
10.0	**community participation**					
10.1	They have feeling of ownership.					
10.2	Communities are fully involved in committee activities in the initial stage.					
10.3	Communities are fully involved in committee activities in the operational stage.					
10.4	Communities are actively participating in meetings.					

Part 11: This section asks questions regarding "**Transparency and Responsibility CBO activities"**

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
11.0	**Transparency and Responsibility**					
11.1	There is a transparency in decision making process.					
11.2	There is a transparency in all financial activities.					
11.3	Tasks and responsibilities are clearly delegated among committee members.					
11.4	Analyze causes and consequences of problems in open & frank manner					

Annex 01:

Part 12: This section asks questions regarding "**power and commitments of committee**"

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
12.0	**Power and commitments of committee**					
12.1	No power conflicts among committee members					
12.2	Have legal arrangement to support issues					
12.3	CBO leadership and office bearers are benefitted from the scheme and their personal commitment is very high.					

Part 13: This section asks questions regarding "**External Factors**"

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
13.0	**External Factors**					
13.1	There are clear rules, regulations and favorable policies supporting the rural water sector and to confirm each party meet their obligations.					
13.2	Political support influences the success or failure of the scheme.					
13.3	The quality and quantity of source is adequate.					
13.4	There is a mechanism for capacity building of policy makers.					
13.5	There are competent resource persons for capacity building of communities.					
13.6	There are mechanisms to exchange institutional and community based experiences.					
13.7	Mechanism for mediation in the case of conflicts in communities.					
13.8	Spare parts availability is acceptable.					
13.9	There are simple technological options.					

Annex 01:

Information about yourself (Community Profile)

Please tick the appropriate cage for the most relevant responses in respect of following items for you.

14. Gender:

a. Male	b. Female

15. Your age:

a. Under 20	b.20-40	c. 40-60	d. over 60

16. What is your occupation?

17. What is your role in the CBO?.

18. Number of years worked in the CBO.

19. What are the constraints to successful management of your scheme?

20. Other comments for success.....

Thank you very much for your cooperation.

Annex 02:

Water Providers /Implementing agencies

Questionnaire for assessment of critical factors for effective management of rural water Supply Schemes in Sri Lanka.

Water Scheme Success is defined as, the water scheme is functioning to deliver its intended benefits over the long-term and fulfill 24-hour water demand of all beneficiaries throughout the design life of the water supply system.

If the water scheme gives an acceptable level of service, which marginally satisfies the water demand of beneficiaries the water scheme is "partially successful".

If the scheme does not deliver its' intended benefits over the design life, the scheme is "Not successful".

1. According to your context, are Rural Water Supply Schemes are successful?
   a) Yes
   b) No
   c) Partially successful
   d) Don't know

Section 1: Awareness of critical factors

Several essential factors exist to successfully manage rural water schemes. This section asks questions about the awareness of the critical factors for success in rural water supply schemes.
Were you aware that following factors were critical to success of rural water schemes?

Key Factors	Aware	Not aware
Skills and abilities of water committees		
Economic Factors and support Infrastructure		
Personnel Characteristics		
Training and Capacity building		
Motivation		
Coordination and back-up support		
Monitoring ,evaluation and record keeping		
Power and commitments of CBOs.		
Leadership characteristics CBOs.		
Transparency, accountability and responsibility.		
Communication skills of implementing agency staff.		
Community wealth and awareness.		
Community participation.		
Community Profile.		
External factors and the environment (quality & quantity of source, resources, political issues, legal issues, rules & regulations etc.)		

Annex 02:

Impact of Critical factors.

This section asks questions about the Impact of the critical factors on successful rural water schemes. For each statement please mark "X" for the best option that reflect your level of agreement.

Part 1: This section asks questions regarding "**skills and abilities of CBOs of successful schemes**"

			Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
1.0	**skills and abilities of CBOs**						
1.1	They have **technical skills** on ;	operation and maintenance,					
		repair					
		adequate monitoring					
1.2	They have **administrative skills** on,	collect revenue					
		run bank accounts					
		record keeping					
		make payments for services/parts/salaries etc.					
1.3	They have **Governance skills** on;	problem solving					
		planning					
		leadership					
		Informed decision making.					
1.4	They have **conflict resolution ability** to build consensus and resolve conflicts within community and leaders.						

Part 2: This section asks questions regarding "**Economic Factors and Support Infrastructure**" of successful water schemes.

			Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
2.0	**Economic Factors and Support Infrastructure**						
2.1	Community have ability to cover recurring cost of operation & maintenance expenses, salaries etc.(revenue flow)						
2.2	They have well established tariff structure based on consumption.						
2.3	Wealth of community is acceptable to ensure sufficient household income to pay continuously.						
2.4	Communities are willing to pay for the service.						
2.5	They have a well established mechanism for, ,	raising necessary financing					
		alternatives,					
		manages funds					

Annex 02:

			Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
		Collect tariff.					
2.6	Have well established institutional structure, well equipped to deal with management and technical issues.						
2.7	Have support infrastructure such as;	office accommodation,					
		transport					
		communications,					
		electricity					
		copying facilities					
		Computers.					

Part 3: This section asks questions regarding "**Personal Characteristics of committee members**" of successful schemes

			Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
3.0	**Personal Characteristics of committee members**						
3.1	Have ability to;	work well in groups					
		know each other properly					
		Have developed friendship.					
3.2	Have personal will to be trained.						
3.3	Have ability to take responsibilities and take up challenges.						
3.4	Have a common interest and accommodate diverse interests.						
3.5	Have willingness to take leading role						
3.6	Have created good impressions among beneficiaries and outsiders.						

Part 4: This section asks questions regarding "**CBO Leadership"** for successful schemes.

			Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
4.0	**CBO Leadership.**						
4.1	Have leadership characteristics such as;	quiet					
		perspective					
		very analytical					
		confidence					
		provide right ending always					
4.2	Leadership does not control options and views of other members.						
4.3	During project cycle CBO leadership has not changed.						

Annex 02:

Part 5: This section asks questions regarding "**Training and Capacity building"** of communities of successful schemes.

			Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
5.1	They were given required training such as;	Technical skills					
		Management skills					
		Administration skills					
		financial skills					
5.2	Conduct capacity building programmes at the initial stage.						
5.3	Conduct on-going training as and when required.						
5.4	The capacity building programmes aimed at build innate skills and abilities exists within community and they have bring their own perspectives and creativity to process.						

Part 6: This section asks questions regarding "**Motivation"** of communities in successful schemes.

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
6.0	**Motivation**					
6.1	Community motivation programmes are implemented at the initial stage as well as during life cycle.					
6.2	Community has mechanism to pay monthly salary (or allowance) to care taker.					
6.3	There is a rewarding system for good operation and maintenance.					

Part 7: This section asks questions regarding "**Co-ordination and back-up support"** of implementing agencies for successful schemes.

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
7.0	**Co-ordination and back-up support**					
7.1	Good co-ordination exists among water providers, local authorities, CBO and communities.					
7.2	CBO has good social networks and exchange ideas with other CBOs and other villages.					
7.3	CBO has good working relationships with existing community structures of the village and receive their participation.					
7.4	Communities are given back-up support regularly.					

Annex 02:

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
7.5	Communities have easy access to support (technical, managerial) and spare parts. (maintenance and repair)					

Part 8: This section asks questions regarding "**Monitoring and Evaluation"** of implementing agencies.

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
8.0	**Monitoring and Evaluation**					
8.1	Plan for the use of monitoring information at the beginning.					
8.2	There is an effective post-project, regular monitoring mechanism.					
8.3	CBO always gives continuous feedback.					
8.4	Have sufficient information to support decisions of CBOs.					
8.5	Regular project status reports reviewed by District units					
8.6	Scheme evaluation done periodically by NWSDB.					
8.7	Conditions for annual reporting requirement and on-site monitoring have set at the outset.					

Part 9: This section asks questions regarding "**Wealth and awareness of community"** of successful schemes.

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
9.0	**Wealth and awareness of community**					
9.1	Community can understand the concept of community management and develop attitude to support it.					
9.2	Community has knowledge to manage the system.					
9.3	Community has education to manage the system					
9.4	Community has capacity to manage the system.					
9.5	Household income of most of users is at an acceptable level for continuously paid for the service.					

Annex 02:

Part 10: This section asks questions regarding "**community participation**" in activities of successful schemes.

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
10.0	**community participation**					
10.1	They have feeling of ownership.					
10.2	Communities are fully involved in committee activities in the initial stage.					
10.3	Communities are fully involved in committee activities in the operational stage.					
10.4	Communities are actively participating in meetings.					

Part 11: This section asks questions regarding "**Transparency and Responsibility**" of CBO activities in successful schemes.

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
11.0	**Transparency, Accountability and Responsibility**					
11.1	There is a transparency in decision making process.					
11.2	There is a transparency in all financial activities.					
11.3	Management tasks and responsibilities are clearly delegated among committee members.					
11.4	Analyze causes and consequences of problems in open & frank manner					

Part 12: This section asks questions regarding "**power and commitments**" of committee members/leaders in successful schemes.

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
12.0	**power and commitments**					
12.1	No power conflicts among committee members					
12.2	Have legal arrangement to support issues					
12.3	There is a true leadership and not take uni-lateral decisions and irregular spending					
12.4	If CBO leadership and office bearers are benefitted from the scheme and their personal commitment is very high.					

Annex 02:

Part 13: This section asks questions regarding "**Communication skills"** of implementing agencies.

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
13.0	**Communication skills**					
13.1	Maintain high level of communication links between implementing agencies, CBOs and beneficiaries.					
13.2	Project requirement and policies communicated properly to beneficiaries.					
13.3	Communicated all necessary information and give clear understanding of tasks required.					

Part 14: This section asks questions regarding "**External Factors"**

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
14.0	**External Factors**					
14.1	There should be clear rules, regulations and favorable policies supporting the rural water sector and legal national policy guiding the interventions.					
14.2	Political support influences the success or failure of the scheme.					
14.3	The quality and quantity of source is adequate.					
14.4	There should be an Institutional formalized mechanism for continuous support.					
14.5	There should be a mechanism for capacity building of policy makers.					
14.6	There should be competent resource persons for capacities building of communities.					
14.7	There should be mechanisms to exchange institutional and community based experiences.					
14.8	Spare parts availability is acceptable.					
14.9	There should be simple technological options.					

15. Your designation.....

16. What are the constraints to successful management of rural water schemes?

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Annex 02:

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17.Give your comments on what should be done for Community managed rural water supply success

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Thank you very much for your cooperation

Annex 03:

Water Users /Beneficiaries. (Conducted in Local Language)

Questionnaire for assessment of success factors for effective management of rural water Supply Schemes in Sri Lanka.

Water Scheme Success is defined as, the water scheme is functioning to deliver its intended benefits over the long-term and fulfill 24-hour water demand of all beneficiaries throughout the design life of the water supply system.

If the water scheme gives an acceptable level of service, which marginally satisfies the water demand of beneficiaries the water scheme is "partially successful".

If the scheme does not deliver its' intended benefits over the design life, the scheme is "Not successful".

1. According to your context, is your Water Supply System is successful?

a) Yes
b) No
c) Partially successful
d) Don't know

Section 1: Awareness of success factors

Several essential factors exist to successfully manage rural water schemes. This section asks questions about the awareness of the critical factors for success of your scheme. Were you aware that following factors were critical to success of your scheme?

Key Factors	Aware	Not aware
Skills and abilities of water committees		
Economic Factors and support Infrastructure		
Personnel Characteristics		
Training and Capacity building		
motivation		
Coordination and back-up support		
Monitoring ,evaluation and record keeping		
Power and commitments of CBOs.		
Leadership characteristics.		
Transparency, accountability and responsibility.		
Communication skills.		
Community wealth and awareness.		
Community participation.		
Community Profile.		
External factors and the environment (quality & quantity of source, resources, political issues, legal issues, rules & regulations etc.)		

Annex 03:

Section 2. Impact of critical factors.

This section asks questions about the Impact of the critical factors on you scheme success. For each statement please mark "X" for the best option that reflect your level of agreement.

Part 1: This section asks questions regarding "**skills and abilities of CBO**" in your scheme

			Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
1.0	**skills and abilities of CBO**						
1.1	They have **technical skills** on ;	operation and maintenance,					
		repair					
		adequate monitoring					
1.2	They have **administrative skills** on,	collect revenue					
		run bank accounts					
		record keeping					
		make payments for services/parts/salaries etc.					
1.3	Have **Governance skills** on;	problem solving					
		planning					
		leadership					
		Informed decision making.					
1.4	Have **conflict resolution ability** to build consensus and resolve conflicts within community and leaders.						

Part 2: This section asks questions regarding "**Economic Factors and Support Infrastructure**" of your scheme.

			Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
2.0	**Economic Factors and Support Infrastructure**						
2.1	We have ability to pay for the service.						
2.2	Have well established tariff structure based on consumption.						
2.3	Wealth of community is acceptable to ensure sufficient household income to pay continuously.						
2.4	We are willing to pay for the service.						
2.5	Already there is a well established mechanism for, ,	raising necessary financing					
		Alternatives.					
		manages funds					

Annex 03:

			Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
		Collect tariff.					
2.8	Have support infrastructure such as;	office accommodation,					
		transport					
		communications,					
		electricity					
		copying facilities					
		Computers.					

Part 3: This section asks questions regarding "**Personal Characteristics of CBO members"**

			Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
3.1	**Personal Characteristics CBO members**						
3.1	Have ability to;	work well in groups					
		know each other properly					
		Have developed friendship.					
3.2	We have personal will to be trained.						
3.3	Our committee has ability to take responsibilities and take up challenges.						
3.4	Our committee has a common interest and accommodates diverse interests.						
3.5	We accept our community leadership.						
3.6	Our water committee has created good impressions among us (users).						

Part 4: This section asks questions regarding "**CBO Leadership"**

			Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
4.0	**CBO Leadership**						
4.1	CBO officers have leadership characteristics such as;	quiet					
		perspective					
		very analytical					
		confidence					
		provide right ending always					
4.2	Leadership does not control options and views of other members and community.						
4.3	During project cycle CBO leadership has not changed.						
4.4	During project cycle CBO members have not left the village.						

Annex 03:

Part 5: This section asks questions regarding "**Training and Capacity building**" of community.

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
5.0	**Training and Capacity building**					
5.1	*Participated in capacity building and training programmes* at the initial stage of the project.					
5.2	Participated in capacity building and training programmes during operational stage of the project.					
5.3	Receive on-going training as and when required.					

Part 6: This section asks questions regarding "**Motivation**" of community.

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
6.0	**Motivation**					
6.1	Community motivation programmes are implemented at the initial stage as well as during life cycle.					
6.2	We are interested to participate in scheme activities.					
6.3	There is a rewarding system for good operation and maintenance and participation of system activities.					

Part 7: This section asks questions regarding "**Co-ordination and back-up support**"

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
7.0	**Co-ordination and back-up support**					
7.1	Good co-ordination exists among water providers (NWSDB), local authorities, CBO and communities.					
7.2	CBO has good social networks and exchange ideas with other CBOs and other villages.					
7.3	Have good working relationships with existing community structures of the village and receive their participation.					
7.4	Have easy access to support (technical, managerial) and spare parts. (maintenance and repair)					

Annex 03:

Part 8: This section asks questions regarding "**Monitoring and Evaluation"** of CBO of your scheme.

			Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
8.0	**Monitoring and Evaluation**						
8.1	CBO has kept seasonal calendar to determine when to collect funds and maintenance.						
8.2	Meeting held regularly to discuss issues and take decisions.						
8.3	All activities have documented and have good record keeping system.	meetings.					
		duties of each members					
		funds					
8.4	Scheme evaluation done periodically and give feedback to water providers.						

Part 9: This section asks questions regarding "**Wealth of community and awareness"**

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
9.0	**Wealth of community and awareness**					
9.1	We can understand the concept of community management and develop attitude to support it.					
9.2	We have knowledge to manage the system.					
9.3	We have education to manage the system					
9.4	We have capacity to manage the system.					
9.5	Household income of most of us is at an acceptable level and we can continuously pay for the service.					

Part 10: This section asks questions regarding "**community participation"** in scheme activities.

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
10.0	**Community participation**					
10.1	We have feeling of ownership.					
10.2	Household income of us are at an acceptable level					
10.3	We were fully involved in committee activities in the initial stage.					
10.4	We are actively involved in committee activities in the operational stage.					

10.5	We are actively participating in meetings.					

Part 11: This section asks questions regarding "**Transparency and Responsibility**" of CBO activities in your scheme.

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
11.0	**Transparency and Responsibility**					
11.1	There is a transparency in decision making process.					
11.2	There is a transparency of all financial activities.					
11.3	We have faith on our water management committee.					

Part 12: This section asks questions regarding "**power and commitments**" of committee members in your scheme.

		Strongly Disagree	Disagree	No idea	Agree	Strongly Agree
12.0	**Power and commitments**					
12.1	No power conflicts among committee members and community.					
12.2	Have legal arrangement to support issues					
12.3	There is a true leadership and not take uni-lateral decisions and irregular spending					
12.4	CBO leadership and office bearers are benefitted from the scheme and their personal commitment is very high.					

Annex 03:

Information about yourself (community profile)

Please tick the appropriate letter for the most relevant responses for you in respect of following items.

13. Gender:

a. Male	b. Female

14. Your age:

a. under 20	b.20-40	c. 40-60	d. over 65

15. What are your comments for achieving success of your scheme?

.....

.....

.....

.....

.....

.....

Thank you very much for your cooperation.

[illegible] 04:

<u>ග්‍රාමීය ජලසම්පාදන ව්‍යාපෘති විධිමත් කළමණාකරණය සඳහා වැදගත් වන කරුණු ඇගයීම සඳහා වන ප්‍රශ්න මාලාව. (ප්‍රජා මූල සංවිධාන වල නිළධාරීන් / නියමුවන් / නායකයින් සඳහා)</u>

(i) ඔබගේ අවබෝධය පරිදි ඔබගේ ජල සම්පාදන ක්‍රමය සාර්ථකද?

ඔව්

නැත

අර්ධ වශයෙන් සාර්ථකය

නොදනී

ග්‍රාමීය ජල සම්පාදන ක්‍රම සාර්ථකව පවත්වා ගැනීමට බලපාන්නා වූ විවිධ කරුණු ඇත. පහත දැක්වෙන්නේ එවැනි වැදගත් යැයි හඳුනාගත් කරුණු කීපයකි.

(ii) පහත සඳහන් කරුණු ඔබගේ ඔබගේ ජල සම්පාදන ක්‍රමයේ සාර්ථකත්වය සඳහා බලපාන්නේ යැයි ඔබ දනිද?

		දනී	නොදනී
	ප්‍රජා මූල නිළධාරින්ගේ /නියමුවන්ගේ /නායකයින්ගේ දක්ෂතා හා හැකියාවන්		
ii)	භාර්මික කරුණු හා යටිතල පහසුකම්. (මූලං පහසුකම්, කාර්යාල , දුරකතන පහසුකම් ආදිය)		
iii)	ප්‍රජාමූල නිළධාරීන්ගෙ /නියමුවන්ගෙ /නායකයින්ගෙ පෞද්ගලික ගති ලක්ෂණ		
iv)	හැකියා වර්ධනය සඳහා වන පුහුණු කිරීම්		
v)	ප්‍රජා මූල නිළධාරීන්ගේ /නියමුවන්ගේ /නායකයින්ගේ හා ජනතාවගේ උනන්දුව		
vi)	අරමුදල් සපයන හා මගපෙන්වන ආයතන වල සම්බන්ධීකරණය හා මග පෙන්වීම හා පසු විපරම (උදව්ව)		
vii)	අරමුදල් සපයන හා මගපෙන්වන ආයතනයේ අධීක්ෂණය හා ඇගයීම.		
viii)	ප්‍රජාමූල සංවිධානයේ වාර්තා තබා ගැනීම.		
ix)	ප්‍රජාමූල සංවිධානයේ ශක්තිය හා කැපවීම.		
x)	ගමේ ජනතාවගේ එන්කම් හා දැනුවත්බව.		
xi)	ප්‍රජාමූල සංවිධානයේ නායකත්වය.		
xii)	අරමුදල් සපයන හා මග පෙන්වන ආයතන වල නිළධාරීන්ගේ අදහස් හුවමාරු කිරීමේ හැකියාව.		
xiii)	ප්‍රජාමූල සංවිධාන කටයුතු වල විනිවිද භාවය. (තීරණ ගැනීම, මුදල් පරිපාලනය ආදිය)		
xiv)	සාමාජික සහභාගිත්වය.		
xv)	සමාජ ආකෘතිය. (වයස, රැකියාව ආදිය)		
xvi)	බාහිර කරුණු. (ජල මූලාශ්‍රය, මානව සම්පත් නිති සම්පාදනය ආදිය.)		

ඉහත කරුණු සවිස්තරාත්මකව ඉදිරි පිටුවල දක්වා ඇත.

ප්‍රධාන කරුණු වල බලපෑම

... ප්‍රශ්න මාලාව ඉහත සඳහන් කරුණු ජලසම්පාදන ක්‍රමයේ සාර්ථකත්වයට බලපාන ... ...ලේෂණය කිරීම සඳහා වේ. එක් එක් වාක්‍යය සඳහා ඔබගේ එකගවීම " √ " ලකුණින් ... ...නන.

	පූර්ණ එකඟයි	එකඟයි	නොදනී	එකඟ නොවේ	පූර්ණයෙන් එකඟ නොවේ
... නිලධාරීන්ගේ /නියමුවන්ගේ /නායකයින්ගේ හැකියාවන් හා ...					
... ධාරීනට /නියමුවනට /නායකයිනට තාක්ෂණික දැනුම ... ...ධානමක හා තැසන්තු අප්නවැඩියාව ආදිය.)					
... ධාරීනට /නියමුවනට /නායකයිනට මූල්‍ය පරිපාලනය ...යෝජනය හා වාර්තා තබා ගැනීමට අවශ්‍ය දැනුම ඇත.					
... ධාරීනට /නියමුවනට /නායකයිනට පරිපාලන දැනුම ඇත. ...නය තීරණ ගැනීමේ හැකියාව ආදිය.)					
... ධාරීනට /නියමුවනට /නායකයිනට ප්‍රශ්න විසඳීමේ හැකියාව ...ජනයාගේ විශ්වාසය දිනාගැනීමේ හැකියාව ඇත.					
... කරුණු හා යටිතල පහසුකම්					
... හා මෙහෙයුම් කටයුතු සඳහා අවශ්‍ය මුදල් ලබාගැනීමේ ... ඇත.					
...ප්‍රජනය මත පදනම් ජල ගාස්තුවක් අය කිරීම හා බිල්පත් ... කිරීමට ක්‍රමවත් ක්‍රමවේදයක් ඇත.					
... සම්භාර ඇත.					
... ජල භාවිතය සඳහා කැමැත්තෙන් ගෙවීම් කරයි.					
...යුතු නැවීමටත් විධිමත් කිරීමටත් ස්ථාපිත ක්‍රමවේදයක් ...					
...න කටයුතු කිරීමට හොඳින් ස්ථාපිත ආයතනික ව්‍යුහයක් ...					
... පහසුකම් ඇත. කාර්යාල පහසුකම්, ප්‍රවාහන, විදුලි, දුරකතන, පරිගණක පහසුකම්					
...ධාන කටයුතුවලට අමතරව වෙනත් කටයුතුවලද නියැලේ ... ආයතන වල උදව් ඇතිව)					

Annex 04:

	පූර්ණ එකඟයි	එකඟයි	නොදනී	එකඟ නොවේ	කොහෙත්ම එකඟ නොවේ
(i) **ප්‍රජාමූල නිලධාරීන්ගේ /නියමුවන්ගේ /නායකයින්ගේ පෞද්ගලික ලක්ෂණ**					
කණ්ඩායමක් වශයෙන් එකමුතුව වැඩකරයි.					
පුහුණුවීම් හා හැකියාවන් වර්ධනය කර ගැනීමට කැමතිය.					
වගකීම් ඉසිලීමට හා අමාරු කාර්යයන් කිරීමට කැමතිය. නායකත්වය ගැනීමට කැමතිය.					
ගම්වැසියන් අතර යහපත් ආකල්පයක් ගොඩනගා ඇත.					
(ii) **ප්‍රජාමූල නායකත්වය**					
විශ්වාසය ස්ථිර බව නිවැරදි මගපෙන්වීම ආදි ගුණාංග නායකත්වය සතුය.					
නායකත්වය අනෙක් සාමාජිකයින්ගේ අදහස් හා යෝජනා අගයයි.					
මේ දක්වා කාලය තුළ ප්‍රජාමූල නායකත්වය වෙනස් වී නොමැත.					
ප්‍රජාමූල නිලධාරීන් /නියමුවන් /නායකයින් ගම හැර ගොස් නොමැත.					
(iii) **හැකියාවන් වර්ධනය හා පුහුණු කිරීම**					
පහත සඳහන් → තාක්ෂණික දැනුම පුහුණුවීම් ලබා ඇත. → කළමණාකරණ දැනුම (අරමුදල් සපයන හා → පරිපාලන දැනුම මග පෙන්වන ආයතන)→ මූල්‍ය කළමණාකරණ දැනුම.					
මූලික දැනුම වර්ධනය කිරීම සඳහා පුහුණුවීම් ලබා ඇත.					
වැඩකරගෙන යාමේදී අවශ්‍ය පුහුණුවීම් ලැබේ.					
(iv) **ප්‍රජාමූල සංවිධායකයින්ගේ උනන්දුව**					
මිනිසුන්ගේ උනන්දුව ඇතිකිරීමේ වැඩසටහන් මූලික අවස්ථාවේදී මෙන්ම පසුවද ක්‍රියාත්මක වේ.					
නඩත්තු භාරකරු සඳහා මාසික වේතනයක් ලබා දේ.					
කාර්යක්ෂමව පවත්වා ගෙන යන ජල ව්‍යාපෘති ඇගයීමේ හා ප්‍රදානයන් ලබාදීමට ක්‍රමයක් පවතී. (අරමුදල් සපයන හා මග පෙන්වන ආයතන වල)					
(v) **සම්බන්ධීකරණය හා මග පෙන්වීම**					
අරමුදල් මග පෙන්වන ආයතනය ප්‍රජාමූල සංවිධානය හා පාරිභෝගිකයින් අතර හොඳ සබඳතාවයක් හා සම්බන්ධීකරණයක් ඇත.					

4:

	ඉතාමත් එකඟයි	එකඟයි	නොදනී	එකඟ නොවෙමි	කොහෙත්ම එකඟ නොවෙමි
...ගෙජන සම්බන්ධතාවයක් ඇත. (අනෙකුත් ප්‍රජාමූල සංවිධාන ...ලනක් ගම්මාන සමග)					
...ත අනෙකුත් සමාජ සංවිධාන සමග හොඳ සබඳතාවක් ඇති ...යන්ගේ සහයෝගය ලැබේ.					
...ාන අදාළ ආයතන වලින් අවශ්‍ය සහයෝගය ලැබේ.					
...පණය හා ඇගයීම					
...යාත කිරීමට හා නඩත්තු කටයුතු කලයුතු කාලසීමාව ...වට කාලසටහනක් ඇත.					
...ා ක්‍රමවත් ඇගයීම් ක්‍රමයක් ඇත. (ජලසම්පාදන තත්වය ...න කටයුතු ආදිය)					
...ව පැවැත්වීමට නිශ්චිත කාල සටහනක් ඇත.					
...් ගැනීමට ප්‍රමාණවත් තොරතුරු ඇත. (බිල්පත් අප්‍රවැඩිය ...ත සැපයුම් තත්වය ආදිය)					
...ාර්යයන් පිළිබඳ ලිපි ගොනු හා තොරතුරු ඇත. ...ට, වගකීම්, මුදල් පොත්, සාමාජික ලිපිගොනු, අයවැය ...ා ආදිය)					
...ය විගණනයක් සිදුකෙරේ.					
...ය මහසභාවට ඉදිරිපත් කරයි.					
...ා බිල්පත් ගෙවීම මූල්‍ය ආයතනයකට / බැංකුවට සිදුකෙරේ.					
...ාජිකයින්ගේ වත්කම්					
...ිකයින්ට පාලනය පිළිබඳ දැනුම ඇත.					
...යන හොඳ අධ්‍යාපනයක් ලබා ඇත.					
...ිකයින්ට ජල සම්පාදන ක්‍රමය පාලනය කිරීමට හැකියාව / ...ාව ඇත.					
...ිකයින්ට ජල බිල්පත් ගෙවීමට ප්‍රමාණවත් ආදායමක් ඇත.					
...ාජිකයින්ගේ සහභාගිත්වය හා දැනුවත් බව					
...ිකයින්ට ප්‍රජාමූල සංවිධාන කළමණාකරණය පිළබඳ ...ා කරුණු අවබෝධ කර ගැනීමේ හා ආකල්ප දියුණු ...ැනීමේ හැකියාව ඇත.					
...ිකයින්ට ජල ව්‍යාපෘතිය තමාගේ යන හැගීම ඇත.					

...04:

	ඉතාමත් එකඟයි	එකඟයි	නොදනී	එකඟ නොවෙයි	කොහෙත්ම එකඟ නොවෙයි
...ාමාජිකයින් මූලික අවස්ථාවේදී මෙන්ම පසුවද හොඳින් කටයුතු ...ට සහභාගි වේ.					
...ාමාජිකයින් රැස්වීම් වලට උනන්දුවෙන් සහභාගි වේ.					
...ටයුතු වල විවිධ භාවය					
...ාමූල සංවිධානය ගන්නා තීරණ වල විවිධ භාවය ඇත.					
...ලා කටයුතු වල විවිධ භාවය ඇත.					
...ලන කටයුතු හා වගකීම් පැහැදිලිව සාමාජිකයන් අතර ...ෙදා ඇත.					
...යට කාර්යයන් හා පූර්ණ විශ්වාස හා සාධාරණ ආකාරයට ...ගැලපීණය කරයි.					
...ලය හා කැපවීම					
...ාමාජිකයින් අතර බලය ලබාගැනීමේ ගැටුම් නැත.					
...නානුකූල බලය ඇත. (ප්‍රශ්න විසඳීමට)					
...ාමූල නායකත්වය හා සාමාජිකයින් ජලසම්පාදන ...ෙයෙන් බලය ලබා ගනී. එනිසා ඔවුන්ගේ කැපවීම ...නා විශාල මට්ටමක පවතී.					
3 ...ාහිර කරුණු					
...පැහැදිලි නීති ව්‍යවස්ථා හා උදව්වන ක්‍රමවේදයක් ...වශ්‍යය.					
...ගපාලන බලපෑම් සාර්ථකත්වයට හෝ බිඳ වැටීමට බලපායි.					
...ල මූලාශ්‍රයේ ගුණාත්මක හා ප්‍රමාණාත්මක බව වැදගත් වේ.					
...ත්තරු උදව්කිරීමට ප්‍රමාණවත් ආයතනික ව්‍යුහයක් අවශ්‍යය.					
...ජල සම්පාදනය කරන්නන්ගේ දැනුම වර්ධනයට ක්‍රමවේදයක් ...වශ්‍යය.					
...ලධාරීන්ගේ / සාමාජිකයින්ගේ හැකියාවන් වර්ධනය සඳහා ...දැනුම ඇති පුද්ගලයන් අවශ්‍යය.					
...ාමාජිකයින් හා ආයතනික දැනුම හුවමාරුව සඳහා වැඩ ...සටහනක් අවශ්‍ය වේ.					
...තර කොටස් හොඳින් තිබිය යුතුය.					
...ල තාක්ෂණ ක්‍රම අවශ්‍යය.					

Annex 04:

(පහත ප්‍රශ්න ඔබගේ සමාජ ආකෘතිය හඳුනා ගැනීමට වේ.)

ඔබගේ ස්ත්‍රී / පුරුෂ භාවය : ස්ත්‍රී / පුරුෂ

ඔබ වයස :

(I) 20 ට අඩු (II) 20 40 (III) 40 60 (IV) 60 ට වැඩි

ඔබගේ රැකියාව කුමක්ද?

ප්‍රාථමික සංවිධානයේ ඔබ දරණ තනතුර කුමක්ද?

ඔබ කොපමණ කියක් ප්‍රාථමික සංවිධානයේ කටයුතු කර තිබේද?

ඔබ ප්‍රජාසම්පාදන ක්‍රමය පවත්වා ගැනීමට ඇති බාධක මොනවාද?

වෙනත් විමර්ශන .....

ඔබගේ සහයෝගයට ස්තුතියි.

ාර්ය 05:

ාර්ය ජලසම්පාදන ව්‍යාපෘති විධිමත් කළමණාකරණය සඳහා වැදගත් වන කරුණු ඇගයීම
ඳහා වන ප්‍රශ්න මාලාව. (ප්‍රතිලාභ ලබන්නන් / සාමාජිකයින් සඳහා)

ා යන්ගේ අවබෝධය පරිදි ඔබගේ ජල සම්පාදන ක්‍රමය සාර්ථකද?

ඔව්
නැත
අර්ධ වශයෙන් සාර්ථකය
නොදනි

ාර්ය ජල සම්පාදන ක්‍රම සාර්ථකව පවත්වා ගැනීමට බලපාන්නා වූ විවිධ කරුණු ඇත. පහත
ාන්වෙන්නේ එවැනි වැදගත් යැයි හඳුනාගත් කරුණු කිපයකි.
ා ඒවාන සඳහන් කරුණු ඔබගේ ඔබගේ ජල සම්පාදන ක්‍රමයේ සාර්ථකත්වය සඳහා බලපාන්නේ
යැයි ඔබ දනිද?

		දනි	නොදනි
(i)	ප්‍රජා මූල නිලධාරීන්ගේ /නියමුවන්ගේ /නායකයින්ගේ දැක්ම හා හැකියාවන්		
(ii)	ආර්ථික කරුණු හා යටිතල පහසුකම්. (මූලා පහසුකම්, කාර්යාල , දුරකතන පහසුකම් ආදිය)		
(iii)	ප්‍රජාමූල නිලධාරීන්ගේ /නියමුවන්ගේ /නායකයින්ගේ පොදුගලික ගති ලක්ෂණ		
(iv)	හැකියා වර්ධනය සඳහා වන පුහුණු කිරීම්		
(v)	ප්‍රජා මූල නිලධාරීන්ගේ /නියමුවන්ගේ /නායකයින්ගේ හා ජනතාවගේ උනන්දුව		
(vi)	අරමුදල් සපයන හා මගපෙන්වන ආයතන වල සම්බන්ධීකරණය හා මග පෙන්වීම් හා පසු විපරම් (උදව්ව)		
(vii)	අරමුදල් සපයන හා මගපෙන්වන ආයතනයේ අධීක්ෂණය හා ඇගයීම්.		
(viii)	ප්‍රජාමූල සංවිධානයේ චාරිත්‍ර තබා ගැනීම.		
(ix)	ප්‍රජාමූල සංවිධානයේ ශක්තිය හා කැපවීම.		
(x)	ගම්මි ජනතාවගේ විශ්වාස හා දැනුවත්භාව.		
(xi)	ප්‍රජාමූල සංවිධානයේ නායකත්වය.		
(xii)	අරමුදල් සපයන හා මග පෙන්වන ආයතන වල නිලධාරීන්ගේ අදහස් නුවමාරු කිරීමේ හැකියාව.		
(xiii)	ප්‍රජාමූල සංවිධාන කටයුතු වල විනිවිද භාවය. (තීරණ ගැනීම්, මූල්‍ය පරිපාලනය ආදිය)		
(xiv)	සාමාජික සහභාගිත්වය.		
(xv)	සමාජ ආකෘතිය. (වයස, රැකියාව ආදිය)		
(xvi)	වාහිර කරුණු. (ජල මූලාශ්‍රය, මානව සම්පත් නීති සම්පාදනය ආදිය.)		

ා කරුණු සවිස්තරාත්මකව ඉදිරි මිටුවල දක්වා ඇත.

ex 05:

...න කරුණු වල බලපෑම

... සඳහන් ප්‍රශ්න මාලාව ඉහත සඳහන් කරුණු ජලසම්පාදන ක්‍රමයේ සාර්ථකත්වයට බලපාන ... විශ්ලේෂණය කිරීම සඳහා වේ. එක් එක් වාක්‍යය සඳහා ඔබගේ එකගවීම " √ " ලකුණින් ... කරන්න.

	සම්පූර්ණයෙන් එකඟයි	එකඟයි	නොදනී	එකඟ නොවේ	සම්පූර්ණයෙන් එකඟ නොවේ
ප්‍රජාමූල නිලධාරීන්ගේ /නියමුවන්ගේ /නායකයින්ගේ හැකියාවන් හා ...සපතා.					
...ල නිලධාරීන්ට /නියමුවන්ට /නායකයින්ට තාක්ෂණික දැනුම ඇත. (ක්‍රියාත්මක හා නඩත්තු අවශ්‍යතාවයන් ආදිය.)					
...ල නිලධාරීන්ට /නියමුවන්ට /නායකයින්ට මූල්‍ය පරිපාලනය ...(ල ආයෝජනය හා වාර්තා තබා ගැනීමට අවශ්‍ය දැනුම ඇත.					
...ල නිලධාරීන්ට /නියමුවන්ට /නායකයින්ට පරිපාලන දැනුම ඇත. (...ය විධානය තීරණ ගැනීමේ හැකියාව ආදිය.)					
...ල නිලධාරීන්ට /නියමුවන්ට /නායකයින්ට ප්‍රශ්න විසදීමේ හැකියාව ...හා මිනිසුන්ගේ විශ්වාසය දිනාගැනීමේ හැකියාව ඇත.					
ආර්ථික කරුණු හා යටිතල පහසුකම්					
...නඩත්තු හා මෙහෙයුම් කටයුතු සඳහා අවශ්‍ය මුදල් ලබාගැනීමේ හැකියාව ඇත.					
...පරිභෝජනය මත පදනම් ජල ගාස්තුවක් අය කිරීම හා බිල්පත් ...සකස් කිරීමට ක්‍රමවත් ක්‍රමවේදයක් ඇත.					
...ජල මනු සවිකර ඇත.					
...පාරිභෝගිකයන් ජල භාවිතය සඳහා කැමැත්තෙන් ගෙවීම් කරයි.					
...ජල ... කටයුතු නැවැත්වීමට විධිමත් කිරීමටත් ස්ථාපිත ක්‍රමවේදයක් ඇත.					
...යටිතල පහසුකම් ඇත. කාර්යාල පහසුකම්, ප්‍රවාහන, විදුලි, දුරකතන, පරිගණක පහසුකම්					
ප්‍රජාමූල සංවිධායකයින්ගේ /සාමාජිකයින්ගේ පෞද්ගලික ලක්ෂණ					
...ප්‍රජාමූල නිලධාරීන් කණ්ඩායමක් වශයෙන් එකමුතුව වැඩකරයි.					
...සාමාජිකයන් පුහුණුවීම් හා හැකියාවන් වර්ධනය කර ගැනීමට කැමතිය.					

	පූර්ණ එකඟයි	එකඟයි	නොදනී	එකඟ නොවේ	සම්පූර්ණයෙන් එකඟ නොවේ
ප්‍රජාමූල නිලධාරීන් වගකීම් ඉසිලීමට හා අමාරු කාර්යයන් කිරීමට කැමතිය.					
ප්‍රජාමූල නිලධාරීන් නායකත්වය ගැනීමට කැමතිය.					
ප්‍රජාමූල නිලධාරීන් ගම්වැසියන් අතර යහපත් ආකල්පයක් ගොඩනගා ඇත.					
ප්‍රජාමූල නායකත්වය					
විශ්වාසය ස්ථිර බව නිවැරදි මගපෙන්වීම ආදි ගුණාංග ප්‍රජාමූල නායකත්වය සතුය.					
නායකත්වය අනෙක් සාමාජිකයින්ගේ අදහස් හා යෝජනා අගය කරයි.					
මේ දක්වා කාලය තුළ ප්‍රජාමූල නායකත්වය වෙනස් වී නොමැත.					
ප්‍රජාමූල නියෝජිතයින් ගම හැර ගොස් නොමැත.					
හැකියාවන් වර්ධනය හා පුහුණු කිරීම					
ගණන් සදහන් → තාක්ෂණික දැනුම පුහුණුවීම් ලබා ඇත. → කළමණාකරණ දැනුම (අරමුදල් සපයන හා → පරිපාලන දැනුම මග පෙන්වන ආයතන)→ මූල්‍ය කළමණාකරණ දැනුම.					
මූලික දැනුම වර්ධනය කිරීම සදහා පුහුණුවීම් ලබා ඇත.					
වැඩකරගෙන යාමේදී අවශ්‍ය පුහුණුවීම් ලැබේ.					
(i) **ප්‍රජාමූල සාමාජිකයින්ගේ උනන්දුව**					
මිනිසුන්ගේ උනන්දුව ඇතිකිරීමේ වැඩසටහන් මූලික අවස්ථාවේදී පමණි පසුවද ක්‍රියාත්මක වේ.					
ජල ව්‍යාපෘතියේ කටයුතු සඳහා අප සහභාගී වන්නේ කැමැත්තෙනි.					
සාර්ථකව පවත්වා ගෙන යන ජල ව්‍යාපෘති ඇගයීමේ හා ප්‍රදානයන් දීමේ ක්‍රමයක් පවතී. (අරමුදල් සපයන හා මග පෙන්වන ආයතන වල)					
සම්බන්ධීකරණය හා මග පෙන්වීම					
අරමුදල් මග පෙන්වන ආයතනය ප්‍රජාමූල සංවිධානය හා ප්‍රතිලාභිකයින් අතර හොඳ සබඳතාවයක් හා සම්බන්ධීකරණයක් ඇත					
ප්‍රජාමූල සංවිධානය අනෙකුත් ප්‍රජාමූල සංවිධාන හා අනෙක් ගම්මාන සමග හොඳ සම්බන්ධතාවයක් ඇත.					

	ඉතාමත් එකඟයි	එකඟයි	නොදනී	එකඟ නොවෙයි	කිසිසේත් එකඟ නොවෙයි
3 ප්‍රජාමූල සංවිධානය හා සමාජ සංවිධාන අතර හොඳ සබඳතාවයක් ඇත. 4 වෙනත් අදාළ ආයතන වලින් අවශ්‍ය සහයෝගය ලැබේ.					
8) අධීක්ෂණය හා ඇගයීම 1 ප්‍රජාමූල සංවිධානය සතුව මුදල් එකතු කිරීමට හා නඩත්තු කටයුතු කළයුතු කාලසීමාව දැක්වීමට කාලසටහනක් ඇත. 2 තීරණ ගැනීමට හා සාකච්ඡා පැවැත්වීමට ප්‍රජාමූල සංවිධායකයින් නිතර රැස්වේ. 3 තීරණ ගැනීමට ප්‍රමාණවත් තොරතුරු ඇත. (බිල්පත් අපනවැසියා කටයුතු සැලසුම් නාවය ආදිය) 4 සියලු කාර්යයන් පිළිබඳ ලිපි ගොනු හා තොරතුරු ඇත. (රැස්වීම්, වගකීම්, මුදල් පොත්, සාමාජික ලිපිගොනු, අයවැය වාර්තා ආදිය) 5 වාර්ෂික විගණනයක් සිදුකෙරේ. 6 අයවැය මහසභාවට ඉදිරිපත් කරයි. 7 මාසික බිල්පත් ගෙවීම මූල්‍ය ආයතනයකට / බැංකුවට සිදුකෙරේ.					
9) සාමාජිකයින්ගේ වත්කම් 1 සාමාජිකයින්ට පාලනය පිළිබඳ දැනුම ඇත. 2 සාමාජිකයින හොඳ අධ්‍යාපනයක් ලබා ඇත. 3 සාමාජිකයින්ට ජල සම්පාදන ක්‍රමය පාලනය කිරීමට ධාරිතාව / හැකියාව ඇත. 4 සාමාජිකයින්ට ජල බිල්පත් ගෙවීමට ප්‍රමාණවත් ආදායමක් ඇත.					
10) සාමාජිකයින්ගේ සහභාගිත්වය හා දැනුවත් බව 01 සාමාජිකයින්ට ප්‍රජාමූල සංවිධාන කළමණාකරණය පිළබඳ මූලික කරුණු අවබෝධ කර ගැනීමේ හා ආකල්ප දියුණු කර ගැනීමේ හැකියාව ඇත. 02 සාමාජිකයින්ට ජල ව්‍යාපෘතිය තමාගේ යන හැඟීම ඇත. 03 සාමාජිකයින මූලික අවස්ථාවේදී මෙන්ම පසුවද හොඳින් කටයුතු වලට සහභාගී වේ. 04 සාමාජිකයින් රැස්වීම් වලට උනන්දුවෙන් සහභාගී වේ.					

Annex 05:

	පූර්ණ එකඟයි	එකඟයි	නොදනී	එකඟ නොවෙයි	සම්පූර්ණ එකඟ නොවෙයි
කටයුතු <u>වල විනිවිද භාවය</u>					
ප්‍රජාමූල සංවිධානය ගන්නා තීරණ වල විනිවිද භාවය ඇත.					
2 මූල්‍ය කටයුතු වල විනිවිද භාවය ඇත.					
3 සාමාජිකයින්ට ප්‍රජාමූල සංවිධාන කටයුතු පිළිබඳ විශ්වාසවන්තභාවය ඇත.					
බලය <u>හා කැපවීම</u>					
සාමාජිකයින් හා නායකයින් අතර බලය ලබාගැනීමේ ගැටුම් නැත.					
නායකානුකූල බලය ඇත. (ප්‍රශ්න විසඳීමට)					
ප්‍රජාමූල නායකත්වය හා සාමාජිකයින් ජලසම්පාදන ක්‍රමයෙන් ජලය ලබා ගනී. එනිසා ඔවුන්ගේ කැපවීම ඉතා විශාල මට්ටමක පවති.					

(පහත ප්‍රශ්න ඔබගේ සමාජ ආකෘතිය හඳුනා ගැනීමට වේ.)

ඔබගේ ස්ත්‍රී / පුරුෂ භාවය : ස්ත්‍රී / පුරුෂ

ඔබගේ වයස :

(I) 20 ට අඩු (II) 20 40 (III) 40 60 (IV) 60 ට වැඩි

ඔබගේ ජලසම්පාදන ක්‍රමය සාර්ථකව පවත්වා ගැනීමට ඔබගේ ඇති යෝජනා මොනවාද?

ඔබගේ සහයෝගයට ස්තුතියි.