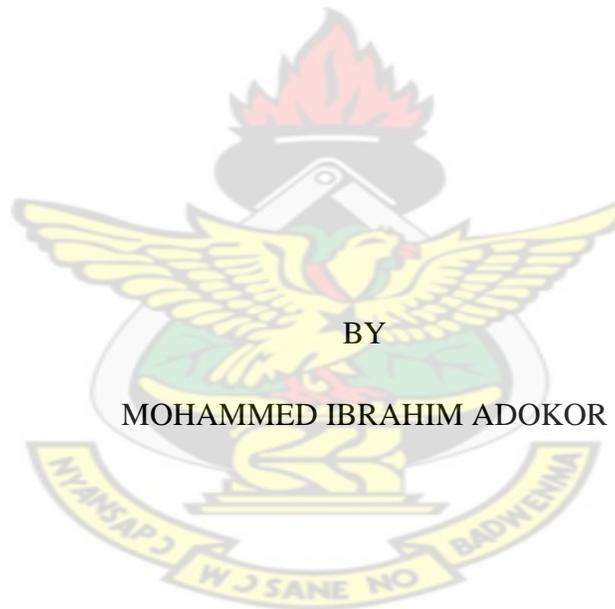


ASSESSING THE CAPACITY OF COMMUNITY LEVEL MANAGEMENT
STRUCTURES TO OPERATE AND MANAGE WATER FACILITIES
SUSTAINABLY: A STUDY OF THE BOSOMTWI DISTRICT OF THE ASHANTI
REGION

A thesis submitted to the School of Graduate Studies, Kwame Nkrumah University of
Science and Technology, Kumasi, in partial fulfilment of the requirement for the Degree
of Masters of Science in Development Policy and Planning



JUNE, 2012

DECLARATION

I hereby declare that this thesis is the result of my own work towards the award of a Master of Science in Development Policy and Planning. To the best of my knowledge, it contains no material previously neither published nor accepted for the award of any degree of the university, except where due acknowledgement has been made in the text.

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ACKNOWLEDGEMENT

I express my heartfelt thanks to my supervisor, Dr. Imoro Braimah, for his patience, guidance and advice during the writing of this thesis. I very much appreciate his invaluable contribution to this work.

My thanks also go to the Chief Executive and Management of the CWSA for giving me the opportunity to undertake this programme. My thanks particularly go to my boss, Mr. Benedict Kubabom, for his guidance and moral support throughout the pursuit of this programme.

I am equally grateful to the Bosomtwe District Assembly, especially to Mrs. Beatrice Owusua Kwarteng and Mr. Kofi Agyeman, the District Development Planner and the Engineer in Charge of Water in the District Works Department respectively, for being the source of invaluable information and for helping me in the data collection exercise.

This work would not have been completed without the special contribution of the Ashanti Regional Director of CWSA, Mr Opoku Tuffour. I am indebted to him for his moral and logistical support during the data collection exercise.

My deepest gratitude goes to my brother, Enusah, my sister, Alima and my son, Iman, for their patience and sacrifice during my unusually long stay from home in pursuit of this programme and other similar commitments. To Enusah, Alima and Iman, I dedicate this work.

My ultimate thanks goes to Allah, the Beneficent and the Merciful for the strength and direction He gave to me and all the people who helped me to go through this arduous task. May His name be forever praised.

ABSTRACT

Since the launch of the National Community Water and Sanitation Programme (NCWSP) in 1994, tremendous strides have been made in the provision of water and sanitation facilities to rural communities and small towns in Ghana. Access to water supply in rural communities and small towns in Ghana rose from as low as 27% in 1990 to about 60% in 2009 (World Bank, 2010). Although the increase in access to water supply has been remarkable, there is concern among sector practitioners over the capacity of local level management structures to operate and manage the existing facilities on a sustainable basis.

Under the NCWSP, community management of water and sanitation facilities, meaning ownership and control, constitutes the fundamental strategy. With this strategy, a new institutional arrangement evolved, assigning different responsibilities to various stakeholders, from the national to the community level. For instance, the CWSA was to function as an independent agency charged with the facilitation and coordination of the NCWSP. The District Water and Sanitation Teams (DWSTs) were to be advisory bodies and links between the communities, the District Assemblies and external actors. At the community level, Water and Sanitation (WATSAN) Committees and Water and Sanitation Development Boards (WSDBs) were constituted to see to the operation and overall management of point sources and small towns pipe systems respectively. Thus capacity building for all stakeholders, especially community level structures has been recognized as a critical component of all the projects implemented under the NCWSP.

This new task assigned the communities required some measure of basic skills for the effective management of water and sanitation facilities on sustainable basis. This study thus sought to investigate whether the community level structures have acquired the requisite capacities over the years, in terms of training and logistics, to undertake and accomplish the assigned tasks on sustainable basis.

In this study, the case study method was employed to examine the relationships and patterns between the capacity levels of community management structures and its effect on sustainable operation and maintenance of water facilities in the district. The major cases revolved around the two, out of five management structures prescribed by CWSA,

which exists in the District. In all three communities which have the Small Towns Pipe Systems and which are managed by Water and Sanitation Development Boards as well as six communities with boreholes with pumps or a combination of limited mechanised systems and boreholes with pumps were selected based on purposive sampling. The communities practicing the various management styles were chosen with the help of the District Development Planner and the Head of the District Works Department.

The study found that though the technical capacity of the management structures was enough for the running of the water facilities, they still faced a lot of challenges in the sustained Operation and Maintenance (O&M) of water facilities. These, among others include the fact that the communities with WATSAN Committees found the management structure prescribed by CWSA to be very formal and deviates largely from the informal ways of doing things in rural communities. Again, even though the structures claimed the revenue generated from the pay-as-you fetch system was enough for O&M, evidence on the ground showed that an average of 50% of all facilities in the six WATSAN communities were broken down and nine out of the eighteen standpipes in the Jachie Town were not functioning. Additionally, all the communities were found not to have a replacement account for the future expansion of the facilities and for the replacement of major parts in the case of major breakdowns. Another interesting finding from the study is that the attrition rate of the management structures is high, especially amongst the WATSAN Committees and this has led to fewer members than expected holding the fort. In spite of the reduction in membership of the WATSAN Committees, the few remaining ones were found to be very committed, more by social rather than economic reasons.

The main recommendations include, but not limited to institutional capacity building of the DWST for effective backstopping; institution of incentive schemes for the management structures; adherence to the two year post construction support espoused in the CWSA Project Implementation Manual; strict enforcement of the Defects Liability Period by the District Assembly (DA) and regular backstopping by the DWST and the CWSA.

TABLE OF CONTENTS

ACKNOWLEDGEMENT	I
ABSTRACT	II
TABLE OF CONTENTS	IV
LIST OF TABLES	VII
LIST OF FIGURES	VIII
LIST OF ABBREVIATIONS	IX
CHAPTER ONE: GENERAL INTRODUCTION	1
1.1 BACKGROUND	1
1.2 PROBLEM STATEMENT	4
1.3 OBJECTIVES.....	5
1.4 SCOPE	6
1.5 JUSTIFICATION FOR THE STUDY.....	7
1.6 OUTLINE OF THE RESEARCH REPORT	8
CHAPTER TWO: CONCEPTUAL AND ANALYTICAL FRAMEWORK FOR COMMUNITY LEVEL WATER MANAGEMENT STRUCTURES	9
2.1 INTRODUCTION	9
2.2 DEFINITIONS, THEORETICAL AND CONCEPTUAL REVIEW OF CONCEPTS	9
2.2.1 Community Ownership and Management Concept	9
2.2.2 Global Experiences of Community Ownership and Management of Water Infrastructure.....	12
2.2.3 Community Management Model as a Tool for Managing Water Supply.....	15
2.2.4 Community Managed Water Supply Delivery Models/Structures in Ghana.....	17
2.2.5 Community Capacity	21
2.2.6 Capacity Building in Water Facility Management.....	22
2.2.7 Sustainability.....	23
2.2.8 Critical Issues for Sustainable Community Water Ownership and Management.....	25
2.2.9 The Institutional Framework For Rural Water and Sanitation Delivery in Ghana	26
2.3 ANALYTICAL FRAMEWORK.....	31
2.3.1 The Framework for Capacity Delivery for Management Structures.....	31

2.3.2	Factors Determining the Capacity of Community Level Management Structures	34
2.4	SUMMARY	36
CHAPTER THREE: METHODOLOGY AND PROFILE OF STUDY AREA		37
3.1	INTRODUCTION	37
3.2	METHODOLOGY	37
3.2.1	Research Approach	37
3.2.2	Research Method	39
3.2.3	Units of Analysis.....	40
3.2.4	Sampling Design.....	40
3.2.5	Data Collection	41
3.2.6	Data Processing and Analysis.....	42
3.3	PROFILE OF THE STUDY AREA	42
3.3.1	Physical Characteristics	42
3.3.2	Population Characteristics.....	44
3.3.3	Spatial Distribution and Settlement Patterns.....	44
3.3.4	Economic Characteristics.....	44
3.3.5	Social Characteristics.....	45
CHAPTER FOUR: ANALYSIS OF THE CAPACITY OF COMMUNITY LEVEL MANAGEMENT STRUCTURES TO OPERATE AND MANAGE WATER FACILITIES		47
4.1	INTRODUCTION	47
4.2	CASE 1: CAPACITY OF WATER AND SANITATION DEVELOPMENT BOARDS (WSDBS).....	48
4.2.1	Technical/ Logistical Capacity.....	49
4.2.2	Administrative/Managerial Capacity	50
4.2.3	Fund mobilisation capacity	52
4.2.4	Motivation.....	53
4.2.5	Training.....	54
4.3	CASE 2: CAPACITY OF WATER AND SANITATION(WATSAN) COMMITTEES.....	55
4.3.1	Technical/Logistical Capacity.....	56
4.3.2	Administrative/Managerial Capacity	58
4.3.3	Fund mobilisation capacity	59
4.3.4	Motivation.....	60
4.3.5	Training.....	61
4.4	CROSS-CASE ANALYSIS OF THE CAPACITY OF THE WSDBS AND WATSAN COMMITTEES	62
4.4.1	Technical/Logistical Capacity.....	62
4.4.2	Administrative/Managerial Capacity	63

4.4.3	Fund mobilisation capacity	64
4.4.4	Motivation.....	66
4.4.5	Training.....	67
CHAPTER FIVE: SUMMARY OF FINDINGS, RECOMMENDATIONS AND CONCLUSION		68
5.1 INTRODUCTION.....		68
5.1.1	Findings.....	68
5.1.2	Recommendations.....	72
5.1.3	Conclusion	76
REFERENCES.....		78
APPENDIX.....		82

KNUST



LIST OF TABLES

Table 2.	Type of Water Facilities in the District	46
Table 2:	Functionality statuses of the three STPS in the Bosomtwe District	49
Table 3:	Record Keeping by WSDBs	51
Table 4:	Location of Facilities under Case 2	56
Table 5:	Functionality Statuses of the Boreholes with Hand Pumps	56
Table 6:	Attrition Rate of WATSAN Committee Members	57
Table 7:	Record Keeping by WATSAN Committees	59



LIST OF FIGURES

Figure 1: The Institutional Framework for Rural Water and Sanitation Delivery	28
Figure 2: Analytical Framework for Capacity Building for Community Level Water Management Structures	33
Figure 3: Map of Bosomtwe District	43

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LIST OF ABBREVIATIONS

CWSA	Community Water and Sanitation Agency
COM	Community Ownership and Management
DA	District Assembly
DLP	Defects Liability Period
DWST	District Water and Sanitation Team
GWCL	Ghana Water Company Limited
GWSC	Ghana Water and Sewerage Corporation
IDWSD	International Drinking Water and Sanitation Decade
LMS	Limited Mechanised System
MMDAs	Metropolitan, Municipal and District Assemblies
MDGs	Millennium Development Goals
NCWSP	National Community Water and Sanitation Programme
NCWSS	National Community Water and Sanitation Strategy
POs	Partner Organisations
STPS	Small Towns Pipe System
UNDP	United Nations Development Programme
WSDB	Water and Sanitation Development Board
WATSAN	Water and Sanitation

CHAPTER ONE

GENERAL INTRODUCTION

1.1 BACKGROUND

Water, sanitation and hygiene are vital components of sustainable development and the alleviation of poverty. Across Africa, political leaders and sector specialists are generating new momentum in these important areas. The importance of water, sanitation and hygiene is manifestly expressed in goal number eight of the Millennium Development Goals. The provision of safe and adequate water supplies for domestic use to a greater extent is a good indicator for determining the health and socio-economic status of any community. Hence the statement “water is life”. Many diseases including diarrhoea, typhoid and dysentery can be reduced by adequate potable water supply and safe sanitation.

The availability of potable water in towns has the potential to act as a catalyst for economic growth. The provision of reliable water supply lessens the burden on women and children who are often the water fetchers at home. In rural areas and villages without regular water supply, women and children devote about 15-25% of their time to obtaining water (World Bank, 1976). There is a positive correlation between accessibility to safe water and good health status, increase in production and productivity, improvement in school enrolment and retention of children in schools, especially girls. The benefits of availability of safe water and improved sanitation for women are not only in terms of their own health, but as custodians of household hygiene and care givers (Adomako-Agyei, 2009).

The United Nations General Assembly declared the years 1981 – 1990 as the International Drinking Water and Sanitation Decade (IDWSD) throughout the world. The focus was to ensure that by the end of the decade, nations would have given priority attention to the delivery of water and sanitation facilities. The Ghana Government took a cue from the UN declaration and initiated a number of reforms in the water sector in the 1990s to accelerate the provision of water, especially to the rural areas (CWSA, 2007a).

Until the reforms in the 1990s, the Ghana Water and Sewerage Corporation (GWSC), a parastatal organisation under the Ministry of Works and Housing, had official responsibility for urban and rural water supply and sewerage. Most of GWSC's staff and resources, however, were devoted to the urban sector. With just two or three staff in GWSC headquarters handling rural water supplies, decision making for the rural sector passed *de facto* to the large regional projects financed by external support agencies.

The public sector also dominated the construction of water and sewerage facilities. The vast majority of rural water supplies were boreholes fitted with hand-pumps. GWSC and the NGOs had their own rigs, and carried out most of the drilling in Ghana, while foreign contractors were brought in by some externally funded projects. Only one Ghanaian private drilling company existed. The lack of competition made drilling artificially expensive. In 1990, a borehole drilled in Ghana cost on average US\$9,000 compared to an average of \$3,000 in UK and USA (World Bank, 2002).

The GWSC also had responsibility for maintaining the rural point sources, mostly boreholes with hand-pumps, and about eighty small-town piped schemes. In principle, the GWSC sent out regional teams with trucks and district staff on motorbikes to maintain and repair the supplies. In practice, as few as 40% of the hand-pumps were working at any given time, and the piped systems suffered frequent and sometimes long supply interruptions. These problems worsened as the number of supplies increased. One reason was that GWSC focused its attention on urban supplies, not rural. Also, GWSC collected only enough revenue from rural users to cover 10% of hand-pump maintenance costs and 20% of the operation and maintenance costs for rural pipe systems (GWSC, 1990).

Following from the above, the water sector reforms sought to separate the mandate for the delivery of rural water facilities from urban water supply. Subsequently, the then GWSC was transformed into a public limited liability company and renamed, Ghana Water Company Limited (GWCL) with the mandate to facilitate the provision of urban water facilities. The management of sewerage facilities was hived off from the GWCL and made the responsibility of the Metropolitan, Municipal and District Assemblies.

The Community Water and Sanitation Agency (CWSA) was also established by an Act of Parliament, Act 564 in December 1998 with the mandate to facilitate the provision of safe drinking water and related sanitation services to Rural Communities and Small Towns in Ghana. The CWSA was set up to manage the National Community Water and Sanitation Programme (NCWSP) which was launched in 1994 and managed temporarily by the Community Water and Sanitation Division, a division of the then GWSC.

One of the major tenets of the NCWSP is the concept of Community Ownership and Management (COM) which is meant to instil a sense of ownership in the communities and enable them take charge of the operation and maintenance of the water facilities. The COM of water and sanitation are derived from the principle of subsidiarity which emphasise on assigning responsibilities according to capabilities (Kokor, 2001; De Gabrielle, 2002 in Braimah and Jagri, 2007). In line with the principle of subsidiarity, the District Ownership and Management (DOM) was also adopted to enable districts provide oversight responsibilities to communities where necessary. The NCWSP adopted these concepts as a means of ensuring the sustainable supply of water to rural communities and small towns in Ghana. The success of the COM concept depended on the establishment of institutions at the local level to operate and manage the facilities. The adoption of the COM approach implied a shift from dependence on government to greater self-reliance of user communities (Braimah and Jagri, 2007). The COM concept adopted by the NCWSP had the following features:

- Elected Water and Sanitation (WATSAN) Committee of 5-9 members. Communities with populations of 2000 and above (small towns) will have WATSAN Committees at the ward level and Water and Sanitation Development Boards (WSDBs) at the larger community level;
- Community expression of demand for facilities through a show of commitment;
- Community choice of type, number and site of facilities and in small towns an initial design of pipe systems (within limits of options available); and

- Community preparation and implementation of facilities and management plans which outline how communities will raise funds for capital cost and operation and maintenance to ensure sustainability of the facilities.

Within this framework, the positions and roles of the various stakeholders changed. The role of the public sector changed from a direct provider to facilitator; the private sector became responsible for the provision of all goods and services; the communities' role shifted from a passive receiver of facilities to owner and manager of the facilities provided. Thus the WATSAN Committees and the WSDBs have become the basic units representing the community in the planning process, managing the communities' inputs into the programme, facilitating hygiene education and taking up the ownership and long-term operation and maintenance of the facilities, including revenue collection and management.

It is clear from the above that the responsibilities for the community level management structures in particular and that of the community in general have increased. More responsibilities demand a concomitant increase in capacity. Since the inception of the NCWSP in 1994, various forms of capacity enhancement measures ranging from training to the provision of logistics have been provided to these community level management structures. This study intends to assess the capacities of the management structures in performing their roles of operating and managing the water facilities provided, in the light of the ever increasing demands and responsibilities.

1.2 PROBLEM STATEMENT

Through the implementation of the NCWSP since 1994, tremendous strides have been made in the provision of water and sanitation facilities to rural communities and small towns in Ghana. Access to water supply in rural communities and small towns in Ghana rose from as low as 27% in 1990 to about 60% in 2009 (World Bank, 2010). Although the increase in access to water supply has been remarkable, there is concern among sector practitioners over the capacity of local level management structures to operate and manage the existing facilities on a sustainable basis. Under the NCWSP, community management of water and sanitation facilities, meaning ownership and control, constitutes the fundamental strategy. With this strategy, a new institutional arrangement

evolved, assigning different responsibilities to various stakeholders, from the national to the community level. For instance, the CWSA was to function as an independent agency charged with the facilitation and coordination of the NCWSP. The District Water and Sanitation Teams (DWSTs) were to be advisory bodies and links between the communities, the District Assemblies and external actors. At the community level, WATSAN Committees and WSDBs were constituted to see to the operation and overall management of point sources and small towns pipe systems respectively. Thus capacity building for all stakeholders, especially community level structures has been recognized as a critical component of all the projects implemented under the NCWSP.

This new task assigned the communities required some measure of basic skills for the effective management of water and sanitation facilities on sustainable basis. This study sought to investigate whether the community level structures have acquired the requisite capacities over the years, in terms of training and logistics, to undertake and accomplish the assigned tasks on sustainable basis.

In view of the above, the study sought to answer the following questions:

1. What roles are community level management structures performing vis-a-vis the mandated roles prescribed by the NCWSP?
2. What training has community level management structures received and how has it influenced the performance of their roles?
3. What is the logistics situation of community level management structures for effective operation and maintenance?
4. What are external forces that influence the performance of their roles, positively or negatively?
5. What are the capacity gaps and needs of the community level management structures?
6. What are the prospects and challenges of the community level management structures within the framework of the COM concept?

1.3 OBJECTIVES

The overall objective of the study is to examine the capacity of the community level management structures to operate and manage water facilities on sustainable basis.

Specifically, the study seeks to:

1. Assess the roles and functions of the community level management structures in the operation and management water facilities on sustainable basis within the framework of COM;
2. Examine the current performance of the management structures vis-a-vis training given them and their roles as prescribed by the NCWSP;
3. Assess the availability and adequacy of logistics in the operation and management of water facilities;
4. Assess the gaps and establish the capacity needs of the management structures; and
5. Make recommendations, based on the findings of the study, for improving community level capacity in the sustainable management of community operated and managed water facilities

1.4 SCOPE

Contextually, the scope of the study was limited to the assessment of the capacity of the community level management structures to operate and manage water facilities on sustainable basis and within the framework of COM. In this vein, the effectiveness of the community management structures in managing their water facilities, per their assigned roles, which includes financial, organisational, technical and hygiene education was assessed. The study focused on communities in the district whose facilities have been completed and handed over to them for at least two years. The management structures considered in this study were the WATSANS, WSDBs, and Area Mechanics. Also included in the study was the DWSTs which provide technical backstopping to the community level structures. Thus the study singled out the ‘community’ from the many role players in the sector such as the District Assembly (DA), Partner Organisations (POs), the Regional Office of CWSA etc.

Geographically, the scope of the study focused on the rural communities and small towns which are beneficiaries of potable water facilities under the NCSWP in the Bosomtwe District of the Ashanti Region. These areas fall within the jurisdiction of the Community

Water and Sanitation Agency, the lead public sector institution entrusted with the provision of safe water and sanitation to rural communities and small towns in Ghana.

1.5 JUSTIFICATION FOR THE STUDY

The significance of any academic work can be seen in its linkage ‘to larger, important practical or theoretical problems, social policy issues, or concerns of practice’ (Marshall and Bossman, 1995: in Bacho, 2001). The study was important in satisfying all the three aspects. The issue of how to provide water facilities on sustainable basis under the ‘global climates of escalating populations and declining resources’(UNDP in Bacho, 2001) is a question that is currently confronting academics, politicians and development practitioners alike.

Among others, the objectives of the NCWSP are to Provide basic safe drinking water and improved sanitation services and to ensure sustainability of the facilities through COM and other strategies. To achieve the above stated objective, capacity for operators and managers of the provided facilities has become a critical component of every project which is executed under the NCWSP. After about sixteen years of implementing the programme, a significant number of water facilities have been provided all over the country, bringing rural water coverage to 61.74% by the end of 2010, from 27% in 1990 (CWSA,2011; World Bank,2010). The critical questions to ask are whether the community level management structures established to operate and manage the water facilities are performing their roles and functions as prescribed by the National Community Water and Sanitation Strategy (NCWSS)? Whether the training provided is sufficient to provide the necessary management capacity for operation and maintenance? Whether the management structures have the necessary logistics and expertise for effective operation and maintenance of facilities provided? Whether there is a relationship between the type of management system (direct management, engagement of private operators, public private partnership) adopted for operation and maintenance and the capacity of community management structures?

If these issues are successfully executed, they will certainly contribute to a better understanding of the true capacities of the management structures to effectively operate and manage water facilities on a sustainable basis. The knowledge accrued from

understanding the true capacities of the management structures could possibly lead to determining the right combination of management styles (Public Private Partnerships, Direct Management, and Engagement of Private Operators etc) for operating the various types of facilities within peculiar community contexts.

In addition to contributing to a deeper understanding of the issues of management capacities, the findings of this study will also be crucial in shaping community water policy formulation by government and sector practitioners on the ground whose interest lies in finding ‘the right’ solutions (Bacho, 2001).

1.6 OUTLINE OF THE RESEARCH REPORT

Chapter 1 examined the background and the objectives of the study. It also described the statement of the problem, the scope, and justification for the study. Also included in this chapter is the general outline of the report.

Chapter 2 provided a detailed assessment of the conceptual and analytical framework under-pinning the NCWSP. Here, relevant concepts and terms such as capacity in the context of this study; Community Ownership and Management; and sustainability were examined. The global experiences in terms of the successes and failures of these concepts were explored. The analytical framework for the study, consisting of the components of capacity building in the water sector, the factors affecting community level capacity building and the effects of these on operation and maintenance and ultimately sustainability of water facilities were discussed.

Chapter 3 discussed in detail the methodology adopted to undertake the study. In this vein, the sampling design, the data collection and analytical techniques were discussed. A description of the study area was also presented in this chapter.

Chapter 4 covered the analysis of the capacities of community level management structures for the operation and maintenance of water facilities. Here, data collected from the field was analysed and findings presented.

Chapter 5, the concluding chapter, provides the summary of the study as well as recommendations to the findings which emanated from the study.

CHAPTER TWO
CONCEPTUAL AND ANALYTICAL FRAMEWORK FOR COMMUNITY
LEVEL WATER MANAGEMENT STRUCTURES

2.1 INTRODUCTION

The previous chapter focused on the introductory phase of the research highlighting the problem statement, research questions and objectives, the scope and the justification/significance of the study. This chapter is designed to examine the conceptual and analytical underpinnings of community level water management structures and the required capacity they need to operate and maintain water facilities on sustainable basis. Here, relevant concepts and terms such as community capacity in the context of this study; Community Ownership and Management; and sustainability were examined. The global experiences in terms the successes and failures of these concepts were explored. The analytical framework for the study, consisting of the components of capacity building in the water sector, the factors affecting community level capacity building and the effects of these on operation and maintenance and ultimately sustainability of water facilities were discussed. Also discussed in this chapter are the various management models at the disposal of the various community level management structures in Ghana.

2.2 DEFINITIONS, THEORETICAL AND CONCEPTUAL REVIEW OF CONCEPTS

2.2.1 Community Ownership and Management Concept

A community can be referred to as social relations characterized by personal intimacy, emotional depth, social cohesion, and continuity in time (Nisbet, 1969 cited in Doe and Khann, 2004). Checkoway (1995) cited in Doe and Khann, (2004) however, defines a community as a process through which people take initiative and act collectively. Thus a community is a group of people, with similar aspirations and capable of taking collective decisions and actions for their common good within a certain locality.

Laverack (2001) cited in Braimah and Fielmua (2011) explains that the organizational aspects of a community may act as a proxy measure for the social aspects of community

empowerment. For instance, the existence of functional leadership supported by established organizational structures with the participation of community members who have demonstrated the ability to mobilize resources would indicate a community which already has strong social support elements for community empowerment. The vehicle through which the collective action is exercised for the common good is community management. The viewpoint of (Cotton and Tayler, 1994) cited in Braimah and Fielmua (2011) is that conventional modes of infrastructure provision have failed countless millions of urban dwellers and community management offers the potential alternative solution.

Wood (1994) defined community management as management through democratically elected representatives of the community. Wegelin-Schuringa (1998) considers community management as a form of community participation while McCommon, et al (1990) distinguished community management from community participation by stating that community management is taken to mean that the beneficiaries of the service have responsibility, authority and control over the development of such services, sustainability being the point of emphasis. All the authors have used different terminologies in defining community management but conceptually they are describing the same thing: a bottom-up development approach where the community members have a say in their own development; and the community assumes control – managerial, operational and maintenance responsibility – for the development scheme in question through their elected representatives for community development through empowerment.

In Ghana, there are two types of community managed water systems. One is the water systems built with the support of CWSA, Development Partners, and MMDAs. The other type is water systems, mainly Small Towns Pipe Systems transferred from the GWCL to DAs for community management. The latter are often governed by a memorandum of understanding signed between GWCL and CWSA. As part of the reforms in the water sector, 124 Small Towns Pipe Systems were transferred from GWCL to the DAs for community operation and management (CWSA, 2007) cited in Braimah and Fielmua (2011).

According to Morita-Lou and Waters (2008), the sense of ownership (and actual legal ownership) that the village water entities have over their facilities is in direct contrast with the understanding that communities had in the past. The implementers used to work alone in identifying sites and constructing the schemes, and when they broke down, the villagers did nothing to repair them but rather waited for the implementers because the systems, in their view, belonged to them. With the advent of COM there is a widespread idea that ownership of facilities will lead to responsibility for their management; though in reality, just because a community owns a facility does not necessarily mean that it will acquire a sense of responsibility for its management, nor does it guarantee a willingness to manage or pay for its Operation and Maintenance (O&M). Therefore, it may be more effective to abandon the desire to achieve COM and rather develop a sense of responsibility for financing the upkeep of the facility (Harvey and Reed, 2007). This view cannot hold universally because knowledge of ownership influences attitude and behaviour towards facility management. On the contrary, Maganga and Butterworth (2002) in Braimah and Fielmua (2011) see community ownership as a means of achieving sustainability through community investment and commitment to their schemes, and specifically through the mechanism of village water committees. Therefore the creation of a sense of ownership could guarantee sustainability of facilities.

According to WHO (1996) cited in Braimah and Feilmua (2011) community management means that the beneficiaries of water supply and sanitation services have responsibility, authority and control over the development of their services. Responsibility implies that the community takes ownership of the system, with all its attendant obligations and benefits/liabilities whilst authority indicates that the community has the legitimate right to make decisions about the system. Control implies that the community has the power to implement the decisions regarding the system. McCommon et al (1990) conceived that the control element as contained in this definition distinguishes community participation (where the government and other institutions may have control) from community management (where the community has control). The community may receive external support, but it must be the community itself that actually owns the system, makes the decisions on when to call for this support, and

exercises control over access to the system. It is a model in which professionals are “on tap, not on top” (Brennan 1994) cited in Feilmua (2011).

Some developing countries have made community management a part of their decentralization plans, transferring responsibility for rural system management to the users. Various donors support this trend, suggesting that a community's responsibility for the improved facilities goes hand in hand with its sense of ownership for the systems (Donnelly-Roark 1987, McCommon et al. 1990, IRC 1988). Responsibility and ownership, however, are closely tied to training and capacity-building, all of which require support from institutions with more resources than communities can command. Increasingly, central and national water and sanitation institutions recognize these needs and recognize, too, that community management encompasses far more than the central government's transferring of responsibilities to sub national (or regional) units and communities. Indeed, community management may falter or even fail completely unless the central government provides enough support both during and after the transfer. Looking at the two ends of the spectrum, community management efforts at one end and the institutions needed to support them at the other, it is clear that their interconnectedness is not always understood (Yacoob and Rosensweig, 1992)

2.2.2 Global Experiences of Community Ownership and Management of Water Infrastructure

This section covers experiences from other countries with regard to the capacity of community members to operate and maintain water facilities sustainably. The countries case studied were Suriname and Bolivia.

Community-Managed Systems in Suriname

The Suriname case discussed here is largely taken from the account by Smith (2011). Suriname can be divided into three main population groups: the urban capital of Paramaribo and its suburbs, the coast, and the interior jungles. There is a vast degree of inequity in water supplies between the three areas of Suriname, with drinking water available to 92.6% of people living in urban areas, 66.6% of people living in the coastal region, and to just 20% of the people living in the interior of the country. Water supplies in the interior are overseen by the Ministry of Natural Resources instead of the Suriname

Water Company (IDB 2008; PAHO 2010). Although there are a few community water systems managed by the Ministry of Natural Resources, the majority of Saramaka communities do not have access to improved sources of drinking water. To fill this gap, nongovernmental organizations (NGOs) and other organizations have stepped in with a variety of interventions ranging from slow-sand filters for households to water systems constructed using the demand-driven, community management model. This model is rooted in the demand-responsive approach in which water is treated as an economic good. In water projects that follow this model, the communities are responsible for part or all of the capital investment to build the water system, and all of the subsequent operation and maintenance costs, paid for with user fees. In Suriname, where it is referred to as the Botopasi model, this model is currently endorsed by the government of Suriname for water supply in the interior. In Saramaka, the typical initial community contribution ranges from 15-25% of the total project costs, paid for with labor and materials but not cash. All operation and maintenance is solely the responsibility of the communities.

It was observed that few of the water supply systems in the interior of Suriname appeared to be working. Anecdotal information from other areas in the interior revealed that the problem was widespread. The prevailing narrative about these systems from local development groups and the government was that these systems were not functioning due to the communities' weak capacity for operation and maintenance. A report issued by the Ministry of Natural Resources stated the problem with the failed water supply systems as such: "In the end the community has not been fully empowered and will not take enough of their own responsibility. With limited sense of ownership communities have been proven not to be able to facilitate capital development and technical capability for maintenance." However, other signs indicated that the problem was not necessarily the community, but the technical failure of the water supply systems.

Locally Managed Domestic Water Supply in Bolivia

The Bolivia situation discussed below is principally extracted from the account by Bustamante, Butterworth, et al (2004). Locally-managed water supply systems are common in rural and peri-urban Bolivia. Although to some extent acknowledged by national policies of decentralisation and local government, these locally-managed water

supply systems do not fit neatly into national policies and plans for water and sanitation, especially at the peri-urban interface. In urban and peri-urban areas the current policy is to develop large centrally-managed water and sanitation utilities. A new water and sanitation project based upon these policies is currently being planned in the municipalities of Tiquipaya and Colcapirhua, close to the city of Cochabamba. This project will clearly result in major changes for locally-managed water supply systems in the area, if they survive at all over the long-term. This paper considers the performance of existing locally-managed water supply systems, based upon a study of 28 systems, and their potential outlook. Possible future scenarios for such community-managed systems are relevant to other peri-urban areas in Bolivia and elsewhere. The conclusions of the study are given below:

Conclusions

- A study of locally-managed domestic water supply systems in peri-urban Tiquipaya and Colcapirhua near Cochabamba, Bolivia revealed a diverse pattern of community-managed water committees and cooperatives providing services. Variations between systems include differences in source of water, legal arrangements, quality of services, and tariffs, and not least, the readiness of the systems to cope with change.
- Though several of the locally-managed domestic water systems face management, water quantity, or water quality problems, the overall picture is one of a service that is reasonably good, and certainly not worse than the nearby large and centrally managed SEMAPA Company that serves Cochabamba
- Several actors in Tiquipaya and Colcapirhua have contested the arrangements for the proposed new water and sanitation project (MACOTI) which has already led to changes in project design such as the proposals to supply bulk potable water to existing small systems. This project, along with other pressures such as the requirements of new legislation, is likely to lead to major changes for locally managed water supply systems over the next 10-20 years.

- A consultation process currently underway to revise the planned MACOTI project (*Mesa Técnica*) and the call by the Vice-Ministry of Water Services is an opportunity to further this debate.
- Tiquipaya and Colcapirhua are not isolated examples, and given the importance of locally-managed domestic water supply systems in Bolivia, what happens in the future will be important for the future of domestic water supply institutions in other peri-urban areas of the country.
- A key recommendation is that specific policies and support mechanisms (including investment in capacity building) are required to support locally managed domestic water supply systems. Recognising and tapping the contributions of local communities may often lead to greater efficiencies, and be more sustainable, than large and centrally-planned systems.

2.2.3 Community Management Model as a Tool for Managing Water Supply

Community management of water supply is now in its second decade as a leading paradigm for water supply development and management in rural communities. Community management approaches did not appear spontaneously, nor do they exist in a vacuum. They emerged from a history of trial and error in the rural water supply sector and are linked to, and affected by, developments in many other sectors particularly those related to more general rural development. The rural water supply and sanitation sector itself gradually emerged in the two decades prior to the 1980s International Drinking Water Supply and Sanitation Decade (IDWSSD) (Lockwood, 2003).

From Supply-Driven to Demand-Led Approaches

During the 1960s and 1970s, international and national efforts focused largely on increasing coverage through the so-called “supply-driven” approaches. These assumed that governments knew what was needed and could provide the maintenance and management capacity required (Nicol, 2000). In most cases, the only solutions international donors had to offer were complex and only affordable to an elite minority, leaving a large majority of people without services of any kind.

During the IDWSSD the concepts of community participation and the promotion of appropriate technologies became established as part of efforts to meet the optimistic targets of “water for all”. Although the IDWSSD failed to meet these targets, the concept of community participation was extended to include operation and maintenance and, most importantly, cost-sharing of water supply systems. This idea marked an important step towards basing the provision of services on demand, rather than the conventional supply driven model, and complemented efforts to create ownership of services on the part of communities (Nicol, 2000). During the 1980s and 1990s a variety of different actors, with very different agendas signed up to community management concepts:

- Governments saw community involvement as a way of reducing demands on overstretched resources and making up for lack of capacity. As one commentator states: “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);
- Donors saw an opportunity to stretch development budgets and expand implementation of water supply and sanitation facilities, and to bypass the problems posed by inefficient and often corrupt governments;
- Non-governmental organizations became the voice of the community and happily seized an opportunity to increase their role, becoming in many countries a parallel provider of services and, in that respect, a kind of parallel government; and
- Multilateral lending institutions such as the World Bank saw community management as an ideal vehicle for their messages about reduced government involvement, and increased private sector and civil society roles.

The general transition from supply to demand-driven approaches also fits with broader trends towards decentralization of government services and transfer of responsibilities to lower levels of government and ultimately to communities themselves (Nicol, 2000). This is most applicable in countries where the decentralization process is at a more advanced stage and where local tiers of government have greater capacity. At the same time, community management is also seized upon as a solution in countries where

government is weak or non-existent, or where communities are forced to be more self-reliant because of on-going conflict. In these cases, water supply is delivered by projects in which full responsibility for management falls on the community by default.

The community management model brings many benefits. It has been seen as an answer to the failure of previous, supply-driven approaches to providing rural water services, which often did not meet the real needs of users and resulted in systems which broke down far earlier than the end of the design life. There is now a growing body of evidence to suggest that better quality participatory planning and management leads to better performing community water supplies. (Gross et al, 2001).

2.2.4 Community Managed Water Supply Delivery Models/Structures in Ghana

The Government of Ghana launched the NCWSP in 1994 to address the problems of water and sanitation in rural communities and small towns. A cardinal principle of the NCWSP was the COM concept, which entails effective community participation in the planning, implementation and management of the water and sanitation facilities in the belief that, as custodians, communities will ensure the sustainability of these systems.

The main components of the NCWSP are: safe water supply; improved sanitation, and hygiene promotion. These three elements are to be supported through inter-related efforts in training for decision makers, project and private personnel, trainers and community members, and a programme of promotion and support to expand the capacity of the private sector to provide services within the context of the NCWSP.

The NCWSP has made some progress since its launch in 1994. The achievement of the programme finds expression in the quantum leap in coverage, the development of appropriate institutional structures and capacity, and the high level of financial inflows into the sub-sector.

Effective operation and maintenance of facilities calls for the existence of an efficient institution to monitor and control the use of the facilities as to ensure the efficient mobilization and utilization of resources required. However, such a community-based institution can only stand the test of time if it is formed out of a felt need identified by the community itself and not externally imposed.

The strategic objective of operating and maintaining point sources and small towns pipe systems is to ensure sustainability through an effective overall administrative, technical and financial management of the systems by appointed group of community members referred to as WATSANs/WSDBs with the support of relevant public and private sector institutions (MWRWH, 2010). According to (MWRWH, 2010) point sources and Small Towns Water Supply Systems shall be operated and maintained in a sustainable manner by meeting the following requirements:

WATSANS

- Community Mobilisation and Hygiene/ Sanitation Promotion
- Management of Water Points

WSDBs

- Delivering to consumers the design quantity of water.
- Producing water to Ghana Standards Board Water Quality Standards.
- Delivery of water in a cost effective manner (in accordance with tariff guidelines).
- Delivering water in a virtually uninterrupted manner (at least 95% of the time).
- Planned routine and periodic maintenance are carried out for all electro mechanical equipment and civil works structures.

Water Supply Systems shall be operated and maintained either directly by the community or through contractual arrangements with private companies. All operational staff of private companies or community members engaged to operate and maintain the systems shall be provided with adequate training and shall be certified to perform their respective duties. Periodic refresher training shall be provided to such staff.

Adequate records shall be kept on the operation and maintenance of the water supply system for analysis, reporting and informed decision making.

Operational Management Options for WSDBs (Small Towns Pipe Systems)

According to (MWRWH, 2011) there are four main options for the Management of Operations and Maintenance of the Small Towns Water Supply Systems. There is also one generic management option for point source facilities (Boreholes and Hand-Dug

Wells with pumps). The main operation and management options prescribed by CWSAs Operation and Management guidelines include but not limited to the following:

Option 1: The community, through its WSDB and employees, operates and maintains the Water Supply System entirely by itself (non-mechanised systems e.g. gravity water schemes). A trained Manager, Operator, and Financial/Administrative staff are employed by the community to carry out daily operation and maintenance activities. They are supported by skilled artisans, e.g. plumbers and masons, from within the community whose services may be procured when necessary on a retainer basis. Communities with up to 5,000 people served with non-mechanised systems (e.g. gravity water schemes) may adopt Option 1, provided they are interested and committed to the operational management of the Water Supply Systems themselves.

Option 2: The community, through its WSDB engages staff for the daily operation (financial, administrative, and technical) and maintenance and calls a certified/reputable firm to carry out specialised technical, financial or administrative functions as and when needed. Such functions may include the preparation of financial reports, internal auditing or some aspects of planned maintenance. Communities of 5,001 – 10,000 people served with simple boreholes, gravity or slow sand filtration based piped systems may adopt Option 2 or preferably Option 3 to ensure the sustainability of mechanised systems and reduce the repair cost.

Option 3: The community, through its WSDB engages staff for the daily operation (financial, administrative, and technical) and maintenance and signs a contract with a firm or firms to perform other specialised technical, financial or administrative functions on a periodic basis. Such functions may include the preparation of financial reports, internal auditing or routine/preventive maintenance. The difference between option 1 and 2 centres basically on the mode of contracting. In the case of option 2, a fixed contract is signed between the WSDB and an external private company to perform specialised functions, whilst in the case of option 1, the WSDB contracts external companies to perform specialised functions as and when their services are needed.

Option 4: The community, through its WSDB contracts a firm to completely operate and maintain the Water Supply System including meter reading, billing and revenue collection, etc., for an agreed fee. This arrangement enables the WSDB to set performance standards for a set period of time. Communities with populations of above 10,000, and/or communities served with complex Water Supply Systems shall adopt Option 4.

Other options may be considered exclusively for the production and distribution components of the Water Supply System. Option 2 or 3 may be adopted for the management of the production component of a system, provided it consists of a surface water treatment plant or several mechanised boreholes. However, the same or a different option may be adopted for the distribution network, depending on its size and complexity.

Each WSDB, in consultation with the community it represents, and with the relevant technical support provided by the CWSA decides on the management option to be adopted. The choice of the most appropriate option depends on a number of factors, which include:

- The complexity of the Water Supply System;
- The quantity of water being produced/Number of people served;
- The availability of private firms to provide the relevant services required;
- The socio-economic status and heterogeneity status of the community, and
- The interest and commitment of the community towards operational management of the system, etc.

Operational Management Options for WATSAN Committees (Point Sources)

WATSAN committees generally manage point sources such as stand posts, hand dug wells and boreholes fitted with pumps and more recently mechanized borehole(s) with holding tanks for settlements with population between 150 and 2000. Stand posts are normally constructed as part of small towns' water supply systems. A number of them located within a particular section of a town are normally kept under the management of a WATSAN committee. Representatives of the different WATSAN committees for the

various sections of the community normally constitute the WSDB for the small town water supply system. Besides the stand posts, hand dug wells constructed for settlements with population thresholds of 150 and boreholes fitted with pumps for settlements with populations of 300 are also under the management of WATSAN committees. Through community meetings, community members have voices in determining tariff levels, changes to the composition of the committee and the way the water system should generally be managed. In cases where the pay as you fetch system is practiced, a vendor is appointed to collect moneys at the water point and is paid a commission on the sales made. The money collected by the vendor is lodged with the treasurer of the WATSAN committee who pays it into the committee's account.

2.2.5 Community Capacity

Capacity can be defined as a cluster of related abilities, commitments, knowledge, and skills that enable a person (or an organization) to act effectively in a job or situation. It is believed that communities do have the potential to accomplish the task they are assigned given the right conditions and incentives. This perhaps is the justification for community capacity building. Capacity building can be said to be the conscious efforts at creating the enabling environment and helping to provide the competence and means to enable a stakeholder participate meaningfully and fully as an equal partner in development. Whilst it is argued that all stakeholders must work collaboratively to advance development projects, it should be recognized that different stakeholders have different powers, interest, resources, abilities and experiences. Whereas some have the capacity to participate but are inhibited by various external and internal factors, some others have the willingness to participate but do not have the capacity to do so. And for these reasons, the UNDP/World Bank (1995), recognizes that 'arrangement need to be put in place to level the playing field and enable different stakeholders to interact on an equitable and genuinely collaborative basis'. It is in the light of these that the NCWSP identified capacity building as an important component of community water and sanitation delivery in Ghana. This is especially crucial for the project beneficiaries as the long term sustainability relies on them.

According to the MLGRD (1996), capacity building through training is a process of imparting theoretical and practical knowledge, skills, confidence building and attitude change to individuals so that they can achieve performance improvement that leads to empowerment. Midgley et al, (1989), also viewed community capacity building as the ‘creation of procedures for democratic decision-making at the local level and involvement of people in these procedures to the extent that they regard them as a normal way of doing things’. Community capacity building was further perceived as the establishment of decision-making bodies at the local level. Such bodies can either be a properly constituted authority linked to the district, regional and national decision-making bodies by legal and administrative procedures or can be structured grassroots associations that rely on popular involvement for support. The first view point is associated with decentralization policy where relationships between the local level institutions and those above are established by law and as such formal. In the second view point, their establishment arises from the need for collective action to accomplish a community task which is of crucial importance. An example is the establishment of WATSAN Committees in water and sanitation project beneficiary communities in Ghana. With regards to community capacity building, therefore where local organizations are conceived as the crucial element, the focus on the promoting agent tends to be on designing an institutional framework which entails the definition of roles, functions, procedures and organizational forms.

2.2.6 Capacity Building in Water Facility Management

Improving capacity and everything it entails (providing training, skills transfer, logistics and equipment), is a key element of any scaling up effort. According to Lockwood (2004), capacity building is required for scaling up efforts at various levels and with differing objectives:

- The community and water committee structures must acquire the necessary skills and capacities to participate in demand-responsive projects, to articulate their needs, to make decisions and, to be able to operate and maintain their facilities in the long term. Community management does not only require technical and

managerial capacities, but knowledge of areas such as hygiene behaviours, communication, conflict resolution and environmental protection;

- Local governments in many cases may have the mandate to provide support for planning, construction and maintenance of water supply services, but will often lack the capacity (financial, managerial, technical) and often will not be aware of best-practice approaches such as participatory techniques and Demand Responsive Approach;
- Private sector service providers are important actors in long-term operation and maintenance efforts, especially small local enterprises or individual community-based artisans. They may require training in new designs, use of new materials or manufacturing or repair techniques. In some instances, they may need some form of financial subsidy to encourage their participation in local markets for the supply of goods and services;
- Other intermediate-level actors such as multi-community associations of water committees or NGOs can provide long-term support, but may require training and capacity building in many of the areas outlined for local government and/or community management structures; and
- National government line ministries responsible for water supply may be unfamiliar with aspects of scaling up, and possibly with the concepts and requirements of the community management model. Training and orientation may be required in any of these areas. In cases where central ministries are poorly equipped, inputs such as computers, plotters or GIS systems may also be necessary to bolster the capacity for effective monitoring, strategic planning and resource allocation.

2.2.7 Sustainability

Abrams (1996) cited in Gbena (2002) defines sustainability as ‘whether or not something continues to work over time. The proof of sustainability is whether water continues to be accessed at the same rate and quality as when the supply system was installed. Abrams further points out that for water to continue to flow, certain elements that are required for

sustainability must be in place. These include money for recurring expenses and occasional repair, acceptance from consumers of the service, adequacy of the source supplying the service, as well as proper design and construction of the facility.

According to Fekade (1994) cited in Frempah-Yeboah (2000), sustainability refers to continued production of goods and services in a self-reliant manner. He noted that when a project is initiated from outside the community then, sustainability implies the capacity of the villagers/local institutions to continue both the processes and outputs of development projects once external support is withdrawn. According to the IRC (1996) cited in Gbena (2002), a development programme is sustainable when it is able to deliver an appropriate level of benefits for an extended period of time after major financial, managerial and technical assistance from external donor is terminated.

Generally, a common water project will be sustainable if the benefits (accessibility, reliability, continuity, socio-economic and health impacts) of the facilities continue to be realized over a prolonged period of time, which goes beyond the lifetime of the infrastructure. According to the IRC (1996) cited in Gbena (2002), this can be reached if, among other things

- The facilities are operated and maintained in a condition which ensures a reliable and adequate water supply;
- The financial amount required for operating, maintaining and managing the systems is affordable and are generated through sound recovery practices;
- All community members are actively involved in the design, planning and management of the scheme;
- The technology choice corresponds to the needs, desired service level and its cultural acceptance;
- Spare parts are available and affordable; and
- Support system is in place, in terms of capacity building, technical assistance and legal framework

2.2.8 Critical Issues for Sustainable Community Water Ownership and Management

The existing range of water projects such as small town pipe systems and boreholes constitutes a major asset of the government and the beneficiary communities, but the value of this asset depends upon the quality of its maintenance. Water systems just like any other development structure require regular maintenance. There is a consequence of laying much emphasis on the rate of construction at the cost of neglecting necessary maintenance of water supply system already built (Clark, 1988).

The Government of Ghana, under the NCWSP prescribes that rural communities and small towns should be made responsible for managing their water facilities to ensure sustainable water supply. In view of this, communities are to take charge of all recurrent costs for operation and maintenance. However, anecdotal evidence from water supply practitioners indicate that several towns and communities have fallen short in this area due to their inability to raise enough funds to ensure regular operation and maintenance of the water facilities.

As a result, Clark (1988) postulated three main aspects of water system management and these include monitoring, maintenance and rehabilitation. Monitoring is required to show the need for active maintenance measures, maintenance (servicing both the pumps works and well structure) is needed to sustain water systems performance. Some people may attempt to equate maintenance of water systems to water system rehabilitation. This is not wholly true because maintenance involves a programme of routine actions taken to prevent the deterioration of water facilities with rehabilitation being the action needed to repair a water facility that has failed through inadequate monitoring and maintenance (Clark 1988).

WASH News Africa (2009) asserts that one out of every three water facility system (boreholes, hand-dug well, small town pipe system) does not function in Africa and for that matter Ghana. This comes to reinforce Skinner's (1988) view that a total breakdown of pumps-works through lack of maintenance is rare in developed countries but is probably the most important reason for water system facility failure in developing countries.

Preventive maintenance has proved to be preferable to emergency repairs and should therefore be guided by routine inspections in order to timely identify problems (Skinner, 1988). Besides, most of the water facilities do not achieve their life span which brings about undue water crises in most African countries. The problem of low or no access to improved safe drinking water in Africa has always been with maintenance and sustainability and not with the availability of the physical projects or water facilities.

2.2.9 The Institutional Framework For Rural Water and Sanitation Delivery in Ghana

This section presents an overview of the institutions/structures that undertake rural water and sanitation sector planning and decision making in Ghana. The purpose of this review is to identify the prescribed roles of the various stakeholders and the linkages that are expected to exist between them for planning and decision making within the sector. The institutional framework of the Rural Water and Sanitation sub-sector is shown in figure 1 below.

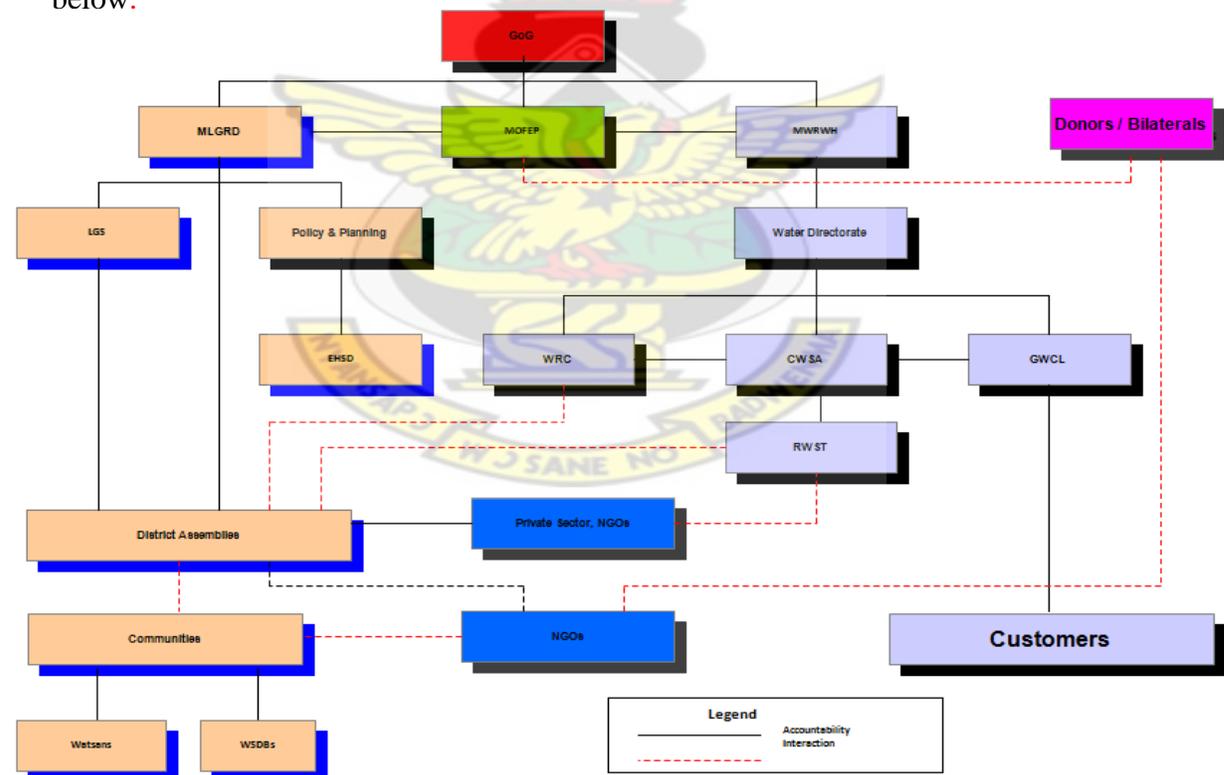


Figure 1: The Institutional Framework for Rural Water and Related Sanitation Delivery in Ghana

Source: CWSA Project Implementation Manual

National level

Sector ministries such as the Ministry of Water Resources, Works and Housing (MWRWH), the Ministry of Local Government and Rural Development (MLGRD), and the Ministry of Finance and Economic Planning (MoFEP) constitute the principal stakeholders engaged in policy planning in the water and sanitation sector. Other ministries such as Health and Education play (minor) collaborative roles with the principal stakeholders for the implementation of many water and sanitation programmes. Development Partners/Donors provide financial, material and technical assistance for water and sanitation activities and also participate in policy dialogue, monitoring and evaluation and project steering committee meetings. According to CWSA (2007b) about 88% of investment finance for water and sanitation facilities in 2006 was obtained from these partners with less than 12% from domestic sources. The policies and principles of these partners often influence the sector's policy formulation, planning and allocation of financial resources for the sector's activities, which in turn, impact on the water service delivery at the local level. Also working closely with the various ministries and Donors as coordinating agencies for the various national agencies responsible for the delivery of water and water –related sanitation to rural communities and small towns are the Water Directorate of the MWRWH and the Environmental Health and Sanitation Division of the MLRD. Below these coordinating bodies are the CWSA, GWCL, WRC. The CWSA and GWCL supply potable water to rural communities/small towns and urban areas respectively whilst the WRC manages water resources, both surface and underground. The GWCL, apart from providing 2% of total urban water levies collected to CWSA for rural water provision, also collaborates with CWSA in the provision of water to peri-urban communities.

Sub-national level

The Regional Co-coordinating Councils (RCC) is the administrative and coordinating body for decentralised administration. Its functions amongst others are to: coordinate, monitor and evaluate the performance of MMDAs in the region; monitor the use of all funds allocated to the MMDAs for water and sanitation interventions at the local level; and review and coordinate the activities of government institutions in the region.

The Community Water and Sanitation Agency (CWSA) is responsible for the management of the NCWSP and supports the RCC with technical support to monitor and evaluate water and sanitation interventions. It is mandated by its Act of establishment to provide technical back-stopping and overall guidance in project implementation, capacity building, advocacy, supervision, monitoring and evaluation, research and development for MMDAs and communities. It reports on project progress to Government and Development Partners. The Regional Offices appraise funding requests and authorize disbursement of funds for approved sub-projects.

District level

At the sub-regional level, the Metropolitan/Municipal/District Assemblies (MMDAs) are responsible for infrastructural development in their areas of jurisdiction. They are the lead implementation agency and through their District Water and Sanitation Teams (DWSTs) or District Works Departments promote projects in all communities. The DWSTs prepare and submit annual work plans and budgets for approval by the MMDAs. Specific activities undertaken by the MMDAs in project implementation include but not limited to the following:

- Promotion and dissemination of information on community water and sanitation Projects to generate the interest of all communities
- Identification of interested communities and prioritization of communities based on established criteria
- Appraisal of community sub-project proposals
- Auditing, reporting and monitoring of sub-project activities
- Follow up of operation and maintenance by communities and reporting to the CWSA
- Preparation and review of District Water and Sanitation Plans (DWSPs)
- Preparation of annual work-plans, budgets and procurement plans.
- Signing of sub-project agreement with communities
- Signing of consolidated sub-project agreement with CWSA

- Procurement of works, goods, services and disbursement of funds for implementation of the community sub-projects
- Monitoring of project implementation
- Undertake technical appraisals for selection of consultants and contractors
- Opening and operating an account solely for NCWSP projects (Project Account).
- Management of database-on community water and sanitation

The Private Sector, Civil Society Organizations (CSOs) and NGOs and Community Based Organisations (CBOs)

The private sector, including contractors, consultants and Partner Organisations (POs) are contracted by MMDAs/CWSA to provide works, goods and services. They collaborate with the relevant stakeholders such as CSOs, Community Based Organisations (CBOs) and NGOs in project evaluation, sector capacity building and operation and maintenance of facilities. Some CBOs engage in self-help activities whilst the NGOs engage in service delivery, thematic research and knowledge sharing, advocacy and policy dialogue mainly with external financial support.

Communities

The community is the ultimate beneficiary of the projects. The beneficiary community or small town elects a gender-balanced voluntary group known as WATSAN Committee/Water and WSDB for point sources and Small Towns Pipe Systems respectively in line with the bye-laws for their election. The composition of the committee/board has at least 40% women representation. The WATSAN Committees/WSDBs are involved in sub-project planning, implementation and management of their facilities. They sign off completed works and community development activities. Other key responsibilities of the communities include:

- Promoting and disseminating information on projects within the community
- Identifying needs, planning and implementing the small community/small towns sub-project proposal
- Participating in technical designs of water supply and sanitation facilities

- Ensuring that all members of the community, especially women, actively participate in decision-making
- Adopting a constitution that guides the operations of the WATSAN committees/WSDBs and seeking approval from the District Assembly
- Ensuring proper financial management
- Monitoring of Technical Assistance activities and construction (with the help of a check-list provided by the MMDAs)
- Undertaking hygiene education and sanitation promotion;
- Undertaking participatory monitoring and evaluation of activities;
- Mobilizing funds and other resources for capital cost contribution and operation and maintenance
- Preparing Facility Management Plans
- Ensuring sustainable operation and management of water and sanitation facilities.

Community Level Management Structures (WATSAN Committees and WSDBs)

The detailed administrative, technical and financial functions prescribed by the NCWSP and examined in this study are:

Administrative Functions

- Correspondence and record keeping
- Meetings- Board/Committee and community meetings
- Preparation of reports (administrative, financial and technical)
- Supervision of Employees
- Stock keeping of all materials and consumables
- Preparation and Implementation of Maintenance Schedules
- Contract Management -Supply contracts, Operation and Maintenance Contracts, Employee contracts, Maintenance of equipment contracts.

Technical Functions

- Pump Operation

- Trouble Shooting
- Routine, Periodic and Breakdown Maintenance
- Rehabilitation of System
- Expansion of System
- Water Quality Monitoring
- Data Collection, Interpretation and Reporting
- Operation and Monitoring of the Production Plant

Financial Functions

- Tariff setting
- Meter Reading, Billing & Rev.
- Banking -Monitoring by Cashier/Treasurer
- Accounting (Bookkeeping)
- Financial recording and reporting – to the community
- Store keeping/Stock Taking

2.3 ANALYTICAL FRAMEWORK

The capacity of community level management structures to manage water facilities on sustainable basis is a function of multiple factors. This section of the study seeks to investigate the nature and form of these factors and how they impact on the capacity of community level management structures to effectively operate and maintain water facilities sustainably.

2.3.1 The Framework for Capacity Delivery for Management Structures

The capacity of community level structures to operate and maintain water facilities can broadly be categorized into three namely; technical, managerial and financial. Technical capacity includes pump operation, trouble shooting, routine maintenance, periodic maintenance, breakdown maintenance etc. It also encapsulates the ability of the management structures to determine the cost of operation and maintenance activities and to mobilise sufficient resources for the implementation of the activities.

Administrative capacity entails skills such as records keeping, regular calls for meetings, organization of meetings etc, whilst financial capacity dwells on fund mobilization, usage

and accountability. All these components, as depicted in figure 2 below, are in turn influenced greatly by training, resource availability and acceptance of the structures by the communities in which they operate. Other factors which are essentially external include political and socio-economic conditions and networking and collaboration. The factors are intertwined and sometimes difficult to isolate and analyse individually as they are not mutually exclusive, but integrated (Fremphah-Yeboah, 2000). Crawford, (1991) as cited in Fremphah-Yeboah (2000), however reiterated that most of the weaknesses of local institutional building initiatives have tended to focus on emphasizing one or two of these components to the exclusion of the other.



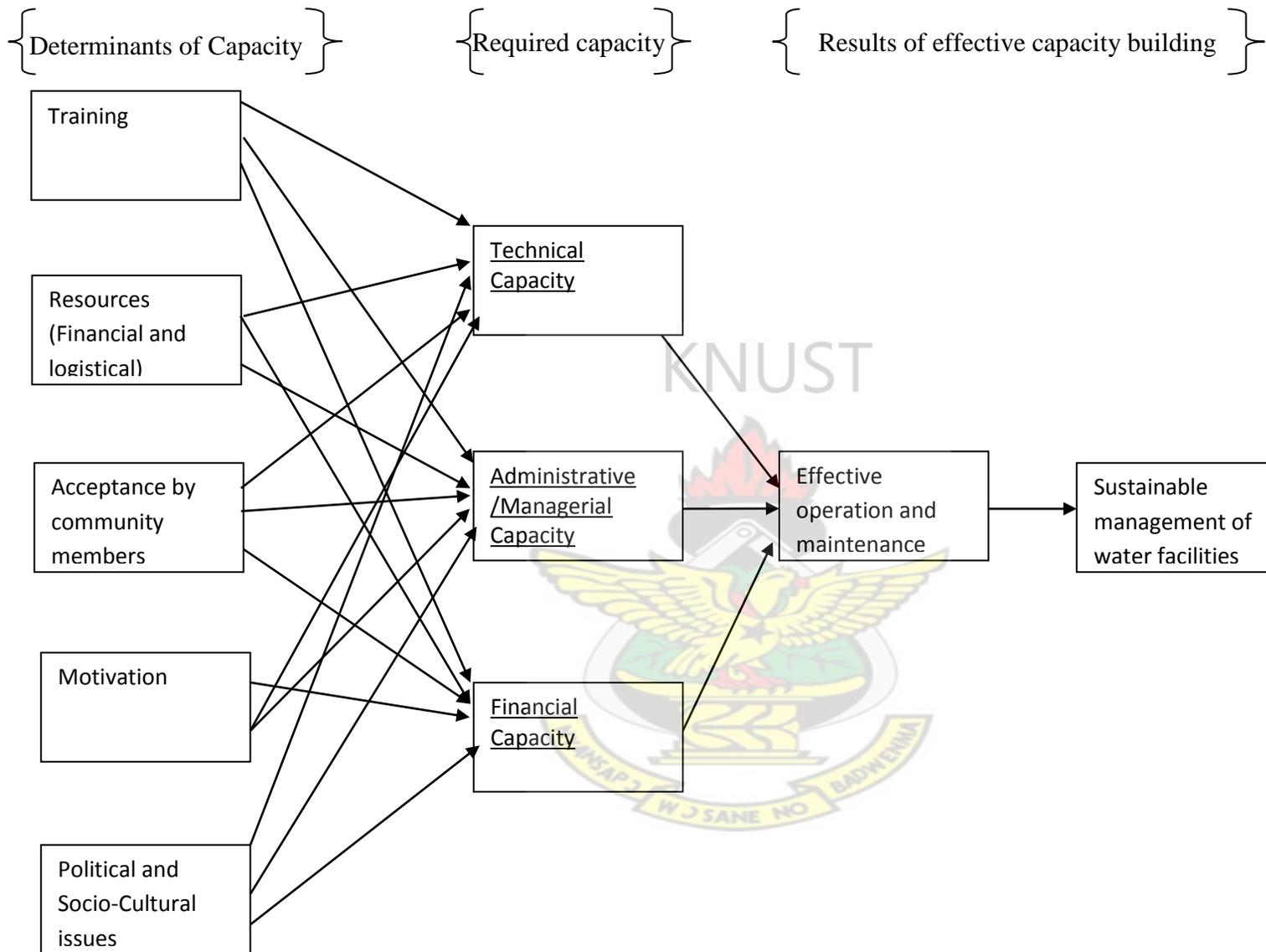


Figure 2: Analytical Framework for Capacity Building for Community Level Water Management Structures

Source: Author's Construct, June 2011

2.3.2 Factors Determining the Capacity of Community Level Management Structures

The capacity of community level management structures to operate and maintain water facilities is a function of multiple variables. These variables range from training to resource availability, motivation, acceptance by community members as well as political and socio-economic factors. These variables constitute the base of the analytical issues informing this study and are discussed in this section.

Training

Training can be described as an organized activity aimed at imparting information and/or instructions to improve the recipient's performance or to help him or her attain a required level of knowledge or skill. The prerequisite for ensuring sound management of community managed water and sanitation facilities is that the owners have the necessary capacity and where this is not the case, they should receive training. The steps involved in the training process are identified as: doing a training needs assessment; designing the training to meet identified needs; developing training materials and resources; delivering the training and evaluating the training. The last stage of the process is meant to assess whether the intended objective of imparting skills or instructions to improve the recipients' performance materialized or not. If not, then retraining may be needed.

Availability of resources

Community members may be trained and have the capacity but may perform poorly due to the lack of the requisite resources in the form of logistics, spare parts etc to work with. They may also not perform well if they do not have adequate motivation and do not enjoy reasonable support from community leaders/members.

The IRC (1996) cited in Frempah-Yeboah (2000) noted that, the essential element in community performance in operation and maintenance is not the degree of simplicity of the technology. Rather the critical item appears to be external to the community, notably the guaranteed local availability of spare parts supplied through the private sector. Simply in terms of keeping the physical infrastructure working, an adequate supply of spare parts and maintenance tools is obviously of primary importance to long-term sustainability. Supply chains are now recognised as one of the “*key determinants of sustainability*” (Davis and Iyer, 2002), especially where the

technology provided is imported, which has often been the case with large-scale hand pump programmes in Africa for example. The majority of recent World Bank proposal documents focus attention on the creation and support of spare part outlet chains, normally based on private sector providers, precisely to fill this perceived weakness. Linked to the issue of spare parts, is the question of sector standardisation, which is part of the broader policy environment (Adomako-Agyei, 2009).

Motivation

This concerns the willingness, or inducement, of a community to maintain their facility and the level of social capital of the community that enables successful collective action (in this case meaning the maintenance of physical infrastructure and other project benefits) (Adomako-Agyei, 2009). In comparison with all other factors identified as the determinants, these are perhaps the most abstract and difficult to define or measure (World Bank, 2002 in Adomako-Agyei, 2009). Several researchers point to motivation as one of the keys to sustained project benefits. It is commonly agreed that motivation or willingness to contribute to the maintenance of a system is based on a perceived benefit. In the case of a communal water supply system, motivation and willingness must be generated on both an individual and collective basis, amongst both individual household users who pay a tariff and community members who volunteer time and are involved in system management. Taking a broader perspective, external actors must also be motivated to contribute towards supporting community-managed water facilities; local governments may perceive a political benefit, the private sector a profit motive and central government may see sustainable service provision as part of their broader development agenda. For whatever reason, and from whichever perspective, motivation is clearly a critical factor inspiring capacity to sustainably operate and maintain water facilities.

Acceptance of management structures by the community

Fekade (1994) cited in Frempah-Yeboah (2000) indicated that when the role of the local institution is recognized by the community and when they are empowered, then their performance will improve. According to him, 'one of the most obvious lessons of past experience is that the rural poor will invest in active participation only in an organization that is responsive to their most intensely felt needs'. Non-participation can be a consequence of lack of involvement of the community in the project process,

the selection process of the management body, the degree of accountability of the management body and the integrity and calibre of the body.

Political and Socio-Cultural Issues

Communities are complex social realities; for this reason it is impossible to separate the nuances of water supply from the social-political context in which it is provided. Management capacities can be built successfully when there is a clear understanding of the social, economic and cultural characteristics of the community. There have been great differences in project performance among the participating countries, as well as among the communities in any one country. These differences are due to many different factors, many of them rooted in the socio-economic structures of a community. It is generally accepted that in homogenous communities, divisions are either limited or manageable, and are not disruptive of group solidarity and cooperation.

2.4 SUMMARY

The management of water facilities and structures at the community level is a complex and multidimensional task. The process of ensuring effective and efficient supply of potable water requires the establishment of strong institutions from the central to the local levels, capacity building and an effective coordination and collaboration among the various stakeholders involved in the provision and management of water. In addition, financing water facilities and supply is an essential component of ensuring the sustainability of water supply and facilities both in urban and rural areas. Figure 2, as shown above, presents the conceptual and analytical foundation of the capacity of community level structures to manage water facilities on sustainable basis.

CHAPTER THREE

METHODOLOGY AND PROFILE OF STUDY AREA

3.1 INTRODUCTION

The preceding chapter examined the issues related to the theoretical and analytical underpinnings of the study relating to the major and relevant concepts and issues of community-based water management structures. This chapter (chapter three) is focused on the research methodology and the profile of the study area. The chapter contains the research approach and design, the sampling techniques, unit of analysis, data required and sources, data collection instruments and approaches as well as the study variables. In addition, the physical, social and economic characteristics of the study region are discussed.

3.2 METHODOLOGY

This section of the chapter discusses the conduct of the research from the beginning to the end, based on the research approach selected. Also included in the discussion are the justification of the chosen research approach and methods, choice of unit of inquiry and analysis, field procedures which entails techniques of data collection, management, quality control and analysis.

3.2.1 Research Approach

This study adopted the qualitative research approach. This approach to research refers to the use of different methodological approaches, based on diverse theoretical principles employing methods of data collection and analysis that are non-quantitative, and aiming at exploring social relations and describing reality as experienced by the respondents. The qualitative method investigates the *why* and *how* of decision making, not just *what*, *where*, *when*. Hence, smaller but focused samples are more often needed than large samples.

This research, which basically concerns the management of community owned water facilities, takes place under varying political, economic and cultural backgrounds. Community potable water supplies, although based on the same technology, government policy, planning and implementation strategies, differ from one community to another. These varied issues of context and complexity of the

phenomenon itself suggest that a quick and neat approach based on a few specifically defined research issues/questions will not be useful in this study (Bacho, 2001).

The qualitative approach, which allows for a progressive and iterative research, permits the researcher to, step by step, discover the true nature of the problem under investigation through incremental insights. It also helps the researcher to build a strong bond with the respondents which facilitates a smoother and more reliable data collection. This approach also allows each community, involved in the day to day management of water facilities to tell its own story, within its peculiar setting.

This research approach is also ideal in an essentially rural setting where record keeping is an alien culture. Miles and Huberman (1984) cited in Bacho (2001) have justified this view as follows:

'Qualitative data are attractive. They are a source of well-grounded, rich descriptions and explanations of processes occurring in local contexts. With qualitative data one can preserve chronological flow, assess local causality, and derive fruitful explanations.they help researchers go beyond initial preconceptions and frameworks. Finally the findings from qualitative studies have a quality of 'undeniability'. Words, especially when they are organised into incidents or stories, have a concrete, vivid, meaningful flavour that often proves far more convincing to the reader – another researcher, a policy maker, practitioner – than pages of numbers'.

An equally important advantage of the qualitative approach in this social framework is that it permits the use of multiple data sources, techniques of data collection and analyses. Triangulation in this study will thus be a critical method which will be relied on.

The arguments above provide a justifiable ground for the adoption of the qualitative approach, which enables the researcher to wear wider lens spectacles that enable him to see both context specific issues and the phenomenon as it exists and functions within each individual community environment and in relation to other on-going phenomena (Bacho, 2001). In this study, although the researcher will rely greatly on the qualitative research approach, descriptive statistical data will also be applied, where necessary and possible.

3.2.2 Research Method

The study adopted the case study method. In this method of research, the focus is on a small geographical area, which was the Bosomtwe District of the Ashanti Region. The case study method is an empirical inquiry that investigates a real-life phenomenon within a given physical, socio-cultural, economic, political context and relies on multiple sources of evidence. In this study, the case study method was employed to examine the relationships and patterns between the capacity levels of community management structures and its effect on sustainable operation and maintenance of water facilities in the sampled communities in the district.

The provision of potable water as a socio-economic activity undertaken collectively by communities with the help of the District Assembly, Central Government and Development Partners involves issues of management capacity, operation and maintenance and sustainability of water facilities, all of which take place under varied context. The case study method, employing the principle of triangulation leads to an eventual unravelling of the nuances of the context and the complex attributes of the phenomena under investigation. The results were concrete context specific findings. This means that the researcher, through triangulation using a wide lens, discovered patterns and relationships (Brannen, 1992 in Bacho, 2001) unlike the survey method that entails a few selected variables or the ethnographic approach, which would have been time consuming (Bacho, 2001).

The complex interaction of the various actors and processes in each case study site will also easily be identified than in a “sweeping” survey or a phenomenon focused experimental approach (Bacho, 2001). Bell (1993:8) in Bacho (2001) emphasised this point thus:

“The great strength of the case-study method is that it allows the researcher to concentrate on a specific instance or situation and to identify, or attempt to identify, the various interactive processes at work. These processes may remain hidden in a large-scale survey but may be crucial to the success or failure of systems or organisations”

3.2.3 Units of Analysis

The unit of analysis is the major entity that is the subject of analyses in the study of social phenomena. Kumekpor (2002) defined unit of analysis as the actual empirical units, object, occurrences etc. which must be measured in order to study a particular phenomenon.

This understanding guided the study in the selection of the unit of analysis, which are the community level management structures in the communities. The community level management structures are selected as the major units of the analysis because it is within these that management responsibilities are vested, which entail resource mobilisation and management decisions carried out on a day to day basis. Equally important is the fact that these community level management structures are definite socio-cultural, economic and political units within certain contexts which affect the research issues. The other units of analysis for the study included the Regional Office of CWSA, the District Water and Sanitation Team, the Area Mechanics, and community members.

3.2.4 Sampling Design

In a qualitative study of this nature, purposive sampling is the most suitable technique. Purposive sampling represents a group of different non-probability sampling techniques which relies on the judgement of the researcher when it comes to selecting the units (e.g. people, cases/organisations, events, pieces of data) that are to be studied. Usually, the sample being investigated is quite small, especially when compared with probability sampling techniques. The main goal of purposive sampling is to focus on particular characteristics of a population that are of interest, which will best enable the researcher to answer research questions.

The first step in the sampling process was to obtain a list of communities with community operated and managed water facilities (boreholes and small towns pipe systems) from the District Assembly on area council basis. Thus the district was classified into strata based on the three area councils available. In each stratum, the main community level management structures that were studied included the WATSAN Committees and the WSDBs.

For the WATSAN Committees, two communities were selected from each of the three area councils, bringing the total number of communities to six. In the case of the WSDBs, all the three in the district were selected for the study.

Triangulation was employed to validate the data collected from the community level management structures. In this regard, Focus Group Discussions (FGDs) and Key Informant Interviews were held in each community to validate the data from the community level management structures.

Participant observation was undertaken by taking a “cross sectional walk” in the communities to get first hand information on the conditions of water sources and noting the conditions of the facility sites. During these walks there, users of the facility were asked questions bothering on water supply issues in the communities.

3.2.5 Data Collection

The study was based on data derived from both secondary and primary sources. The secondary data was collected through a desk study by examining the annual reports of CWSA, the National Community Water and Sanitation Strategy Document, the National Water Policy, mission reports by various Development Partners and the District Medium Term Development Plan of the Bosomtwe District Assembly. Books, Journal Articles and students’ thesis germane to the topic were also reviewed to elicit relevant literature on the analytical and conceptual framework of the study. These documents were sourced from the CWSA, Development Partners, District Assemblies, Libraries and the internet. Relevant concepts and research variables derived from the review of literature helped in the formulation of questionnaires and consequently the analysis of data.

Primary/field data was derived from field work. A significant amount of the data needed for this study was generated through the use of interview guides for WATSANS, WSDBs, Area Mechanics, opinion leaders and community members. All these groups have collective as well as individual roles to play. Information about their individual as well as collective capacities was thus sought.

Interview guides were also used to solicit data from the various institutions (CWSA, DWST) providing capacity under the NCWSP. The information sought from these institutions included past efforts of these institutions in building the capacity of

management structures, the impact of these capacity building initiatives and their impressions about the communities' capacity in the operation and management of water facilities. Focused group discussions and observation were also employed to complement the other methods mentioned above.

Data was also collected from Area Mechanics and spare parts dealers whose activities directly impact on the operation and maintenance of water facilities.

3.2.6 Data Processing and Analysis

The data collected was first of all processed through editing, coding and tabulation for analysis. The editing process ensured the elimination of errors committed during the data collection exercise. The data was analyzed based on an insight of the relevant issues and vital concepts of the research namely, community ownership and management, capacity of management structures expressed in the form of technical and fund mobilisation and administrative/managerial capacity, training etc. The analyses also revolved around the analytical framework of the study which examined the various components of capacity and the factors determining effective capacity building.

Both qualitative and quantitative techniques were used in the analysis of the data. It is in examining the relevance of the use of qualitative technique in this research that Denzin and Lincoln (1994) stated that, qualitative implies an emphasis on processes and meanings that are not rigorously measured in terms of quantity, amount, intensity, or frequency. Thus, there are instances, particularly in the social sciences, where researchers are interested in insight, discovery, and interpretation rather than hypothesis testing (Merriam, 1998). The qualitative technique therefore involves the use of descriptive analysis. In a few instances, quantitative techniques in the form of tables and percentages were used to give numerical meanings and a sense of measurement.

3.3 PROFILE OF THE STUDY AREA

3.3.1 Physical Characteristics

The Bosomtwe District is located at the central portion of the Ashanti Region. As shown in figure 3, the District is bounded on the North by Atwima Nwabiagya and Kumasi Metropolis and on the East by Ejisu- Juaben Municipal. The southern section

is bounded by Amansie West and East Districts. Kuntanase is the District Capital. The District is made up of three Area Councils namely: Kuntanase, Jachie and Boneso.

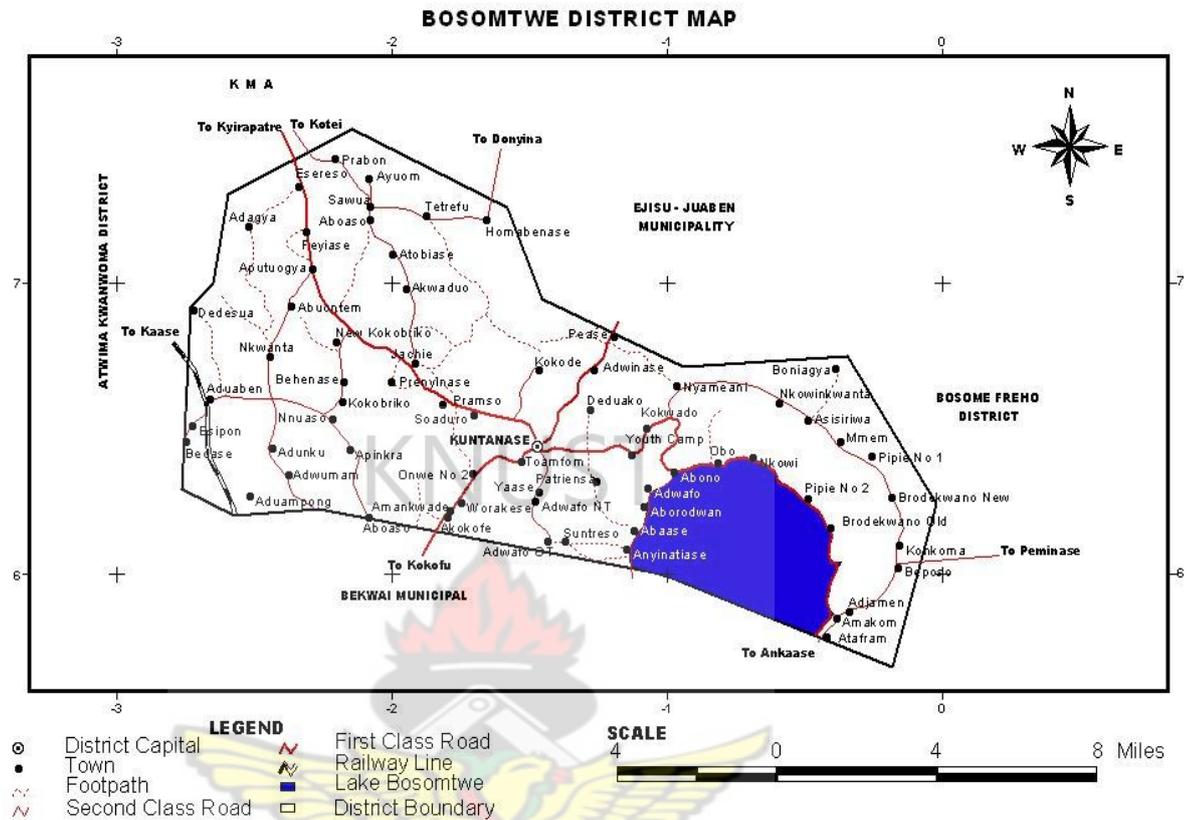


Figure 3: Bosomtwe District Map

Source: Bosomtwe Medium Term Development Plan (2010-2013)

Temperatures of the area are uniformly high throughout the year with a mean of around 24°C. The district falls within the equatorial zone with a rainfall regime typical of the moist semi- deciduous forest zone of the country.

The drainage pattern of the District is dendritic with notable rivers in the district such as rivers Oda, Butu, Siso, Supan and Adanbanwe which flow into Lake Bosomtwe. The natural vegetation of the area falls within the semi-deciduous forest zone of Ghana, which is characterized by plant species of the Celtis-Triplochetal Association. However, due to extensive and repeated farming activities in the past, the original vegetation has been degraded to mosaic of secondary forest, thicket and forb regrowth and various abandoned farms with relics of food crops and vegetables.

3.3.2 Population Characteristics

The 2000 Population and Housing Census gave the population of the district as 146,028 comprising 71,904 males and 74,124 females representing 49.2% and 50.8% respectively. The district's share of the region's population is 4%. The estimated growth rate of 3.0 % is less than the regional growth rate of 3.4%. The age dependency ratio for the district is 0.8:1 while the economic dependency ratio is almost equal to the age dependency of 0.76:1. These dependency ratios on the surface look favourable but the critical issue is that the people are not gainfully employed.

3.3.3 Spatial Distribution and Settlement Patterns

The district is made up of 66 settlements with varied population sizes. Most of these settlements have less than 500 people and are mostly farmsteads of mainly farming communities. Of all the settlements in the district, only two (Jachie and Esereso) can be classified as urban, based on the Ghana statistical Service standards, with their respective populations of 9,945 and 6,575 according to the projections for 2010 based on 2000 population census. The population of the 20 largest settlements in the District ranges from the highest of 9,945 for Jachie and the lowest of 1,586 for Tetreifu. Per the CWSA threshold populations for the provision of water facilities, all the 20 largest communities qualify for Small Towns/Community Pipe Systems. The district's rural- urban population split is 96:4 compared to the region's split of 49:51. This means 96% of the district's population live in the rural areas with only 4% in urban centres. This, together with the fact that settlements in the districts are mainly linear and scattered and poses a problem for the distribution of higher order services and functions in the district. This is because certain services require some threshold populations before they can be provided.

3.3.4 Economic Characteristics

The major occupation in the district is agriculture that employs 62.6% of the labour force. Of this, crop farming employs 57.4% and fishing 5.2%. About 41% of those engaged in other occupations still engage in agriculture as a minor occupation. The second highest occupation is service. It employs about 19.1% of the working population. This sector comprises government employees, private employees and other workers. The educated labor force dominates this sector. Industrial activities are undertaken in both small and medium scales. It also employs about 16.7% of the working population. The problem with the industrial sector is its weak backward and

forward linkages with the agricultural sector. This is confirmed by the fact that only 12% of firms in the district are agro-based.

Another category in the occupational structure is trading which employs about 11.31% of the working force. Women dominate this sector. About 56% of the goods are industrial hardwares brought from Kumasi and sold within and outside the district.

Even though it is difficult to assess real unemployment, seasonal or disguised unemployment form about 4% of the working age group. Although the district is described as a rural district in terms of population and social amenities, its economic characteristics show some urban features.

3.3.5 Social Characteristics

The district has 80 Kindergatens (KGs), 85 Primary Schools, 57 Junior Secondary Schools and two Senior Secondary Schools. About 26,331 pupils, comprising 8,155 boys and 7,870 girls, are enrolled in the basic schools. The Teacher-Pupil Ratio is also in the range of 1:30.

The health delivery system in the district is carried out by staff working in sixteen public and private health institutions. These institutions are four public health facilities, seven Church or Mission and five (5) private health facilities. The district has 52 outreach points where reproductive and child services are rendered. One of the strengths of the district is that the Community Based Surveillance Volunteers (CBSVs) have been trained to support community health services. They record and report on monthly bases diseases, deliveries and deaths in their various communities. Amongst the top 10 diseases in the district, malaria ranks first and accounts for 53.4% of all reported diseases.

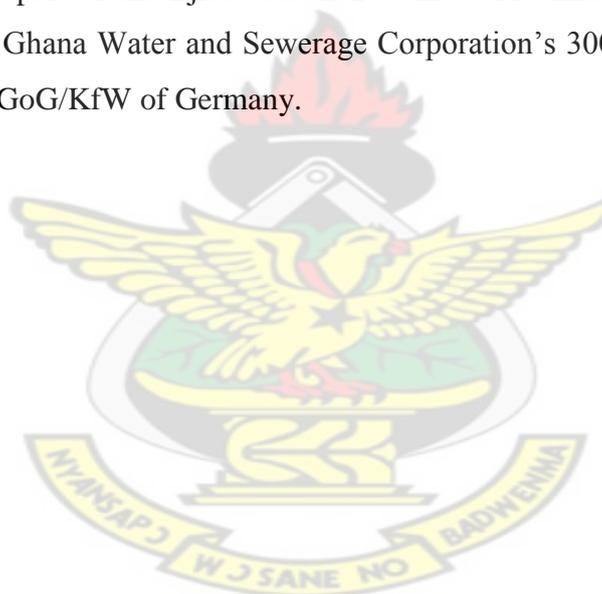
The existing safe water facilities in the district are boreholes, hand-dug wells and small towns pipe schemes. The type of water facilities in the district and the number of communities served is indicated in table 1 below. Presently, the district Capital, Kuntanase has a small town pipe scheme which was funded by the European Union's Small Town Water Project in the district. Jachie and Pramso have also benefited from an World Bank sponsored Small Town Water Project.

Table 1: Type of Water Facilities in the District

Type of Facility	Number of Communities	% of Population Covered
Boreholes	66	86
Hand-Dug Well	10	8
Small Town water System	3	2
Others	District wide	4

Source: District Water and Sanitation Team (DWST) Report – 2009

The District's experience in safe water provision can be traced to her participation in the European Union supported Micro Project that started in 1996 and the World Bank Community Water and Sanitation Programme (CWSP) intervention in 1996. When the district was part of the Ejisu-Juaben Bosomtwe-Atwima-Kwanwoma District, it benefited from Ghana Water and Sewerage Corporation's 3000 well programme that was funded by GoG/KfW of Germany.



CHAPTER FOUR

ANALYSIS OF THE CAPACITY OF COMMUNITY LEVEL MANAGEMENT STRUCTURES TO OPERATE AND MANAGE WATER FACILITIES

4.1 INTRODUCTION

This chapter focuses on the presentation, analysis and discussion of the study. The presentation is a combination of responses from key personnel in the capacity building chain including the CWSA Regional Office, District Works Department (DWD), 3 Area Mechanics, six WATSAN Committees, three WSDBs and 45 households including opinion leaders in the various communities.

The chapter analyses the issues affecting the capacity of the community level management structures in the operation and maintenance of water facilities since the emergence of the NCWSP in 1994. The main cases analysed revolve around the two main water and sanitation management structures prevailing in the District. For each of the management structures, the main variables which were discussed included technical/logistical, managerial/administrative and fund mobilisation capacity. Also discussed were training and motivational factors which affected performance. A cross-case analysis was also done to assemble and contrast the major findings from the various communities to represent the overall performance of the management structures in the district.

The capacity of community level structures to operate and maintain water facilities was broadly categorized into three in this study, namely; technical, managerial/administrative, and financial/fund mobilisation and motivation. Technical capacity includes the ability of the WSDBs and WATSAN Committees to undertake pump operation, trouble shooting, routine maintenance and periodic maintenance. The repair of major faults such as the breakdown of pumping machines and transformers (in the case of the STPS) are normally done by Area Mechanics or the GWCL where the WSDB staff does not have the capacity. Technical capacity is closely related to logistics which refers to the tools and equipments used in the operation and maintenance of the water facilities. It also encapsulates the ability of the management structures to determine the cost of operation and maintenance activities and to mobilise sufficient resources for the implementation of the activities.

Administrative capacity entails skills such as records keeping, regular calls for meetings, organization of meetings etc. whilst financial capacity dwells on fund mobilization, usage and accountability.

Motivation concerns the willingness, or inducement, of a community to maintain their facility and the level of social capital of the community that enables successful collective action. In comparison with all other factors identified as the determinants, these are perhaps the most abstract and difficult to define or measure (World Bank, 2002 in Adomako-Agyei, 2009). It is commonly agreed that motivation or willingness to contribute to the maintenance of a system is based on a perceived benefit. In the case of a communal water supply system, motivation and willingness must be generated on both an individual and collective basis, amongst both individual household users who pay a tariff and community members who volunteer time and are involved in system management.

Training in this study examined the adequacy of the training modules aimed at imparting information and/or instructions to improve the recipient's performance or to help him or her attain a required level of knowledge or skill to operate and maintain the water facilities sustainably.

4. 2 CASE 1: CAPACITY OF WATER AND SANITATION DEVELOPMENT BOARDS (WSDBs)

In the Bosomtwe District, all the three WSDBs have adopted a management system whereby the communities, through their WSDB's and employees, operate and maintain the Small Towns Pipe Systems (STPS) entirely by themselves. A trained Manager, Operator, and Financial/Administrative staff are employed by the WSDB to carry out daily operation and maintenance activities. They are supported by skilled artisans, e.g. plumbers and masons, from within the community whose services may be procured when necessary on a retainer basis.

There are three WSDBs in the Bosomtwe District managing three Small Towns Pipe Systems. Two of the systems in Jachie and Pramso were delivered in 2009 under the World Bank funded Small Towns Water and Sanitation Supply Project (STWSSP) whilst one (1) was provided in 2002 under the European Union Funded Small Towns Water and Sanitation Supply Project in Kuntanase. Table 2 indicates the functionality of the three small towns pipe systems in the District.

Table 2: Functionality of the three STPS in the Bosomtwe District

Area Council	Town	Population (as at 2010, projected from 2000 census figures)	Total Number of Standpipes	Functioning	Non-functioning
Kuntanase	Kuntanase	4081	10	10	0
Jachie	Jachie	9945	18	9	9
Jachie	Pramso	3222	9	9	0

Source: Author's Field Survey, 2011.

4.2.1 Technical/ Logistical Capacity

The management of the water systems is done by a Board selected by the community which in turn appoints technical staff from within the community to see to the day-to-day operation and maintenance of the facilities. Local artisans are also contracted from time to time to undertake repairs when necessary. All the communities were found to have adequate technical staff and trained local artisans for the operation and maintenance of the facilities. Two of the communities namely Kuntanase and Pramso also had a full and consistent membership of the WSDBs. In Jachie, only two of the original members were still at post as at the time of the interview. The Chief had however self appointed three people to add up to the existing number.

The DWD, the WSDBs, and community members in all three communities agreed that the technical staff and the local artisans have demonstrated a fair know-how in undertaking pump operation, trouble shooting, routine maintenance, periodic maintenance and in some few instances, breakdown maintenance etc. It was however, generally accepted that the capacity for breakdown maintenance is weak and external support is mostly sought to undertake such repair works. The stakeholders contended that, the real challenge of operation and maintenance had more to do with adequacy of funds rather than technical ability. In Jachie, for instance, one of the pumps and the transformer have remained broken down for close to three years without repairs. Through the chief's financial support and with technical support from CWSA, the transformer was repaired with the second pump still broken down.

The educational levels of the members of the Board, coupled with the pre-construction and post-construction support were found to be sufficient for the operation and maintenance of the facilities. The lowest educational level for all the

current members of the WSDBs/Staff was Middle School Leaving Certificate with other members having as high as university degrees. Formal education, whilst not the only guaranty for the effective performance of the WSDBs, could provide a leverage to enhance their understanding of basic principles during training sessions and their application on the job thereof. All the WSDBs, per the responses have received training on technical issues such as pump operation, trouble shooting, maintenance, periodic maintenance, breakdown maintenance, rehabilitation of system, and expansion of system, water quality monitoring, monitoring data collection, interpretation and reporting. On whether the training received by the consultants to the project was sufficient, the WSDBs responded it was but called for regular refresher trainings and backstopping by the DWST and external agencies such as the CWSA.

All the WSDBs were found not to have tool kits and stock of basic spare parts for minor repair works. In most cases, the tools for carrying out repairs are borrowed or hired from local mechanics. This sometimes delays the execution of the work if the mechanics are not around or if the tools are being used by the mechanics themselves or if some other persons have come for them.

4.2.2 Administrative/Managerial Capacity

Administrative/Managerial capacity of two of the WSDBs namely Kuntanase and Pramso was found to be generally good. The administrative and managerial capacity of the Jachie WSDB was found to be weak in all the aspects of administration such as meetings, record keeping etc.

One of the determinants of the administrative strength of the WSDBs is the level and frequency of interaction amongst them and between them and the community. The WSDB meetings are held monthly in Pramso and Kuntanase. In addition, emergency meetings were held as and when it was necessary to respond to emergencies. In Jachie, however the Board indicated that they had hardly met formally since the number of WSDB members reduced from seven to two. They indicated that with the addition of 4 more members by the chief, they hope to start formal meetings where minutes will be taken and records kept.

In terms of the WSDB meeting the community, the Jachie WSDB indicated that they do not meet the community but rather the chief, who they consider as the

representative of the people. On the other hand, the Kuntanase and Pramso WSDBs meet the community every year, normally during community durbars to update them on the management of the facilities. In addition to these fixed meetings, other emergency meetings were held to take urgent decisions concerning the management of the facilities. The attendance at these emergency meetings at Kuntansae was very low with an average of 20-50 out of a total population of 4,081 attending the meetings, an indication of apathy on the part of residents. The attendance in Pramso was however encouraging as about 1000 people out of a total population of 3,222 attend the meetings to share their opinions on the effective management of the water systems. The number of meetings held between the WSDB and the community as well as the level of attendance at these meetings is an indication of how ‘smooth’ the relationship is between the WSDB and residents. In Pramso where the attendance was high, the Board indicated that there was a very good relationship between the Board and the community whilst the reverse was the case for Jachie where meetings were hardly held.

Under record keeping, it was only Pramso, as indicated in table 3 below which kept most of the essential records needed for effective running of an office. Apart from records on facility repairs and tariff collection from water vendors, the Jachie and Kuntanase WSDBs were found not to keep any records.

Table 3: Record Keeping by WSDBs

TYPE OF RECORD	COMMUNITY		
	Pramso	Kuntunase	Jachie
WATSAN/WSDB meetings	√	×	×
Community meetings	×	×	×
Site meetings	√	×	×
Certificate of completion	√	×	×
WATSAN/WSDB Constitution	√	×	×
Facility Management Plan	×	×	×
Handing over evidence	√	×	×
Stock of spare parts	√	×	×
Facility breakdowns	√	×	×
Facility repairs	√	√	√
Tariff collection	√	√	√

Source: Author’s Field Survey, 2011.

All the WSDBs and staff indicated that they were trained in various modules in management/administration including meeting procedures, record keeping, conflict resolution etc. As indicated in table 3 above, and in the previous section, only Pramso

which practiced effective record keeping. The reconstituted WSDB in Jachie, noticing their shortfall in administration and management requested for fresh training for their members in administrative and financial management, especially the newly selected members by the chief.

4.2.3 Fund mobilisation capacity

In all the communities, the WSDBs indicated that there was a general commitment of community residents to the pay-as-you-fetch tariff concept, albeit some hesitations from a section of the community. In all the communities, residents paid GHp 5 per a container of 20 litres. The receipts at the end of the day are collected by the treasurer from the water vendors and deposited into the account of the Board at given periods. On how often the Board accounts to the community, the responses were mixed. In Jachie, the Board did not see the need to account to the community especially after the long time breakdown of the facility and the non-functioning of about half of the communal standpipes. In Kuntanase, the Board accounts to the community once – during the Easter celebrations whilst in Pramso, the Board accounts to the community twice and four times to the chiefs in a year. In the CWSAs standards and guidelines for the operation and maintenance of water facilities, the WSDB is required to account to the community at least once in a year.

On the mode of arriving at the tariff rates, all the Boards had varying responses. In Jachie, it was the Board and the chief who determined the tariff rate whilst in Kuntanase, the Board sets it with approval from the District Assembly. In pramsso however, the tariff was derived through a tariff-setting formulae thought at the training sessions. The proposed tariff is then explained to the community in a community forum for consensus building and approval.

The three WSDBs indicated that the money received through the pay-as-you-fetch system was enough for effective operation and maintenance. This is very true in Pramso and Kuntanase, especially in the case of routine and periodic maintenance. In Jachie, however the Board said the funds were only sufficient for minor repair works, the reason why the second pump remains unrepaired. One significant finding from the WSDBs is that, although all of them had an account into which the proceeds from the sale of water was kept, none of them operated a replacement account which is meant

for the replacement of major parts during breakdowns and for expansion of the facility to un-served parts of the catchment area.

On mobilisation of funds outside the proceeds from pay-as-you-fetch, only Jachie had so far mobilised funds from the Member of Parliament, the Chief and the community to repair the transformer and other major repair works. This was mainly because of the early breakdown of the pump and the transformer which rendered the water system non-functional. This affected revenue generation through payment of user fees and necessitated sourcing for funds from benevolent residents. The other communities relied solely on the proceeds from water vending for the management of the systems.

4.2.4 Motivation

Motivation concerns the willingness, or inducement, of a community to maintain their facility and the level of social capital of the community that enables successful collective action (in this case the maintenance of physical infrastructure and other project benefits) (Adomako-Agyei, 2009). In the management of communal water supply systems, motivation and willingness was seen amongst both individual household users who pay the tariffs and community members who volunteer time and energy to manage the systems. Although the performance of the WSDBs in operating and maintaining the water facilities greatly depends on their capacity in terms of know-how, it was realised from this study that the ability to deliver equally depended on other factors not directly associated with know-how, such as motivation.

On the part of the WSDBs, motivation to actively participate in the day-to-day management of the water facilities was found to be relatively higher in communities with Small Towns Pipe Systems and managed by WSDBs. One of the reasons for higher motivation amongst the WSDBs was that they are paid sitting allowances during meetings, unlike the WATSAN Committees who are not paid allowances nor salaries. The other reason was the relatively higher motivation on the part of residents to pay user fees for water. The ability and willingness on the part of residents in the STPS communities to pay was linked to their socio-economic status. The income levels of STPS communities, where residents are mostly formal sector workers in urban areas were found to be generally higher than that of rural areas with boreholes fitted with hand pumps. In the three communities with WSDBs, it was only in Jachie where motivation amongst members was found to be low. This was due mainly to the

early breakdown of the water system which led to the disorganisation of the membership. The early break down of major components of the water is a significant indicator of motivation for communities. In Jachie for instance, the early breakdown of one of the pumps and the transformer greatly affected the morale of the WSDB and staff. This was especially so because it took quite a long time for the transformer to be fixed and the second pump was yet to be fixed. The early breakdown meant the Board was not able to mobilise enough funds for the operation and the maintenance of the facilities. In contrast to Jachie, the STPS in Pramso and Kuntanase enjoyed a relatively longer period of time without any breakdown. With the initial enthusiasm associated with having a new water facility, the community raised enough revenue to meet any future breakdowns as well as for routine and periodic maintenance.

The other reason for the low motivation was that residents subjected the WSDB and its staff to insults and suspicion of corruption. These attitudes of the community members greatly discouraged and de-motivated some Board members from participating actively in the work of the Board.

Motivation on the part of residents to pay for water in the STPS communities was generally encouraging. As has been discussed in the previous paragraph, the motivation to pay for user fees amongst STPS communities largely stems from the urban setting of these communities where most people are formal sector workers and are economically more endowed than small remote rural communities.

Regular backstopping by agencies external to the WSDBs also affects the effectiveness of operating and maintaining water facilities. In Jachie, the WSDB indicated that the water unit of the DWD hardly visited the community. A cross-response from the DWD, however was that it was difficult to organise the WSDB in Jachie for a meeting.

4.2.5 Training

The leverage for capacity building of community level management structures is training. The WSDBs and the staff received training in various forms from the Consultants who supervise the construction of the water facilities. The WSDBs and the staff have educational levels which makes them trainable. The responses from the field indicated that the WSDBs, during construction and the immediate post construction era received sufficient training from the consultants, the DWD and the

CWSA Regional Office. Some of the training modules hinged on basic repair know-how, revenue collection and management, managerial and administrative issues. On whether or not the training was enough for sustainable operation and maintenance, the various Boards agreed it was, but called for regular refresher training and frequent backstopping from the DWD and the CWSA Regional Office.

4.3 CASE 2: CAPACITY OF WATER AND SANITATION(WATSAN) COMMITTEES

The second case (management structure) identified in the District was the WATSAN Committee. The WATSAN Committees in the six selected communities for the second case of this study managed mainly boreholes fitted with pumps and more recently mechanized borehole(s) with holding tanks for some settlements with population between 150 and 2000. Through community meetings, community members were given the opportunity to determine tariff levels, changes to the composition of the committee and the way the water system should generally be managed. In cases where the pay as you fetch system was practiced, vendors were appointed to collect moneys at the water points and they are paid commissions on the sales made. The money collected by the vendor was lodged with the treasurer of the WATSAN committee who paid it into the committee's account.

In the six communities selected for the second case, there were a total of 21 boreholes, three Hand Dug Wells, and two Limited Mechanized Systems managed by WATSAN Committees of different levels of competence. The details of existing facilities and their locations are given in table 4 below.

Table 4: Location of Facilities under Case No. 2

Area Council	Community	Population (as at 2010, projected from 2000 population and housing census figures)	Type of Facility	
			BHP	LMS
Kuntanase	Abono	1,593	2	0
	Onwi	1,475	3	1
Jachie	Aputuogya	7,500	5	0
	Kokobiriko	950	4	0
Boneso	Asisiriwa	2,581	2	1
	Nyameani	3,431	5	0

Source: Author's Field Survey, 2011

Legend

BHP	Boreholes with Hand Pumps
HDWP	Hand Dug Wells with Hand Pumps
LMS	Limited Mechanized System

Under case number two, 38.1% of the boreholes fitted with hand pumps had broken down as at the time of the field survey, and some of these broken down facilities had been in this state for as long as two years without repairs. Both Mechanised Systems, (one each in Onwi and Asisiriwa) were functioning as at the time of the interview. The Functionality of the boreholes fitted with hand pumps are shown in table 5 below.

Table 5: Functionality of the Boreholes with Hand Pumps

Area Council	Community	Boreholes with Hand Pumps		
		Total No. of Facilities	Functioning	% functioning
Kuntanase	Abono	2	2	100
	Onwi	3	1	33%
Jachie	Aputuogya	5	2	40%
	Kokobiriko	4	2	50%
Boneso	Asisiriwa	2	1	50%
	Nyameani	5	5	100

Source: Author's Field Survey, 2011.

4.3.1 Technical/Logistical Capacity

Basic and lower service water systems such as Boreholes Fitted with Hand Pumps and mechanized borehole(s) with holding tanks for some settlements with populations between 150 and 2000 are managed by WATSAN Committees. WATSAN Committee members were selected by the community as prescribed by the CWSA technical standards and guidelines and some by the chiefs and opinion leaders.

The WATSAN Committees are supposed to be between 5-7 members and are mandated to carry out the operation and maintenance of the facilities. With the exception of Nyameani and Abono which have maintained stable and consistent membership overtime, the attrition rate has been very high in the other communities. In Aputuogya, Onwi, and Asisiriwa, although the attrition rate was high the current membership has shown the commitment and capacity to operate and maintain the facilities. In Kokobiriko, apart from the high attrition rate, there seemed to be internal wrangling amongst the WATSAN Committee members themselves on one hand and between the WATSAN Committees and the community residents on the other hand, leading to abandonment of responsibilities.

The attrition rate of the WATSAN Committees in all the six communities is shown in table 6 below.

Table 6: Attrition Rate of WATSAN Committee Members

Community	Original Membership	Present Membership	Percentage of Attrition
Nyameani	5	5	0
Abono	7	7	0
Aputuogya	7	4	42.9%
Onwi	7	2	71.5%
Kokobiriko	7	3	57.2%
Asisiriwa	5	4	20%

Source: Author's Field Survey, 2011.

The DWD, Area Mechanics and residents of the study communities indicated that the WATSAN Committee members demonstrated reasonable technical capacity in undertaking pump operation, trouble shooting and routine maintenance. Periodic maintenance and the repair of major breakdowns were however carried out by the Area Mechanics who charge fees. These stakeholders argued that with the commitment and technical capacity of the WATSAN Committees as well the availability of well trained Area Mechanics and spare parts dealers, the real obstacle to operation and maintenance is more to do with adequacy of funds rather than technical ability.

An average of 38.1% of boreholes fitted with hand pumps had broken down for a period of up to two years without repairs. This was due mainly to funding challenges and not technical capacity of the WATSAN Committees to repair. Table 5 below shows the functionality of the various water facilities in the six study communities for Case 2.

The educational levels of the members of the WATSAN Committees ranged from complete illiterates to Middle School Leaving Certificates/JSS. Although formal education does not necessarily guarantee success in the performance of the WATSAN Committee members, it could provide a leverage to enhance their understanding of basic principles during training sessions and their application on the job thereof. All the WATSAN Committees had received training both as individuals and collectively on technical, administrative/managerial and financial issues relating to the efficient operation and maintenance of the water facilities. On whether the training received from the POs was sufficient, the WATSAN Committees agreed it was but called for regular refresher trainings and backstopping by the DWST and external agencies such as the CWSA.

All the WATSAN Committees were found not to have tool kits and stock of basic spare parts for repair works. In most cases, the tools for carrying out repairs were borrowed or hired from local artisans. This sometimes delays the execution of work if the artisans are not around or if the tools are being used by the mechanics themselves or if some other persons have come for them.

4.3.2 Administrative/Managerial Capacity

Formal meetings at fixed periods were not a common feature among the WATSAN Committees interviewed. Apart from Nyameani, where the WATSAN Committee indicated that formal meetings are held at regular intervals (monthly), meetings in the other five communities were held on adhoc and informal basis, normally when there was a major problem with the facility.

In terms of the WATSAN Committees meeting with the community, all the WATSAN Committees responded that they normally take advantage of community durbars of chiefs either through festivals or Easter festivities to meet with the community to discuss issues and build consensus on the operation and maintenance of the facilities. Apart from these meetings during community durbars, emergency meetings were held infrequently during major breakdowns to raise funds for fixing the facility.

As indicated in table 7, only Nyameani keeps most of the records necessary for the operation and maintenance of the facilities in well organised files.

Table 7: Record Keeping by WATSAN Committees

TYPE OF RECORD	COMMUNITY					
	Nyameani	Asisiriwa	Aputugya	Kokobiriko	Onwi	Abono
WATSAN/WSDB meetings	√	×	×	×	×	×
Community meetings	×	×	×	×	×	×
Site meetings	√	×	×	×	×	×
Certificate of completion	√	×	×	×	×	×
WATSAN/WSDB Constitution	√	×	×	×	×	×
Facility Management Plan	×	×	×	×	×	×
Handing over evidence	√	×	×	×	×	×
Stock of spare	√	×	×	×	×	×

parts						
Facility breakdowns	√	×	×	×	×	×
Facility repairs	√	√	×	×	√	√
Tariff Collection	√	√	×	×	√	√

Source: Author's Field Survey,2011.

Legend

√-----Have
×.....Do not Have

4.3.3 Fund mobilisation capacity

In all the communities, the WSDBs indicated that the residents were generally committed to the pay-as-you-fetch tariff concept, although there are challenges about unwillingness and ability to pay on the part of some community residents. In Onwi and Asisiriwa, where there exist one functioning borehole and one mechanised system each, residents pay for the mechanised system but refuse to pay for the borehole. In the event of a breakdown of the borehole, the chief or the whole community is levied to repair the facility, or proceeds from the mechanised systems have to be used to pay for the repair of the boreholes. This puts stress on community members and the chief who have to, within a short notice, mobilise funds for the repair of the facility. In cases where money is drawn from the accounts of the mechanised systems, it affects its operations because the leftover in the accounts may not be sufficient to repair the mechanised system in the event of its breakdown. In all communities, residents pay GHp 5 per a container of 20 litres, be the facility a borehole with a pump or a mechanised system. The receipts at the end of the day are collected by the treasurer from the water vendors and deposited into the account of the WATSAN Committee at given periods. On how often the Board accounts to the community, the responses were mixed. In Aputugya, Nyameani and Asisiriwa accounts are rendered yearly to the community mainly at community durbars. In Onwi and Abono, the accounts are rendered quarterly and half-yearly respectively. In Kokobiriko, however the WATSAN Committee indicated that the accounts were not rendered to the community. On the derivation of tariff rates, all the WATSAN Committees indicated that they set the tariffs and present them to the community, normally in a durbar for approval.

All the six WATSAN Committees indicated that the money received through the pay-as-you-fetch system was enough for effective operation and maintenance, though evidence on the ground showed that some facilities had remained broken down for many years without repairs mainly because of lack of funds. An average of 38.1% of boreholes fitted with hand pumps had broken down for a period of up to two years without repairs in the six study communities.

On mobilisation of funds outside the proceeds from the pay-as-you-fetch, it came out that when there is a major breakdown for which the proceeds from pay-as-you-fetch cannot cater for; community members are levied to raise money for the repairs. In certain cases, the chief or a benevolent resident comes to the aid of the community by funding the repair of the facility.

4.3.4 Motivation

Although the performance of the WATSAN Committees in operating and maintaining the water facilities greatly depends on their capacity in terms of know-how, it was realised from this study that the ability to deliver equally depended on other factors not directly associated with know-how, such as motivation. Compared to the other factors discussed above, the most abstract and perhaps difficult to measure is motivation. In the management of communal water supply systems, motivation and willingness must be seen amongst both individual household users who pay the tariffs and community members who volunteer time and energy to manage the systems. Motivation concerns the willingness, or inducement, of a community to maintain their facility and the level of social capital of the community that enables successful collective action (in this case meaning the maintenance of physical infrastructure and other project benefits) (Adomako-Agyei, 2009).

On the part of the WATSAN Committees, motivation to actively participate in the day-to-day management of the water facilities was found to be low. Though the WATSAN Committees are not paid nor given any allowances, they expect encouragement and respect from the chiefs, opinion leaders and the community residents for volunteering their time and energy to manage the water facilities. The WATSAN Committees and opinion leaders in all the six communities indicated that most community residents subject the WATSAN Committee members to insults and suspicion of corruption. These attitudes of the community members greatly

discouraged and de-motivated some WATSAN Committee members from participating actively in the work.

The low level of motivation amongst the WATSAN Committees is clearly manifested in the high attrition rate indicated in table 6. Apart from Abono and Nyameani where the Committee membership have remained constant at five since the formation of the Committee, all the other committees had their membership reducing to as low as two with nobody willing to replace those who had left.

In Aputuogya, all the original members had left as at the time of the interview. The three who were in charge of managing the facilities were composed of two unit committee members and a representative of the Chief. Thus the facility was being managed by the opinion leaders in the community rather than an independently selected committee. Another point worth noting is that almost all the people who had deserted the committees in all the communities were women, leaving only men to manage the facilities and defeating the gender inclusiveness espoused under the NCWSP for the formation of the WATSAN Committees.

On the part of community residents, the issue of motivation is situated within residents' ability and willingness to pay user fees for water facilities. In fund mobilisation for instance, though community residents agreed in theory to the pay-as-you-fetch tariff concept, in practice most residents were either unwilling or unable to pay. The residents' unwillingness to pay stems from the fact they do not see the need to pay for water, seeing it as a social rather than economic good. Because of the intricately linked social relations existing between members of the Committee and residents, it is sometimes difficult to strictly enforce the pay-as-you-fetch concept, making revenue generation for operation and maintenance difficult. Sometimes residents 'credit' the water with the promise of paying later and never pays, because there are no local mechanisms to retrieve these monies.

4.3.5 Training

The WATSAN Committees have received training in various forms from consultants who supervised the construction of the water facilities. Some of the training modules revolved around basic repair know-how, revenue collection and management, managerial and administrative issues. On whether or not the training was enough for sustainable operation and maintenance, the various WATSAN Committees agreed it

was, but called for regular refresher training in all the modules and especially in contract management, record keeping, preparation of maintenance schedules and tariff setting. The WATSAN Committees also recommended for frequent backstopping from the DWST and the CWSA Regional Office.

4.4 CROSS-CASE ANALYSIS OF THE CAPACITY OF THE WSDBs AND WATSAN COMMITTEES

In this section of chapter four, the various capacity issues concerning the two community level management structures discussed in the previous sections are crossed analysed, compared and contrasted to determine the cumulative performance of the two community level water management structures pertaining in the Bosomtwe District.

4.4.1 Technical/Logistical Capacity

In all the management structures, the basic technical capacity to operate and management the facilities, within the limits prescribed by the CWSA were found to exist. The management structures also have an appreciable knowledge of the capacity support chain in the rural and small town water delivery sub-sector. In the case of the WATSAN Committees, all were able to indicate the locations of the various entities in the capacity support chain such as the Area Mechanics, the DWST, the Spare Parts Suppliers and the RWST. Apart from the identification, the management structures also seek assistance from the support chain anytime there is a breakdown. The Area Mechanics were however identified as the most well-known and sought after entity in the capacity support chain. In the case of the WSDB, in addition to seeking assistance from the entities in the support chain already mentioned, they were in close collaboration with the Drilling Unit of the GWCL for the repair of major breakdowns.

In terms of the stability of the membership, the WSDBs members were generally more stable than the WATSANs. The reason being that allowances and salaries are paid to the WSDBs and staff respectively whilst the reverse is the case for the WATSAN Committees.

The educational levels of the members of the WATSAN Committees ranged from complete illiterates to Middle School Leaving Certificates/JSS Board. Due to the fact that the technology option (Borehole with a pump) managed by the WATSAN

Committees is basic, the training offered during the construction and post – construction periods were found to be sufficient for the operation and maintenance of the facilities. Compared to the WATSAN Committees, the educational levels of the WSDBs were higher ranging from MSLC/JSS to the tertiary level. This is understandable given that the systems managed by the WSDBs are more complex and demands a higher capacity than the boreholes with pumps managed by the WATSAN Committees. An equally important factor accounting for the higher educational levels of the WSDBs is that the STPS managed by them are located in urban settings and hence the likelihood of having more educated persons.

All the management structures, had received training both as individuals and collectively on technical, administrative/managerial and financial issues relating to the efficient operation and maintenance of the water facilities. On whether the training received from the POs/Consultants was sufficient, the response was positive. Nevertheless, they called for regular refresher training and backstopping by the DWD and external agencies such as the CWSA.

All the management structures, both WATSAN Committees and WSDBs were found not to have tool kits, equipment and stock of basic spare parts for minor repair works. In the case of the WSDBs which have a more complex system covering large areas, means of transport in the form of motorbikes for daily monitoring and inspection would have been ideal. This however is lacking making effective supervision and revenue collection difficult for the systems manager and the treasurer respectively. In most cases, for both management structures, the tools for carrying out repairs were borrowed or hired from local mechanics. This sometimes delays the execution of the work if the mechanics are not around or if the tools were not available.

4.4.2 Administrative/Managerial Capacity

Formal meetings at fixed periods were not a common feature among the WATSAN Committees interviewed. Apart from Nyameani, where formal meetings were held at regular intervals (monthly) to take proactive decisions on the management of the water facilities, meetings in the other five communities were held on adhoc and informal basis, normally when there was a major problem with the facility. The WSDB meetings were held monthly in Pramso and Kuntanase. In addition, emergency meetings were held as and when necessary to respond to emergencies. In

Jachie, however the Board indicated that they had not met formally since the WSDB membership reduced from seven to two. They indicated that with the addition of four more members by the chief, they hope to start formal meetings where minutes will be taken and records kept.

In terms of meeting the community, the Jachie WSDB indicated that they do not meet the community but rather the chief, who they consider as the representative of the people. On the other hand, the Kuntanase and Pramso WSDBs meet the community every year, normally during a community durbar to brief them on the management of the facilities. In the case of emergency meetings, attendance by community residents in Kuntanase was found to be low, averaging about 20 people, which is an indication of apathy on the part of residents. The attendance in Pramso is however encouraging as an average of 500 people attend emergency meetings to share their opinions on the effective management of the water systems. The low attendance and the complete lack of meetings amongst Board members and between the Board members and residents is an indication of how 'smooth' the relationship was between the Board and the residents. In Pramso where the attendance was high, the Board indicated a very good relationship between the Board and the community whilst the reverse was the case for Kuntanase and Jachie.

In terms of the WATSAN Committee meeting with the community, all the WATSAN Committees responded that they normally take advantage of durbars of chiefs or Easter festivities to meet with the community to discuss issues and build consensus on the operation and maintenance of the facilities. Apart from these meetings during community durbars, emergency meetings were held during major breakdowns to raise funds for fixing the facility.

Record keeping among the management structures was found to be poor as only Nyameani in the case of the WATSAN Committees and Pramso in the case of the WSDBs kept most of the essentials records necessary for the operation and maintenance of the facilities. The rest of the management structures only kept records of repairs in notebooks kept by the most active members of the committee.

4.4.3 Fund mobilisation capacity

In all the communities, residents were generally committed to the pay-as-you-fetch tariff concept so far as the limited mechanised and the small towns pipe systems were

concerned. This is so both for the WSDB and WATSAN Committees communities. In the WSDB communities, the residents were more willing to pay as they fetch for the communal stand points of the Small Towns Pipe System than for the ordinary boreholes with pumps. In the WATSAN Committee communities which have limited mechanised systems alongside the ordinary boreholes with pumps, residents pay willingly for water from the mechanised system and refuse to pay for water from the boreholes with pumps. The reasons given for residents' willingness to pay for water from the LMS was that it is easier to fetch from the mechanised system than the boreholes with a pump. Besides the ease of fetching, residents also attached some prestige to the LMS and consider the cost of constructing it high and hence the need to pay to recoup the cost. In Onwi and Asisiriwa, where there exist both a functioning borehole and a mechanised system, residents pay for the mechanised system but refuse to pay for the borehole. In the event of a breakdown of the borehole, the chief or the whole community is levied to repair the facility, or proceeds from the mechanised systems have to be used to pay for the repair of the boreholes. This puts stress on community members and the chief who have to, within a short notice, mobilise funds for the repair of the facility.

In all communities, residents paid GHp 5 per a container of 20 litres, be it a borehole with a pump, a mechanised system or a Small Towns Pipe System. The receipts at the end of the day are collected by the treasurers from the water vendors and deposited into the account of the management structure at given periods. On how often the WATSAN Committees account to the communities, the responses were mixed. In Aputugya, Nyameani and Asisiriwa accounts were rendered yearly to the community mainly at community durbars. In Onwi and Abono, the accounts were rendered quarterly and half-yearly respectively. In Kokobiriko, however the WATSAN Committee indicated that accounts were not rendered to the community. In the case of the WSDBs, the responses were mixed. In Jachie, the Board did not see the need to account to the community especially after a long breakdown of the facility and the non-functioning of about half of the standpipes. In Kuntanase, the Board accounts to the community once – during the Easter celebrations whilst in Pramso, the Board accounts to the community twice and to the chiefs four times in a year.

On the derivation of tariff rates, the WATSAN Committees set the tariffs and present them to the community, normally in a community durbar for approval. On the mode

of arriving at the tariff rates, all the Boards had varying responses. In Jachie, it is the Board and the chief who determine the tariff rate whilst in Kuntanase, the Board sets it with approval from the District Assembly. In Pramso however, the tariff is derived through a tariff-setting formulae taught during the training sessions. The proposed tariff is then explained to the community in a community forum for consensus building and approval.

All the nine management structures indicated that the money received through the pay-as-you-fetch system was enough for effective operation and maintenance, though evidence on the ground showed that some facilities had remained broken down for many years without repairs mainly because of lack of funds. In almost all the communities with boreholes with a pump, about 38.1% of the total number of water facilities had broken down for about 2 years without repairs. In Jachie, which operates the STPS, the WSDB pointed out that the funds were only sufficient for minor repair works, the reason why the second pump remained unrepaired.

On mobilisation of funds outside the proceeds from pay-as-you-fetch, it came out that when there was a major breakdown for which the proceeds from the pay-as-you-fetch system cannot cater for, community members were levied to raise money for the repairs. In certain cases, the chief or benevolent residents came to the aid of the community by funding the repair of the facility.

4.4.4 Motivation

The WSDBs were generally more motivated to actively participate in the day-to-day management of the water facilities than the WATSAN Committees. One of the major reasons for higher motivation amongst the WSDBs was that they are paid sitting allowances during meetings, unlike the WATSAN Committees who are not paid allowances nor salaries. Secondly, the WSDBs were motivated by the relatively higher willingness on the part of residents to pay user fees for water. The ability and willingness to pay was linked to the socio-economic status of residents in the STPS communities which are mainly urban in nature. Most residents in the STPS communities, are largely urban recognize water as an economic, and not a social good as was the case in the communities with boreholes fitted with hand pumps. The income levels of STPS communities, where residents are mostly formal sector workers were found to be generally higher than that of rural areas with boreholes

fitted with hand pumps. Whilst motivation was found to be low amongst members of the WATSAN Committees in four out of the six communities, in the case of WSDBs members, it was only in Jachie, out of three communities where motivation amongst members was found to be low. The low motivation amongst the Jachie WSDB was mainly due to the early breakdown of the water system which led to the disorganisation and fall in morale of the membership. This was especially so because the breakdown was not quickly fixed and it took a long time for the water system to be repaired. The early breakdown meant the Board was not able to mobilise enough funds for the operation and most importantly the maintenance of the facilities. In contrast to Jachie, the STPS in Pramso and Kuntanase enjoyed a relatively longer period of time without any breakdown. With the initial enthusiasm associated with having a new water facility, the community raised enough revenue to meet any future breakdowns as well as for routine and periodic maintenance.

4.4.5 Training

The WATSAN Committees and the WSDBs and staff received training from the Partner Organisation (POs) and Consultants respectively, in the various aspects of facility management during the pre-construction and post-construction era. Some of the training modules revolved around basic repair know-how, revenue collection and management, managerial and administrative issues. On whether or not the training was enough for sustainable operation and maintenance, the various management structures agreed it was, but called for regular refresher training and frequent backstopping from the DWD and the CWSA Regional Office. The educational levels of the WATSAN Committees were generally lower than that of the WSDBs. This is expected as the level and complexity of the boreholes with pumps and the management issues involved was lower than the small towns pipe systems.

CHAPTER FIVE

SUMMARY OF FINDINGS, RECOMMENDATIONS AND CONCLUSION

5.1 INTRODUCTION

This chapter discusses the major findings and their implications for sustainable operation and maintenance of water facilities. Based on the findings, recommendations are proposed to chart a way forward for effective operation and maintenance. This is followed by the conclusion of the study.

5.1.1 Findings

The study has revealed that unlike the communities with WSDBs, the communities with WATSAN Committees found the management structure prescribed by CWSA to be very formal and deviates largely from the informal ways of doing things in rural communities. The prescription, for example, of having meetings at regular intervals, following a certain formal procedure for steering meetings and writing of minutes, record keeping of all transactions and proceedings of meetings were seen by the WATSAN Committees as cumbersome. This is probably so because of the phenomenon of oral and not written communication which is still well entrenched in rural areas. A second reason is the generally low level of literacy in rural areas compared with urban areas of the District. Communities should be continuously educated on the need for regular meetings to take proactive decisions concerning the management of the facilities. What is 'regular' however should be left to community to decide. It could be twice, or thrice based on their own analysis of their communal and personal schedules, and how frequently issues on the water facility arises. Formal meetings also encourage record keeping which is good for transparency, accountability and future reference.

Another interesting finding from the study is that the attrition rate of the management structures was high, especially amongst the WATSAN Committees and this has led to fewer members than expected holding the fort. In spite of the reduction in membership of the WATSAN Committees, the few remaining ones were found to be very committed, more by social rather than economic reasons. In Onwi, one of the two remaining members, Osei Tuffour remarked *'the work is very de-motivating largely because we are not paid and in spite of that community residents always heap*

insults on us. But some of us who have old people and children in our families always dread the day when the facility will break down and these people will have to walk long distances to fetch water. Apart from that those of us who have lived long enough in the community remember how we suffered when we did not have potable water in the community. In view of all these factors some of us have decided to sacrifice to manage the facilities in spite of lack of remuneration and the ingratitude shown to us by community residents’.

Even though most of the WATSAN Committees claimed the revenue generated from the pay-as-you-fetch tariff system was enough for operation and maintenance, evidence on the ground indicated that an average of 38.1% of the boreholes with hand pumps had broken down for up to two years without repairs. In the case of the WSDBs, the STPS in Jachie had one of its pumps and the transformer broken down for three years without repairs. What was even more critical was that although the WATSAN Committees and WSDBs have bank accounts, none of them operates the replacement account which is to be used for replacement of major parts and expansion to un-served areas within the catchment threshold of the facility. This puts the sustainability of the water facilities at risk.

The technical and fund mobilisation capacity of the management structures were found to be average, from the point of view of all the stakeholders interviewed. With the exception of the communities with a mix of both mechanised boreholes and boreholes with hand pumps, where residents were unwilling to pay for the latter, all the communities practised the pay-as-you-fetch concept, albeit grudgingly.

All the management structures, with the exception of Onwi where the facilities were not provided through the facilitation of CWSA, had training in various modules relevant to the operation and maintenance of facilities. Due to the high attrition rate of the members, especially among the WATSAN Committees, a number of the new members were not well versed in the basic knowledge of the management of the facilities. Even for the old members who benefited from the training, time had elapsed and had made some of them lose some of the rudimentary knowledge in the management of the facilities.

In communities such as Aputugya, Onwi and Jachie where the management structures have been fully or partially taken over by the Unit Committees or the Chief’s chosen

members, most of the opinion leaders were of the opinion that since the Unit Committees were in charge of the overall development of the area under their jurisdiction, it is better to leave the management of the facilities to them rather than creating splinter groups to manage every single development project in the town. They contended that since one of the biggest problems of the WATSAN Committees was high attrition rate due mainly to lack of remuneration, it will be better to leave all aspects of development management in the hands of the Unit Committees and remunerate them sufficiently as full time development agents in their areas of jurisdiction rather than forming so many splinter groups who are not remunerated and therefore not motivated and committed to work. In the view of the CWSA and the DA, these entities (Chiefs, Unit Committees, and Assemblymen/women) provide an oversight role to the WATSAN Committees and the WSDBs. In the case of the chief in particular, he is expected to be the final destination of all conflicts, accounts and reports from the entities mandated to carry out the day-to-day management of all development infrastructure. In the view of CWSA and DA therefore, the chief and unit committee members should not be saddled with the management of the facilities since this could result in role conflicts.

Motivation was identified as one of the most important factors which affect the performance of the WSDBs and WATSAN Committees. Motivation in the context of the communities is seen as remuneration or in the absence of it, kind words from the chiefs, opinion leaders and the community members. The responses from the WSDBs/WATSAN Committees indicated that most members and staff of the Board were subjected to insults and suspicion of corruption from community members, even though the job was largely voluntary and sacrificial in nature. The situation was more disturbing with the WATSAN Committees because unlike the WSDBs members who receive sitting allowances during meetings, they were not remunerated at all. These attitudes of the community members greatly discourage and de-motivate some members of the WSDBs/WATSANs from participating actively in the work.

Another significant factor was 'luck'. The length of time between when the facility was handed over to the community and the first time it faced a major breakdown was a strong determining factor of the success of the WSDBs. In Jachie for instance, the early breakdown of one of the pumps and the transformer greatly affected the morale of the Board members and the workers. This was especially so because the breakdown

was not quickly fixed and it took quite a long time before the transformer was fixed, with the broken down pump yet to be repaired. The early breakdown meant that the WSDB was not able to mobilise enough funds for the operation and maintenance of the facility.

Regular backstopping by bodies external to the WSDBs also affects effective performance with respect to operation and maintenance of the facilities. In Jachie, the WSDB indicated that the water unit of the District Works Department hardly visited the community. A counter -response from the DWD however was that it was difficult to organise the WSDB in Jachie for a meeting. The three WSDB members who were in charge of managing the facilities comprised of two unit committee members and a representative of the Chief. Thus the facility was being managed by the opinion leaders in community rather than an independently selected committee.

Another point worth noting is that although the attrition rate is generally high amongst the management structures, it is extremely high among women. This is in spite of the fact that the CWSA's condition of having at least 40% of the membership being women was satisfied at the time of forming the management structures. Thus almost all the current membership of the management structures, especially the WATSAN Committees are composed of men, hence defeating the gender inclusiveness espoused under the NCWSP for the formation of the WATSAN Committees.

In all the management structures, but especially the WATSAN Committees, the main duty has been reduced to the collection of levies. Other responsibilities such as user education, sanitation and hygiene promotion, record keeping, meetings etc have been relegated to the background.

Record keeping among the management structures was found to be very poor. Apart from Pramso in the case of the WSDBs and Nyameani in the case of the WATSAN Committees, all the other management structures do not keep essential records concerning the operation and management of the facilities.

The intricate social relations in the communities, especially the rural communities where the WATSAN Committees operate makes it difficult to operate the pay-as-you-fetch tariff concept, although the concept is the main one operating, albeit

grudgingly. In most of the communities, some people either refuse to pay after fetching or they hide under the cloak of ‘crediting’ the water and later renege on their promise of paying.

5.1.2 Recommendations

In view of the intricate social relations between the community and the management structures, especially in the very rural communities which makes the collection of fees difficult, and subsequently affect sustainable operation and maintenance, this study seeks to pose this question? Should we revert to the centralised system of tariff collection and operation and maintenance where the centralised entity responsible for the collection of tariffs wears a ‘social mask’ and thus is neutral to the social relations of the community and raise enough funds for routine and preventive maintenance and expansion of the facilities or we stick to the COM and risk the breakdown of a number of the facilities provided. This study proposes a middle-of-road approach of allowing each community to devise its own strategy of raising funds for repairs without necessarily paying at the time of fetching. These locally devised fund mobilisation strategies should be based on the communities’ history, culture and orientation of raising funds. These strategies may include estimating the average water usage per household and the associated fees per a given period of time and allowing the household to pay at their convenience. The payment times could, for instance be made at harvest periods in the case of farmers. Additionally, special fund raising activities could be carried out during festivities to raise funding for the water facilities. The strategy could be a cross-subsidisation effort of the rich paying more to make up for the poor.

This study has shown that community members are more willing to pay for a ‘piped’ system (mechanised or small towns pipe system) than the ordinary borehole fitted with a hand pump. It is recommended that most of the boreholes with pumps should be converted into limited mechanised systems to make fetching easier and facilitate easy collection of fees. In areas where small towns pipe systems are planned for and the community already has a number of boreholes, the high yielding ones could be used as the sources instead of drilling new boreholes. In line with the above recommendation, a mechanism could be found to cap boreholes with pumps in the community so that the two (the communal stand pipes from the STPS and the boreholes with pumps) do not operate side by side.

Although the capacity of the management structures was found to be average, regular refresher training by the District Assembly and other stakeholders is considered critical to the sustained operation and maintenance of the facilities. There is therefore the need to undertake detailed capacity needs assessment to determine the peculiar training needs of each community. The training that follows the capacity needs assessment could include issues on conflict resolution, fund mobilisation consensus building, team building, record keeping and community negotiation skills. The CWSA should also make re-training of the management structures a main activity in planning for capacity and not as an after-thought or only if there are left-over funds. This is especially necessary due to the high attrition rate of the membership of the management structures.

The attrition rate among members of the management structures, especially among the WATSAN Committees is generally high, but higher among women than men. As stated in the analyses section of this report, the WATSAN Committees members are subjected to all kinds of abuses in the course of performing their duties, and this discourages women from participating actively in the activities of the WATSAN Committees. To curtail this, there is the need for continuous education, before and after the construction of the facilities to orient the communities on the need to accept and encourage women to participate actively in the management of water facilities. A mechanism could be instituted for reporting residents who subject WATSAN Committee members, especially women to insults to the chief for punishment. In the education process, women should also be oriented to be assertive and recognise the relationship between potable water and their traditional roles, and how the breakdown of the facility could affect them adversely.

Regular backstopping by the CWSA and the DWST is critical to the sustained operation and maintenance of the facilities. The District Assembly should recognise that too much focus on the provision of facilities to communities was not the ultimate solution to the provision of potable water to the people. Regular monitoring and evaluation of the facilities already provided to ensure they last the design timeframe was equally important. Closely linked to regular backstopping is the need for institutional capacity building and strengthening of the DWST. The DA should recognise the critical role of the DWST in the sustained operation and maintenance of the water facilities already provided. The recognition of the DWST by the DA should

be practically manifested in the provision of training and educational materials, payment of allowances of the DWST staff for their backstopping activities, regular maintenance and fuelling of motorbikes etc.

In every community, there already exists a number of development-oriented committees, prominent among them being the Unit Committees and Village Development Committees which are also characteristically known to be voluntary and sacrificial in nature. In some of the communities, the unit committees or the chiefs have taken over the management of the facility either by force or due to the desertion of the management structures by members. It is recommended in this study that since there are already time tested institutions on the ground, these must be made to manage the facilities and be made to account to the community at agreed time periods. This arrangement must be encouraged and formalised in communities where several attempts at forming and sustaining the WATSAN Committees have failed. This is justified on the premise that these Unit Committee members are also selected by the community through a nationally recognised local government system and are responsible for the overall development of their towns.

The prescription for the formation and composition of the WATSAN Committees should be flexible to respond to the peculiar local conditions of communities. For instance, it is not all communities which need up to 5-7 members, as stipulated in the CWSA technical guidelines and standards, to be able to function effectively. In Onwi, though the number has reduced from 5 to 2 since its formation in 2006, the undying commitment of the two remaining members is encouraging and better than Kokobiriko where the number was five. Sometimes in some instances the desertion by some members could be considered 'good riddance' since their inclusion rather cast a slur on the management structures and creates internal wranglings.

A critical factor that determines the morale and success of the operation and maintenance is the time between when the facility is handed over to the community and when it breaks down. If the time is so short, as in the case of Jachie, the community would not have mobilised enough funds to readily fix a major breakdown and in the absence of support from the District Assembly or any external source, the community and especially the management structure become disillusioned and demoralised. This sometimes leads to desertion of the group by the members. It is

recommended that the two –year post project support stated in the CWSA Project Implementation Manual should be taken seriously by Development Partners, CWSA and especially the District Assembly to forestall any of these major breakdowns. Additionally, the Defects Liability Periods (DLP) should be rigidly enforced to ensure that any major breakdown which happens in the DLP is fixed before the contractors' retention is released by the District Assembly.

The voluntary nature of the work especially that of the WATSAN Committees discourages community members from participating actively in the work of the management structures. The DA in collaboration with the CWSA and other stakeholders, should come out with incentive schemes to boost the morale of the management structures. This could be in the form of annual awards by the DA to award the most well managed WATSAN Committee and WSDB. This strategy would call for the DWST designing performance management indicators for monitoring and measuring the performances of the management structures against the performance indicators. Communities should also be sensitised on the need to devise locally acceptable incentive schemes for the members of the management structures, especially the WATSAN Committees who are neither given salaries nor allowances. Some of these incentives could include dedicating a certain percentage of the monthly proceeds from water vending as allowances for the WATSAN Committee members. This could motivate the WATSAN Committees to raise more funds, as a percentage of the proceeds will be dedicated to them.

The formation of community level management structures should be preceded by effective community animation and sensitisation on the concept of Community Ownership and Management and the responsibilities that accompany it. The COM concept should be linked to the Demand Responsiveness approach in which the community itself requests for the facility and therefore must be prepared to self operate and manage it through raising the needed funding.

Though the study did not gather any empirical data on the poverty levels of the communities, the sketchy information obtained from the 2010-2013 Medium-Term Development Plan of the Bosomtwe District Assembly and through interaction with the various stakeholders indicated that poverty levels, especially in the communities with boreholes fitted with pumps also contributed to their inability to pay. In view of

this finding, it is clear that these communities may not be able to meet the recurrent costs of operation and maintenance. It recommended to the CWSA, the MMDAs and Donors to devise an objective criteria for determining very needy communities for assistance. This study is thus proposing a selective targeting approach through the creation of a special fund within the MMDAs common fund to assist needy communities in the repair of their water facilities. CWSA should also strengthen its backstopping role and scale-up the implementation of the District Monitoring and Evaluation System (DiMES) to all districts to capture accurate data on the functionality status of all facilities. Armed with the functionality status of facilities, CWSA could develop separate proposals for the repair and rehabilitation of all non-functioning facilities in the communities so identified as needy.

5.1.3 Conclusion

This study assessed the capacity of community level management structures to operate and maintain water facilities on sustained basis. The study was premised on the evidence that tremendous strides have been made in the provision of water facilities to rural communities and small towns in Ghana, with access rising from as low as 27% in 1990 to about 60% in 2009 (World Bank, 2010). Although the increase in access to water supply has been remarkable, there is concern among sector practitioners over the capacity of local level management structures to operate and manage the existing facilities on a sustainable basis.

The study revealed that the community level management structures were not able to mobilise enough funds for the operation and maintenance of the facilities, let alone the replacement and expansion of the facilities. Evidence on the ground suggest that in all the WATSAN Committee communities an average of 38.1% of the facilities had broken down and there were no signs of efforts to repair them. The remaining functioning ones were mostly receiving crisis maintenance and not periodic and preventive maintenance. It also came out that the attrition rate among the management structures, especially the WATSAN Committees was generally high, but higher among women than men. Other findings included poor record keeping, the intricate social relations which affect revenue mobilisation and the reduction of the duties of members to revenue collection at the expense of others.

The main recommendations included but not limited to institutional capacity building of the DWST for effective backstopping; institution of incentive schemes for the management structures; adherence to the two year post construction support espoused in the CWSA Project Implementation Manual; strict enforcement of the Defects Liability Period by the DA and regular backstopping by the DWST and the CWSA.

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REFERENCES

- Adomako-Agyei, T.(2009) ‘Post Construction Support and Sustainability of Water Facilities’. A Thesis Submitted To Ghana Institute of Public Administration, in Partial Fulfilment of Masters in Development Management.
- Bacho, F. Z. L. (2001): Infrastructure Delivery Under Poverty: Potable Water Provision through collective Action in Northern Ghana. Spring Centre, University of Dortmund
- Braimah, I. and E. M. Jagri (2007), “Institutionalizing Water and Sanitation Committees (WATSAN) for Sustainable Service Delivery in Ghana: The Case of Nanumba North District in the Northern Region of Ghana”, in the Journal of Science and Technology, Vol. 27, No. 1, pp 90-101
- Braimah, I. and Fielmua, N. (2011) ‘Community Ownership and Management of Water and Sanitation Facilities: Issues and Prospects in the Nadowli District of the Upper West Region of Ghana’ in Journal of Sustainable Development in Africa, Volume 13, No.2, 2011. Accessed from <http://www.jsd-africa.com>., dated February 2, 2012
- Bustamante, R., Butterworth, J., del Callejo, I., Duran, A., Herbas, D., Hillion, B., Reynaga, M. and Zurita, G. 2004. *Multiple sources for multiple uses: Household case studies of water use around Cochabamba, Bolivia*. Cited at <http://www.irc.nl/content/view/full/8031> (accessed 10 July, 2011).
- Carter C, Tyrrel S., Howsam P. (1999). Impact and Sustainability of Community Water Supply and Sanitation Programmes in Developing Countries” in Journal of the Chartered Institution of Water and Environment”, Vol. 13, pp292-296,
- Clark, R. (1988). Water Quality Modeling- Case Studies. In: Water Distribution Systems Handbook. The McGraw-Hill Companies, US.
- CWSA (2011): 2010 Annual Report. CWSA, Accra.
- CWSA (2007a): Corporate Plan, 2008–2015. CWSA, Accra.
- CWSA (2007b): Strategic Investment Plan, 2008–2015. CWSA, Accra.
- Davis J. and Iyer P. (2002) “*Taking Sustainable Rural Water Supply Services to Scale: A Discussion Paper*” Bank Netherlands Water Partnership – Water and Sanitation Program.
- Denzin, N., and Y. Lincoln, (1994): Handbook of Qualitative Research. Sage

Publication, California.

- Doe Steve R. and Khan M. Sohail (2004): The boundaries and limits of community management: Lessons from the water sector in Ghana. *Community Development Journal* Vol 39(4):360-371
- Donnelly-Roark, P. (1987): New Participatory Frameworks for the Design and Management of Sustainable Water Supply and Sanitation Projects. Technical Report No. 52. PROWESS Report No. 50. Arlington, Va.: WASH Project.
- Fielmua, N. (2011): towards Sustainable Access to Water in Ghana. A Case of Nadowli District in *Journal of Sustainable Development* Vol. 4, No. 3; June 2011, pp 174-184
- Frempe-Yeboah, Kwame (2000) Assessing Community Performance in the Community Water and Sanitation Programme in the Tano District. A Thesis Submitted to the Department of Planning, KNUST in Partial Fulfilment of MSc. Development Planning and Management. Unpublished.
- Gbena, T. (2002): Sustainability of Community Access to Potable Water. A study of the Kwabre District. A Thesis Submitted to the Department of Planning, KNUST in Partial Fulfilment of MSc. Development Planning and Management. Unpublished.
- Ghana Water and Sewerage Corporation (1990): Water and Sanitation Delivery in Rural Ghana: Decade and Post Decade Strategy; GWSC/NGOs Conference - 13-14 August, 1990
- Gross, B., Wijk, C. van, and Mukherjee, N. (2001). Linking sustainability with demand, gender and poverty: A study in community-managed water supply projects in 15 countries. Washington, D.C.: World Bank Water and Sanitation Program.
- Harvey, P. A., Reed R. A. (2007). Community-managed water supplies in Africa: sustainable or dispensable? *Community Development Journal*, 42(3):365-378.
- IDB (2008). Water Supply Suriname Master Plan, International Development Bank.
- Kumekpor, T.K.B (2002): Research Methods and Techniques of Social Research, Sonlife Press and Services, Accra.
- Lockwood, H. (2003). Post-Project Sustainability: Follow-up Support to Communities. Draft. World Bank report. Washington D.C.

- Lockwood, H. (2004). Scaling Up Community Management of Rural Water Supply. IRC International Water and Sanitation Centre, Netherlands. <http://www.irc.nl> (Accessed on 19th March, 2011)
- Maganga, F. P., and Butterworth, J. A. (2002). Domestic Water Supply, Competition for Water Resources and IWRM in Tanzania: A Review and Discussion Paper. Tanzania.
- McCommon, C., Warner, D. and Yohalem, D. (1990) *Community Management of Rural Water Supply and Sanitation Services*, The International Bank for Reconstruction and Development/The World Bank, Washington, DC.
- Merriam, S., (1988): *Case Study Research in Education: A Qualitative Approach*. Jossey-Bass Publishers, California.
- Ministry of Water Resources, Works and Housing (MWRWH)- Ghana (2010): National Community Water Supply and Sanitation Programme: Small Towns Sector Guidelines (Operation and Maintenance Guidelines), CWSA, Accra.
- Midgley, C, Feldlaufer, H., & Eccles, J. S. (1989). Student/teacher relations and attitudes towards mathematics before and after the transition to junior high school. *Child Development*, 90, 981—992.
- MLGRD (1996): Ghana-The New Local Government System. Accra, MLGRD
- Morita-Lou, H., Waters R., (2008): Sustainability Assessment of National Rural Water Supply Program in Tanzania. *Natural Resources Forum*, 32:4,
- Nicol A., (2000). Adopting a Sustainable Livelihoods Approach to Water Projects: Implications for Policy and Practice. ODI Working Paper 133.
- PAHO (2010). "Pan-American Health Organization (PAHO) Basic Health Indicator Database." Retrieve 11-18-2010, from http://www.paho.org/english/dd/ais/cp_740.htm.
- Skinner H. C, (1988) Asbestos and other fibrous materials—minerology, crystal chemistry and health effects. New York, NY: Oxford University Press; pp. 1–149.
- Smith G., (2011): ‘Rural Water System Sustainability: A Case Study of Community-Managed Water Systems in Saramaka Communities’. A thesis submitted to the Michigan Technological University, in Partial Fulfilment of Master of Science in Civil Engineering. http://www.geo.mtu.edu/~jsgierke/student_theses/SmithG_MSCEReport_Sust

- ainabilityWaterSystemsSurinameApril2011.pdf.(Accessed on 18th December, 2011)
- UNDP/World Bank (1995): Water and Sanitation Programme. Washington, D.C, the World Bank.
- WASH news Africa (2009): Ghana; Inadequate resources is no justification for failure to achieve targets. <http://washafrica.wordpress.com/2010/07/nile-basin-water-crisis-emerging>.(Accessed on 18th March, 2011)
- World Bank (2002): “Water and Sanitation.” *A Sourcebook for Poverty Reduction Strategies*, vol. 2. World Bank, Washington, D.C.
- World Bank (1976): Village Water Supply. World Bank Paper, Washington, DC, USA
- World Bank (2010): Sustainable Rural Water and Sanitation Project. Project Appraisal Document, Washington, DC,USA.
- Wegelin-Schuringa, M. (1998) *Community Management Models for Small Scale Water Supply* Systems, Paper for discussion in workshop on public–private partnerships in service provision for community managed water supply schemes, held in Kakamega, Kenya, 7–10 December.
- Wood, M. (1994) Community management of rural water supplies, *Waterlines*, **12** (3),6–9.
- Yacoob, M., and F. Rosensweig (1992): Institutionalising Community Management : Processes for Scaling Up. WASH Technical Report No. 62. Washington, DC 20523.

APPENDIX

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

COLLEGE OF ARCHITECTURE AND PLANNING

DEPARTMENT OF PLANNING

INTERVIEW GUIDES/QUESTIONNAIRES FOR ASSESSING THE CAPACITY OF
COMMUNITY LEVEL WATER MANAGEMENT STRUCTURES TO OPERATE
AND MAINTAIN WATER FACILITIES SUSTAINABLY

**QUESTIONNAIRE FOR WATSAN COMMITTEE MEMBERS/ WATER AND
SANITATION DEVELOPMENT BOARDS**

INTRODUCTION

Name of interviewer(s).....

Date of interview.....

Interview number.....

Name of community.....

Population of community.....

THE WATSAN COMMITTEE AND ITS FUNCTIONS

1. When was your committee formed?
2. How was the WATSAN Committee formed? Eg. By election, appointment and by who?
3. What is the WATSAN committee's tenure of office? A. one term b. two terms c. three terms for how many years?
4. How many were you at the time that it was formed? Male Female

5. What is your total number as at now? Male Female.....
6. What reasons account for the difference, if any?
7. What mechanisms do you have in place for ensuring women's participation in the water and sanitation activities?
8. What do you do when any member of the committee leaves the community, resigns or is not performing?
9. What are the roles and functions of the committee?

ACCESS TO POTABLE WATER SUPPLY

1. How did your community get access to potable water facilities
2. Did the community contribute towards the construction of the facility?
3. If yes in what form and how much
4. If yes how was the funds mobilized
5. How do you manage the operation of the facilities?
6. How do you manage the maintenance of the facilities
7. Do people pay for fetching the water? If no why
8. If yes, what tariff system do you practice?
9. If you don't pay as you fetch, how do you mobilize money for maintenance

ASSESSING CAPACITY

1. Have you been given any training since the construction of the facility?
 - a. yes
 - b. no.....
2. If yes was it
 - a. pre-construction? State type of training
 - b. post construction? State type

3. What training have you collectively and individually received for the operation and maintenance of the facility?

Collective

individual

Technical

Administrative

Managerial

Financial

4. Do you think the training is enough for you to efficiently operate and manage the facilities on sustainable basis? If no, why and what are the gaps which needs to be filled?

5. What reservations do you have about the training?

6. What resources (logistics eg. Tool boxes, bicycles, etc) have you been given for performing your functions?

7. Are they adequate? If no, why

8. What else do you require (logistics) in order to perform your function better than now?

9. Do you feel motivated doing this job? If yes, what motivates you and from where? Your colleagues? The community? The chief? The DWST? The DA?

10. If no why

11. Are you paid or given allowances? a. no..... b. yes.....

If yes who pays you?

12. How often do you meet as a committee?

13. Do you follow your Facility Management Plan (FMP)? If no, why

14. How are records of your activities kept

15. How often do you meet the community to discuss WATSAN issues

16. What is the help chain from the community level to the regional level?

17. Do you seek any help from this help chain? If yes, which of them (Area mechanic, DWST, Spare parts supplier, RWST,RCC)

E. OPERATION AND MAINTENANCE OF FACILITIES

1. Do you have a Facility Management Plan (FMP)?
2. How was the FMP developed?
3. Did the committee/community participate in the formulation of the FMP?
4. How effective has the implementation of the FMP been?
5. What methods are there for the operation and maintenance of the facilities?
6. Are all the facilities under your care functioning?
7. If no? Why and how frequent do the facilities breakdown?
8. How long does it take for a broken down facility to be repaired?
9. How many times has/have the facility experienced a major breakdown since it was provided (resulting in the lack of water for more than one month)?
10. Describe the breakdown
11. Who carries out the repair works
12. How did you pay for the repair work
13. How many times did you buy spare parts in the past 12months
14. What was the source of supply
15. Do you get the spare parts you want on all occasions
16. Does the length of time correspond with the minimum down time stated in the FMP?

INCREASE ACCESS TO AND USAGE OF WATER AND SANITATION FACILITIES

1. Does every household in the community get enough (at least 20 litres per head per day) water throughout the year. Yes No.....
- 1b. If No, how do you cater for the difference?
2. Has any water facility broken down before? Yes..... No.....
- 2b. If yes, how many times and how long did it take you to repair?
- 2c. Who did the repair work?

3. How do you ensure the surrounding of the water facilities are clean?

G. FUND MOBILISATION AND MANAGEMENT

(Examine physically where possible and provide your own comment)

1. What is the role of the WATSAN/ WSDB in relation to fund mobilization?
2. How do you mobilise funds?
3. Who set the tariif and how is it set and approved?
4. Is the revenue collected enough for O&M? If no, why?
5. Do you have other means of sourcing funds apart from the 'pay as you fetch'?
6. How effective have this/these fund mechanism(s) worked
7. How often do you account for money to the community?
8. What problems do you face in mobilizing funds?
9. How can these problems be overcome?
10. What records do you keep so far as fund mobilisation and management is concerned? Please, indicate whoever keeps these records?
11. Do you have records of all those who are supposed to contribute money?
Yes..... No.....
12. Do you have records of all those who have not paid yet? Yes.....
No.....
13. How many times have you accounted for money to the community?
14. Does it tally with the FMP information? Yes..... No.....
(Crosscheck with FMP) If No, why?
15. Do you have a replacement account? Yes.....No.....
16. If yes, it is operational If no why?

H. MEETINGS

(Crosscheck responses from FMP and minutes)

1. How often do you organize WATSAN only meetings?
2. How often do you organize WATSAN and community meetings?
3. Does the frequency of your meeting tally with FMP information? Yes No

(Crosscheck with FMP)

- 3b. If No, why?
4. How many people (on the average) attend yours meetings per time?
Male..... Female.....
5. Who calls for the meetings?
6. How are your meetings organized?
7. How do you relate with opinion leaders (chiefs, assemblymen, unit committees)

RECORD KEEPING

1. Apart from the financial related records mentioned already, what other records do you keep in the name of the WATSAN Committee? *(Please indicate who keeps these records).*

TYPE OF RECORD	YES/NO	RECORD KEEPER
WATSAN meetings		
Community meetings		
Site meetings		
Visits		
Certificate of completion		
WATSAN Constitution		
Signed FMP		
Handing over evidence		
Stock of spare parts		
Facility breakdowns		
Facility repairs		
Others		

(Examine physically, and provide comments)

2. Do you keep all your letters and relevant documents filed?

Yes..... No.....

2b If No why?

J. NETWORKING AND COLLABORATIONS

1. Do you collaborate with other stakeholders and other WSDBs/WATSAN committees in other communities? Yes.....

No.....

1a. If yes, which ones?

1b. Are you satisfied with such collaboration with the other stakeholders?

Yes..... No.....

2. Do you know where the following are located? (*Caretakers should answer first*).

Area Mechanic Yes No

Spare Parts Store Yes No

DWSTs/DWD Yes No

CWSA Regional Office Yes No

2b. What assistance do you get from these operators/institutions?

2c. If No, why?

3. What problems do you have within your WSDB/WATSAN Committee?

4. How do you solve your internal problems?

K. CHALLENGES

1. What problems do you generally face in performing your duties? (For example, problems within Community, with other stakeholders, with CBOs etc)

- 1b. What reasons account for such problems?
- 1c. How do you think these problems could be solved?
- 2. What other issues affect WATSAN activities which you will like to share with me, apart from the ones we have already discussed?

QUESTIONNAIRE FOR OPINION LEADERS/COMMUNITY MEMBERS

Name of interviewer

Name of community.....

Name of area council.....

Date of interview

1. What functions do you perform in potable water provision in relation to the following:
 - i. Planning
 - ii. Implementation
 - iii. Operation and maintenance
2. What training have you received from the WATSAN Committee or the PO or any other institution?
3. Do you get sufficient water daily to meet your demand throughout the year?
 Yes..... No.....
4. If No, how do you cater for the difference
5. Does the potable water suffice all year round? Yes.....
 No.....
- 5b. If No, when is it scarce?
6. How do you get potable water during this period?
7. What specific problems do you have with your potable water points and water fetching?
8. To the best of your knowledge, who is the owner of the communal water and sanitation facilities provided to the communities?
9. What functions do you perform in the water and sanitation provision in relation to the following:
10. What do you use potable water for?
11. How do you keep water clean, from the point of fetching till consumption?

12. What arrangements are there in this community for keeping the community clean?
13. Do you think the WATSAN has the capacity (technical, managerial, financial, logistics, motivation) to operate and manage the facilities?
14. If yes, what shows
15. If no, why
16. What is your impression about tariffs collected for O&M?
17. Are the funds collected from the tariffs adequate for sustained O&M?
18. What are your impressions about the performance of the WATSAN Committee?
19. How do you compare the performance of the WATSAN before the construction of the facilities and after the construction?
20. What do you think are the causes of the differences, if any?
21. What are your impressions about the level of community participation in the water and sanitation project in this community?
22. What are your impressions about women's participation in decisions and activities of the water and sanitation project in this community?
23. What other issues pertaining to the WATSAN activities will you like to share with me of, which I did not inquire?
24. What extra training, logistics and motivation do you think the WATSAN Committee and the community needs to improve upon effective operation and maintenance?
25. What functions do you perform to ensure effective operation and maintenance
26. How do you see the work of the Board/WATSAN? a) Excellent b) Good c) Fair d) poor
27. Are you satisfied with the accounts rendered by the WSDB/WATSAN?
28. Does the facility function to your satisfaction?

**QUESTIONNAIRE FOR THE DISTRICT WORKS DEPARTMENT /
DISTRICT ASSEMBLY**

Date of interview _____

Respondent _____

1. Within the community ownership and management approach, what is the role of the DWD/DA in building the capacity of WDSB/ WATSAN Committees?
2. What capacity requirements are considered as pre-requisite for effective WSDB/WATSAN performance of their functions?
3. Which of these have they been provided so far?
4. What comments or reservations do you have regarding the way these were delivered? For example, their timely delivery, adequacy, mode of delivery etc.
5. What further capacity (training, logistics, and motivation) do you think the communities/WATSAN need in order to improve their performance? (For example, further training, motivation, tools etc).
6. Why do you think these have not been provided yet?
7. How do you think these can be provided?
8. How will you compare community's pre and post facility construction commitment and performance?
9. In your own opinion, what reasons account for the differences in performance?
10. What is the payment situation towards O&M of facilities?
11. If bad, what accounts for this?
12. What are the indicators to ascertain the performance of communities in operation and maintenance?
13. What are your general impressions about the level of performance of the communities in view of the performance requirements that they have already been provided?
14. Do you think the DWST/DA has the capacity (know-how, logistics, motivation) to help the communities operate and maintain their water facilities on sustainable basis? If no, what are the gaps and why are they unavailable.
15. What role is the District Assembly playing in promoting sustainable community water and sanitation management in the district?
16. What information will you like to share with me, apart from what I have already requested for?

CWSA REGIONAL OFFICE

Date of interview _____

Respondent _____

1. Within the community ownership and management approach, what is the role of CWSA Regional Office in building the capacity of DWD/WSDB/WATSAN Committees in operation and maintenance?
2. What capacity requirements are considered as pre-requisite for effective community/WATSAN /WSDB performance of their functions?
3. Which of these have they been provided with so far?
4. What comments or reservations do you have regarding the way these were delivered? For example, their timely delivery, adequacy, mode of delivery etc.
5. Is what has been provided uniform for all the communities? Yes.....No.....
Give reasons for your answer.
6. What further capacity (training, logistics, and motivation) do you think the DWD/WSDB/ WATSAN Committees need in order to improve their performance? (For example, further training, motivation, tools etc).
7. Why do you think these have not been provided yet?
8. How do you think these can be provided?
9. How will you compare community's pre and post facility construction commitment and performance?
10. In your own opinion, what reasons account for the differences in performance?
11. What is the payment situation towards O&M of facilities?
12. If bad, what accounts for this?
13. What are the indicators to ascertain the performance of communities in operation and maintenance?
14. What are your general impressions about the level of performance of the communities in view of the performance requirements that they have already been provided?
15. What information will you like to share with me, apart from what I have already requested for?

INTERVIEW GUIDE FOR THE SPARE PARTS DEALERS

Date of interview _____

Respondent _____

1. What is your role in the delivery of water and sanitation services?
2. Where do you get the supply of your spare parts?
3. What spare parts have high demand?
4. Are you able to supply them whenever they are needed? Yes.....No.....
5. Are you motivated enough to stay in business? Yes.....No.....

Give reasons

6. What are your capacity needs for the operation of your spare parts business?
7. What problems do you face in your business?

INTERVIEW GUIDE FOR AREA MECHANICS

Date of interview _____

Respondent _____

1. What do you do as an Area Mechanic?
2. What is your role in ensuring effective operation and maintenance?
3. What capacity requirements are considered pre-requisite for effective performance of your functions?
4. Which of these have they been provided so far?
5. What comments or reservations do you have regarding the way these were delivered? For example, their timely delivery, adequacy, mode of delivery etc.
6. What further capacity (training, logistics, and motivation) do you think the communities/WATSAN need in order to improve their performance? (For example, further training, motivation, tools etc).
7. Do you have the necessary tools to work with? Yes No.....

8. Are spare parts for repair of works available? Yes..... No.....
9. What are your experiences with regards to the following?
 - i. Pump repairs
 - ii. Types of breakdowns
 - iii. Down time
 - iv. Payments for repairs
 - v. Access to spare parts
10. The relationship of communities, spare parts dealers and other stakeholders in the NCWSP with you
11. What problems do you generally face in the performance of your duty?
12. How do you think these problems could be solved?
13. Do you think the WATSANs have enough capacity to operate and maintain the facilities
14. If no, what are the capacity gaps?
15. To the best of your knowledge, who is the owner of the communal water and sanitation facilities provided to communities?

