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Partnership in small towns' water service delivery in Ghana

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M.Sc. Thesis

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Science and Technology**



Water Resources and Environmental Sanitation Project – KNUST

Faculty of Civil and Geomatic Engineering

Department of Civil Engineering

Partnership in Small Towns' Water Service Delivery in Ghana

Master of Science Thesis

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Partnership in Small Towns' Water Service Delivery in Ghana

By

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In Partial Fulfilment of the Requirements for the Degree of

MASTER OF SCIENCE

In

(Water Supply and Environmental Sanitation)

Faculty of Civil and Geomatic Engineering

College of Engineering

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CERTIFICATION

I hereby declare that this submission is my own work towards the M.Sc. and that, to the best of my knowledge, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

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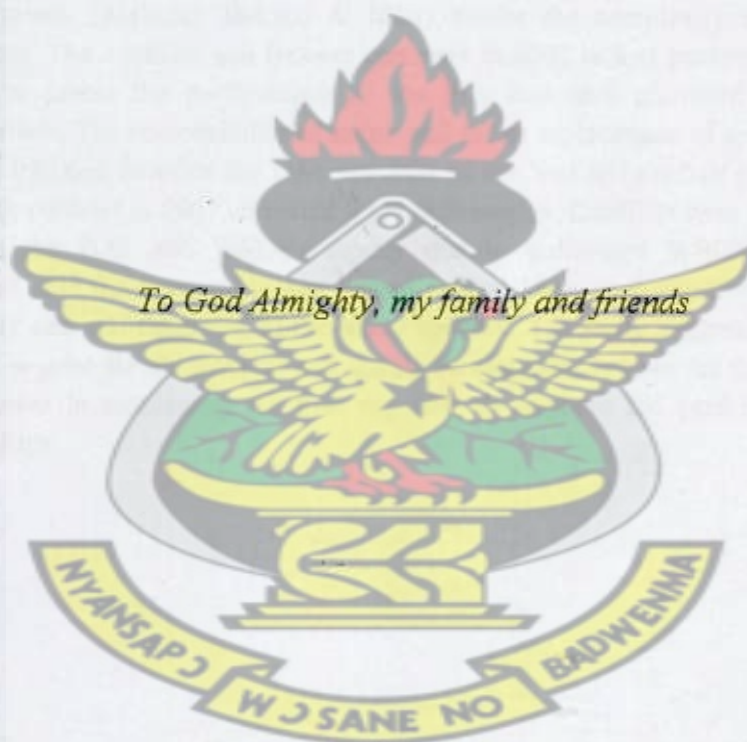
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DEDICATION

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To God Almighty, my family and friends

ABSTRACT

This study focused on the performance of partnerships between local authorities and Private Operators (PO) for water service delivery in small towns. The study assessed the development of such partnership, the partnership relationship and outcomes and the factors affecting the partnership in five towns with piped water systems, three under PO management and two under direct management by the WSDb, these were used as controls. The methodology adopted was a case study research, within which interactive interviews with stakeholders, small group discussions, household surveys and review of secondary data (contract documents, monitoring documentation and operational reports) were employed. Technical and financial performances of the systems were analysed using some selected performance indicators (e.g. Unaccounted for Water, Revenue Collection Efficiency, self financing ratio, reliability) and analysis of the household surveys (customer satisfaction). The study revealed that Public Private Partnership in the small towns was triggered by the size of the towns (Atebubu, Bekwai & Mim) and/or the complexity of the system (Atebubu). The Atebubu and Bekwai contracts in 2002 lacked performance indicator targets to assess the performance of the POs and also promoted post-contract opportunism. The responsibility of major and minor replacement of system facilities sparked frictions between the DAs and POs as this was not explicit in the contract. The Mim contract in 2007 corrected these deficiencies. Conflicts were also pervasive between the DAs and WSDBs mostly due to politicised WSDBs. The study identified that the partnership has helped reduce UFW and improved the service reliability and self-financing of the water systems. The study suggests that the PPP concept is good for the systems and should be maintained; however the DAs should be effective in monitoring the POs regularly to improve the performance of the partnerships.



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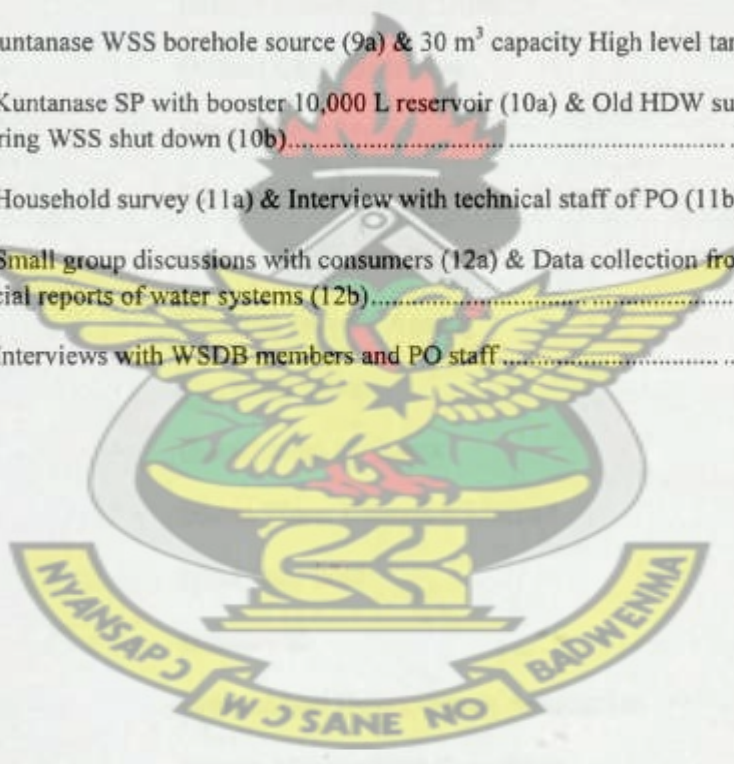
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LIST OF ACRONYMS (ABBREVIATIONS)

AFW	Accounted For Water
BAK	Bosomtwe-Atwima-Kwawoma
BPD	Business Partnership for Development
COM	Community Ownership and Management
CWSA	Community Water Sanitation Agency
DA	District Assembly
DANIDA	Danish International Development Agency
DCD	District Coordinating Director
DCE	District Chief Executive
DEA	Data Envelopment Analysis
DPPC	Distribution Point for Private Connection
DWST	District Water and Sanitation Team
ESA	External Support Agency
EU	European Union
GoG	Government of Ghana
GWCL	Ghana Water Company Limited
HDW	Hand Dug Well
HH	Household
IDA	International Development Association
IMC	Interim Management Committee
IRC	International Water and Sanitation Centre
KNUST	Kwame Nkrumah University of Science and Technology
MCE	Municipal Chief Executive
MDG	Millennium Development Goal
MLGRD	Ministry of Local Government & Rural Development

MOU	Memorandum of Understanding
MWRWH	Ministry of Water Resource, Works and Housing
NGO	Non Governmental Organization
NWP	Netherlands Water Partnership
O & M	Operation and Management
PC	Private Connection
PO	Private Operator
PPIAF	Public Private Infrastructure Advisory Facility
PPP	Public Private Partnership
PSI	Private Sector Involvement
PSP	Private Sector Participation
RA	Regression Analysis
SP	Standpipe
SSF	Slow Sand Filter
STWSS	Small Town Water Supply System
UFW	Unaccounted for Water
UNCHS	United Nations Centre for Human Settlements
USAID	United States Agency for International Development
VRA	Volta River Authority
WSDB	Water and Sanitation Development Board
WSP	Water and Sanitation Programme
WSS	Water Supply System
WTS	Water Treatment System
WUP	Water Utility Partnership

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CHAPTER ONE: INTRODUCTION

1 Background

The apparent failure of governments and public agencies to supply adequate water has led to the promotion of Public Private Partnership (PPP) in water delivery, keen to reduce their burden of obligation. PPPs have become a popular institutional arrangement, due to its perceived remedy to a lack of dynamism in the traditional public service delivery. Yet there has not been any systematic evaluation of the policy requirement for successful PPP implementation (Dima, 2004). The PPP concept has been attempted in Uganda on 23 small towns under a management contract, out of the 63 systems intended for community management. The primary objective was to develop systems with cost recovery to a point of self-sustainability (Price & Franceys, 2003). This process recently started in Ghana with some piloted small town systems where the government is trying to move the towns (with population above 10,000) away from full public sector participation toward private sector participation after some attempt at community management.

Ghana has about 300 small towns (population between 2,000 and about 50,000) with piped water supplies under Community Ownership and Management (COM). The small town water sector has become important because it falls between the urban and rural water supply sectors with peculiar features. There are two modes of Operation and Maintenance (O & M); community management under the Water Boards and Public Private Partnership under Private Operators (POs).

Community Water & Sanitation Agency (CWSA) facilitators of safe drinking water and sanitation services provision to rural communities and small towns in Ghana has mandated communities with population above 10,000 to contract a PO for O & M of their water systems (CWSA, 2005). It has been mentioned that COM of such water

systems are facing challenges. The existing and common practice in managing and operating the water systems involving only the Water and Sanitation District Boards (WSDBs) is deemed unlikely to sustain these systems, thus the concept of PPP in the small towns. The PPP concept has been implemented in some small towns but how it is functioning in delivering water services for sustainability and its performance is unknown and not sufficiently understood, thus the need for the study. It is therefore important to evaluate the performance of partnerships in the small towns' water service delivery involving the WSDB/District Assembly (DA) and the POs if this concept is to be replicated on other small towns elsewhere in the Ghana. The study looks at how the PPP works, the performance of the service delivered by the partnership and the external factors affecting the partnership relationship and the service delivery.

1.1 Problem statement

There is a problem of sustainable water services (accounting for 85% of water produced, operating for 95% per annum, producing water to Ghana Standard Board quality standards etc) of the small towns with population above 10,000 and their management. There is also a lack of understanding of how the Public Private Partnership (PPP) concept at the small towns' level in Ghana function in delivering water services for sustainability and its impact on service delivery. The factors influencing the partnership relationships and its outcomes on the service delivery is not known. Private management of water facilities remains an area to further develop with a view to ensuring long term sustainability of water facilities.

1.2 Justification

The relevance of this study is for policy development in the Small Towns' Water Supply Systems (STWSS). The study will help identify whether the ongoing PPPs is producing the intended results; whether there has been improved service delivery and partnership relationship; which good aspects can be used to improve the PPP process; what the challenges are, etc. Understanding the PPPs will help improve further designs in the involvement of POs in the O & M of the STWSSs with population above 10,000. According to Carter and Danert (2003), massively increased service is not merely an engineering problem, but one which involves capacity building, human behaviour change and economic development.

1.3 Research objective

The main objective is to assess the performance of partnership involving Local Authorities (Water Sanitation & Development Board) and Private Operator and its effect on water services in small towns with population above 10,000.

1.3.1 Specific objectives

- To assess how the PPPs have evolved over time and partnership relationship (drivers & nature of partnership, trust, management support, conflict, reporting).
- To determine the performance of the water service delivery (technical, financial, customer satisfaction).
- To determine factors affecting such partnerships (political, legal, socio-cultural, financial and technical).

1.4 Research questions

- What triggered the partnership and how has it developed over time?
- What are the critical indicators for effectiveness and efficiency relationship among the partners in the partnership process?
- What are the conditions/constraints in the partnership arrangement? How have the conditions changed in the partnership process?
- What are the service delivery performances (technical and financial)?
- What are the factors affecting the partnership and service delivery?

1.5 Limitation of study

- There may be some errors in the responses due to partisan or biases towards particular partners. Some individuals were reluctant to give information that they felt was confidential and if released would offend other partners, but which was vital for the study.
- In some of the systems, the PO term had ended and their version of the situation was lost (a typical example was the PO in Mim).

1.6 Structure of report

The next chapter presents literature reviewed on the partnership: its definition; characteristics; partnership types and the conditions affecting partnerships and water services. It further describes the previous partnership assessment frameworks; performance indicators of water services and data collection methods for assessing partnerships. Chapter three presents an overview of the small towns' water supply sector; the institutional and legal frameworks supporting the small towns' water supply. The study areas and their water supply characteristics are presented in chapter four. The methodology to assess the performance of the PPP and the water service are also presented in chapter four with the conceptual framework based on literature reviewed. Chapter five presents the main findings based on the case study research. Finally, chapter six presents some conclusions and recommendations on the findings of the study.

1.7 Definition

Micro-management: A management style where the owner of the water system interferes with management and seeks to control all aspect of tasks assigned to the operator.

Nature of partnership: Translates into the description of the partnership (i.e. scope, conditions of re-negotiation & termination, presence of performance indicator targets).

Post-contract opportunism: Having monopoly power after the contract has been entered into or has ended and creating the avenue for taking advantage of lapses in the contract.

CHAPTER TWO: LITERATURE REVIEW

2 Introduction

This chapter provides literature reviewed on partnership, the components of partnership, and the need for partnership regulation. It also describes the various partnership types and their characteristics.

2.1 Defining partnership

This section reviews the various definitions by authors to gain an in-depth understanding into partnership. Various authors have tried to define partnership differently, but with some common key components.

Wilcox (1999) sees partnership as 'deciding together' and 'acting together' (cited in Franceys and Weitz, 2003). The Business Partnership for Development (BPD) defines partnership as a collaborative arrangement involving two or more organisations based on: (a) Synergistic goals and opportunities that address particular issues or deliver specific tasks that single organisations cannot accomplish on their own; (b) Situations where individual organisation cannot purchase the appropriate resources or competences purely through a market transaction.

In this study we define partnership arrangement as any co-operative working arrangement between a business organization (formal) and the government (local), in which resources and skills are shared in the project that benefit each actor as well as the community.

2.1.1 The need for regulation in partnerships

Pessoa *et al* (2008) reports that the involvement of the private sector in the water service delivery require strong economic regulation to protect the interests of the parties involved. Their study reveals that regulators are normally constrained in their operations since majority of the customers are poor and unconnected at their homes. He further identifies some qualities that a regulator should possess: (a) competence, measured by access to technical expertise; (b) independence, both from government agencies and influence from service providers and (c) legitimacy, measured by the existence of legal principles, coupled with transparency and accountability.

2.2 General partnership forms

According to Axelrod and Dion (1988), partnerships can take many forms, can be used for many purposes and involve complex legal, political, organisational and financial interrelationships among partners (cited in Mwangi, 2002). The various partnership forms are typically: Public-Public Partnerships and Public-Private Partnerships. In this section, the various forms of partnerships in the small towns setting are discussed with greater emphasis on the public-private partnership.

2.2.1 Understanding Public-Private Partnerships

This is a partnership involving at least one public organization and one private operator. The Private Operator (PO) is a private company registered with a government agency and bound by company laws. Sindane (2000) argues in favour of PPP as compared to contractual arrangement where the private takes responsibility for all, or part, of a public functions in delivering service to a target group (Cited in Akintoye *et al*, 2003).

2.2.1.1 The PPP argument

Many African states are now opting for PPP in their services and infrastructure. Akintoye *et al* (2003), in his study of PPPs appraises its application in several parts of Africa. South Africa for instance is applying the concept in the prison sector (Ball, 1999; cited in Akintoye *et al*, 2003). Franceys (1997), also reports on the use of a pilot water management system and a water supply lease contract in Uganda and Guinea respectively (cited in Akintoye *et al*, 2003, p 23). Kayaga and Sansom (2003) and Tumusiime and Njiru (2004) appraises the performance of management contracts in small towns in Uganda. According to their study, a well planned and designed management contracts can potentially improve performance of small towns' water systems for the benefit of the users of services.

2.2.1.2 Contracting options under PPP

The contract forms range from service contracts, management contracts, leases, operations and maintenance concessions, capital investments to divesture and asset ownership. Table 2-1 presents the various forms of PPP options.

Table 2-1: Allocation of key responsibilities under the various options for PPP

Option	Asset ownership	O & M	Capital investment	Commercial risk	Duration
Service contract	Public	Public & Private	Public	Public	6 months-2 yrs
Management contract	Public	Private	Public	Public	3-5 yrs
Lease	Public	Private	Public	Shared	8-12 yrs
Concession	Public	Private	Private	Private	25-30 yrs
BOO	Private and Public	Private	Private	Private	25-30 yrs

Source: Adapted from World Bank toolkit for Private Participation in Water and Sanitation

According to Ogunbiyi (2004), several PPPs have had a “negative impact on the poorest of the poor by restricting their access to clean supplies due to high tariffs”. The same author further asserts that PPP schemes involving management contracts, where the combination of public finance and private management of technical and commercial operations has been applied, could be the best type of contractual arrangement for water supply in developing countries.

2.2.2 Partnerships forms in Small towns

According to the CWSA/PPIAF report, the following options of partnership are prominent in the small towns' water supply:

- a. Public-Public: DA and WSDB with hired professional staff.
- b. Public-Private: Agreement between DA/WSDB and PO.
- c. Public-Public: Agreement between GWCL and DA/WSDB with hired professional staff.

2.2.2.1 Public – Public: DA and WSDB with hired professional staff

According to the NWP (2004) report, in this option the DA transfers the management responsibility of the water system to the WSDB. The WSDB engages service operators to undertake the O & M responsibilities and the board maintains the administrative and oversight management responsibility of the system. Table 2-2 presents the roles and responsibilities of the various stakeholders.

Table 2-2: Roles and responsibilities of STWSS public -public partnership

Institutional functions	Responsible institution
Ownership	DA
Governance	WSDB
Management	WSDB and hired staff
Operations	WSDB and hired staff
Communication to communities	WSDB
Regulation	DA
Finance	DA
Capacity Building	DA; NGOs, ESA
Guidance/information	CWSA, Ministry of LGRD, NGOs, ESAs
Monitoring	CWSA, Ministry of LGRD [?]

SOURCE: NWP-NGO Group Report, April 2004, Delft.

2.2.2.2 Public-Private-Partnership: DA/WSDB, PO and Community of user

According to the NWP (2004) report, in this option the DA/WSDB (on behalf of the 'community') contracts a PO to manage the water system by undertaking the administration and technical management of the water system. Table 2-3 presents the roles and responsibilities of the stakeholders.

Table 2-3: Roles and responsibilities of the STWSS public-private partnership

Institutional functions	Responsible institution
Ownership	DA
Governance	WSDB
Management	Private Operator
Operations	Private Operator
Communication to communities	WSDB, Private Operator
Regulation	DA
Finance	DA, Private Operator [?], ESA
Capacity Building	DA; Private Operator, NGOs, ESA
Guidance/information	CWSA, Ministry of LGRD, Water Boards
Monitoring	CWSA, Ministry of LGRD [?]

SOURCE: NWP Report, April 2004, Delft.

2.2.2.3 Public-Public: GWCL and DA/WSDB with hired professional staff

According to the NWP (2004) report, this option consists of GWCL signing an agreement with DA/WSDB to supply bulk treated water (supply is metered). WSDB is then responsible for only the management of the water system i.e. the distribution, tariff setting and revenue collection in the community in which it serves (e.g. Savelugu, Northern Region). Table 2-4 presents the characteristics of the partnership form.

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Table 2-4: Roles and responsibilities of the STWSS Public-Public Partnership

Institutional functions	Responsible institution
Ownership	DA/GWCL
Governance	WSDB
Management	WSDB (hired staff)
Operations	WSDB and hired staff
Communication to communities	WSDB
Regulation	DA
Finance	DA
Capacity Building	DA, NGOs, ESA, Water Boards
Guidance/information	CWSA, NGOs, ESAs, Water Boards
Monitoring	CWSA

SOURCE: NWP Report, April 2004, Delft



2.3 Actors in partnerships in the small towns' water sector

Several groups play a role in partnerships in the water sector: the government at the local level; the formal private sector; and external support agencies. Households also have a role to play but are often left out.

2.3.1 The public sector

UNCHS (2001) reports that the public sector has its primary strength from its legal authority, law making power, monitoring and regulatory function, and the mandate that it has to act directly with (or delegate responsibility to) other stakeholders. Political interference and corruption, high staff turnover and significant inefficient and inflexible bureaucracy are some weaknesses of the public sector (cited in Mwangi, 2002).

2.3.2 The private sector

Faulkner (1997) describes the formal private sector as institutions, firms and individuals who may be active in many different aspects of infrastructure management but whose main objective and organisation is to generate a profit on their investments (cited in Mwangi, 2002). The private sector has strengths in transparency, its ability to innovate and replicate and its customer focus (Caplan, 2001). It is able to respond quickly to the need to improve and deliver services and has limited exposure to political interference.

2.3.3 External support agencies

Huge capital investments in small towns' water supply systems require some form of assistance from external agencies outside the locality. External agencies rarely stay

for long and only continue their local presence to guarantee the maintenance and expansion of new projects (UNCHS, 2001).

2.3.4 Households

According to Hordijk (2000), the household is the key unit of production, reproduction and consumption, and the unit where decisions on pooling and allocating labour and resources are made (cited in Mwangi, 2002). Poor households spend considerable amounts of physical, economic and social energies to maintain access potable water supply.

2.4 Previous framework for assessing partnership

Many authors have tried to study partnerships in different sectors. From literature, reviewing the performance of partnerships involves two elements: an assessment of the results of the partnership and an assessment of how the partners work together. Assessing the results/outcomes is somewhat straight forward.

Acutt (2001) provides some quantitative perspectives on costs, benefits and savings of tri-sector partnerships. In his study, the key elements employed in the methodology included: scoping (to identify indicators of partnership benefits); Data collection (to gauge changes in the selected indicators); assessment of incremental contribution of the partnership (to the identified changes); and value for money assessment (comparing net benefits and costs in the partnership process).

Other partnership assessment frameworks that have emerged are specifically aimed at assessing the unique characteristics of partnership. Provan and Milward (2001) for instance proposed a framework for evaluating public sector networks at three levels: the community, the network, and the organization/participant. At the network level,

they mainly suggested structural targets of analysis (e.g. number of partners and number of connections between organizations), or the outcomes of the network (e.g. the range of services provided). According to Brinkerhoff (2002), their frameworks did not address the quality of the relationships among the partners and how it could be improved for more effectiveness in their outcomes. Mitchell (2001) and Warner (2005) also measured partnership's 'added-value' by looking at the benefits that are derived by the partners over time. Caplan (2005) on the other hand, examined partnerships in relation to accountability to better understand their responsiveness, transparency and compliance. Hasting (1998) in her study on the analysis of power relations in partnerships used data methods such as: attending and recording partnership meetings; conducting interviews with designated representatives of the partner organisations and collecting minutes; policy documents and other written documents.

Mcquaid (1994) in his study outlines three vital components of partnerships in this respect: (a) the mandate, including aims and objectives of the partnership arrangement; (b) the arrangement within each partnership; and (c) the various outcomes (cited in Mwangi, 2002). Table 2-5 explains all the components of partnerships as prescribed by Mcquaid (1994).

Table 2-5: Components of partnerships in water delivery

Components of partnership	Examples
(a) MANDATE	
Aims	Increasing water coverage, increasing accounted for water, increasing revenue collection efficiency etc.
Range of activities	Expanding the system infrastructure, increasing extension works etc.
(b) ARRANGEMENTS	
Actors involved and excluded	Who does what, how and when
Nature of relationships	Formal or informal
Decision-making structure	Organisational structure
Division of tasks	Related to the responsibilities of the parties
Inputs of various actors	What do different partners bring to the partnership
Financial arrangements	What financial resources are available to the partnership
Monitoring and evaluation	Review of process made; lessons and replicability.
(c) OUTCOMES	What actual benefits (tangible or intangible); value-added

Source: Adapted from McQuaid R. W (1994)

In 2002, Brinkerhoff proposed an assessment approach which covered five general areas: compliance with prerequisites and success factors in partnership relationships; the degree of partnership practice; outcomes of the partnership; partners' performance and efficiency (*ibid.*). Table 2-6 outlines some assessment targets for assessing and improving partnership relationships in Brinkerhoff's study.

Table 2-6: Summary of proposed assessment category and targets

Category	Targets
Pre-requisites and facilitative factors	Perception of partners' tolerance for sharing power and partners' willingness to adapt to meet partnerships needs (i.e. perception of receptivity to new solutions, accommodation of special requests and responsiveness to unforeseen situations.
Success factors	<p><u>Trust</u>: Perception of integrity, honesty, reliability and moral character. Perception of competence in prescribed skill areas and understanding of partnership.</p> <p><u>Confidence</u>: Standard operating procedures, contractual agreements and their degree of formality.</p> <p><u>Senior Management Support</u>: Directly, translates into resource commitments (e.g. financial, personnel, etc.) and often entails accommodating partners' constraints. Indirectly, the participation and support of senior management symbolizes the organization's commitment to the partnership and its success.</p> <p><u>Conflicts</u>: Degree, frequency and presence of dominating partners.</p>
Degree of partnership (Mutuality)	<p><u>Reciprocal accountability</u>: Regular reporting among partners, access to performance information, financial controls balanced with administrative imposition and joint design of evaluation/assessments.</p> <p><u>Transparency</u>: Formal information exchange requirements and response to specific information requests, less formal and/or structured, such as impromptu telephone calls, e-mails, and conversations, implying full participation of all member partners. This includes decision making, as well as participation in meetings, relevant discussions, and program activities.</p> <p><u>Even Benefits</u>: Perception of fairness, satisfaction with benefit distribution and satisfaction with the criteria for benefit distribution.</p>

Source: Adapted from Brinkerhoff's proposed framework for assessing partnership relationships and outcomes (2002).

2.5 Measuring the performance of water services

According to Gupta (2006), performance measurement can be defined as an approach to determine how effectively and efficiently a local body delivers the required service. According to him, there are two methods of measuring the performance of a system, one is the average analysis or simple ratio measures and the other one which takes into account all the inputs used and outputs produced by the utilities called total factor productivity measures. The total factor productivity measures are based on either regression analysis (RA) or Data Envelopment Analysis (DEA) technique. WSP (2006) developed some performance indicators using ratio methods to measure the efficiency of water supply systems. The indicators chosen were investment, financial, billing and collection, quality, costs and staffing, metering, unaccounted for water (UFW), production/consumption, coverage etc.

2.5.1 Unaccounted for Water (UFW)

UFW is basically the difference between the quantity of water produced and put into the system and quantity consumed or paid by consumers. It comprises of water losses due to leakage, illegal connection and unbilled authorized consumption like water used for cleaning reservoirs and flushing the network system, fire-fighting and water provided free to certain consumer groups and sensitive institutions (e.g. hospitals, schools, etc.).

2.5.2 Revenue Collection Efficiency

According to literature, sound financing is crucial to long-term operation, maintenance, replacement and expansion. The overall income from the water sales should be able to cover operational costs and generate sufficient cash-flow to ensure

sustainable long-term operations. Collection efficiency is one of the most important indicators in water supply service delivery that promotes sustainability of the systems but also one of the major shortfalls of many water managers.

2.5.3 Customer satisfaction

According to literature, for any performance measurement system for services in water delivery to be successful, the views of the users of the service is crucial. This is because their level of satisfaction with the services indicates the performance of the system. According to MIME consult report (2003), high access to the service indicates increased customer satisfaction and consequently their willingness to pay for the water; improved health benefits; and improved revenue collection (cited in CWSA/PPIAF document). The time taken to fetch water at the standpipes is a good measure of accessibility (*ibid.*).

2.6 Factors affecting partnership arrangement and water service delivery

This section describes the factors influencing the success of partnerships in the water service delivery. It presents literature on political, social and cultural, technical, financial and legal conditions as the main prevalent factors that influence partnership delivery.

2.6.1 The political condition

Political conditions looks at the changes in the public sector structures and its effects. According to Akintoye *et al* (2003), the private sector's involvement in PPP will always be influenced by the sustainability of these political structures. An effective

private sector needs a willing and strong public sector policy-making (DANIDA, 2000). According to Brinkerhoff (2002), there is bound to be conflicts if one or more partners are seen to be dominating.

2.6.2 Social and Cultural Conditions

DANIDA (2000) reports that insufficient consideration of cultural and social factors in programme planning and implementation impedes people's participation. According to Acutt (2001), community interference ranging from protests to sabotage can cause delays in production and interruption of the smooth running of the water service delivery process. This can result in heavy cost implications on the part of the operator. Good community relations are a vital tool for the success of an entrepreneur in the PPP process (*ibid.*).

2.6.3 Technical Conditions

According to Akintoye *et al* (2003), technical factors concern the effective and efficient functioning of equipment, materials, processes, etc. The technology, condition of the facility and the age of the facility influences the effective functioning of the system. In DANIDA's policy document, when water supply facilities are in a bad state, it becomes virtually impossible even with the best management team to improve the performance (e.g. reduction in UFW, increased production, average tariff). The system should be in good standing condition before being handed over to any operating team.

2.6.4 Financial Conditions

According to DANIDA (2000), tariffs charged to consumers are normally far below actual costs. Inadequate cost recovery has reduced Operation & Maintenance (O & M) allocations, and this has resulted in unreliable and inadequate supplies. Government institutions also do not pay for their water bills giving service providers an alibi for poor management (WUP, 2001). Increased inflation and interest rates is also a source of unforeseen additional cost. Acutt (2001) indicates that there are opportunities for financial savings in partnerships (from reduced personnel by sharing skills and experience in social issues).

2.6.5 Legal conditions

According to Akintoye *et al* (2003), legal conditions normally come as a result of the introduction of new legislation, regulations and policies. He further reviews that they are associated with issues of fraud and non-compliance with laws and contracts. The consequences of some legal conditions could affect the transactions between parties in partnership and affect the performance of their obligations (*ibid.*).

2.7 Partnership data collection methods

A range of traditional social sciences data collection methods (Table 2-7) can be used for partnerships (Taylor-Powell, 1996). Data collection requires careful application of the right tools and data collection methods in order to achieve high accuracy and reliability. Mixing the data collection methods or the data sources can ensure greater accuracy and reliability.

Table 2-7: Partnership data collection methods

Source	Advantages	Disadvantages
Surveys, questionnaires	<ul style="list-style-type: none"> • Anonymous • Easy to compare • Inexpensive • Provides lots of data 	<ul style="list-style-type: none"> • Impersonal • Wording can create biases • May not give the 'full' story
Interviews	<ul style="list-style-type: none"> • Gives good depth and range • Enable personal connection • Allow flexibility 	<ul style="list-style-type: none"> • Take time • Difficult to analyze and compare • Can be costly • Interviewer can bias responses
Review of documentation	<ul style="list-style-type: none"> • Provides comprehensive and historic information • Readily available • Few biases • Does not interrupt Routines 	<ul style="list-style-type: none"> • Takes time • Information may be incomplete and/or bias • Inflexible • Need to be clear about information required
Observation	<ul style="list-style-type: none"> • Partnership process can be witnessed in action • Can adapt to events as they occur 	<ul style="list-style-type: none"> • Difficult to interpret • Evaluator can influence behaviour
Focus group	<ul style="list-style-type: none"> • Quick and reliable way to get basic impressions • Can obtain wide range and depth of information in a short time • Provides key information about specific partnership experiences 	<ul style="list-style-type: none"> • May not be representative • Biased voices need to be carefully managed • Requires good facilitation • Difficult to analyze responses • Can be hard to schedule
Case studies	<ul style="list-style-type: none"> • Provide good overview • Depict specific partnership experience 	<ul style="list-style-type: none"> • Subject to the particular slant of the author • Time-consuming to collect • Often written for specific audiences

Source: Adapted from Caplan (2007), *Assessing partnership performance, BPD*

2.8 Overview of the Small Towns' Water Supply Sector

This section defines small towns and describes its characteristics. It also describes the type and nature of the small town system and presents the institutional and legal framework in small towns' water supply sector.

2.8.1 Definition of small towns

A small town is defined in the CWSA Act as "a community that is not rural but is a small urban community that has decided to manage its own water and sanitation systems". A further working definition used by CWSA is "a community of between 2,000 and 50,000 inhabitants, who are prepared to manage their water supply system", even though the Small Towns Act goes on to define rural community to be those with a population of less than 5000.

There are around 300 small towns systems, which generally fall into three groups:

- Old community-managed systems, built through resources via the GOG, ESA, and NGOs;
- New systems facilitated by CWSA, built through resources from GoG, ESA, and contributions from the communities ranging from 5-10%;
- The GWCL transferred systems (old and rehabilitated), previously owned by GWCL and transferred free of charge to DAs for community management under a MOU.

2.9 Institutional framework

The institutional arrangement for the management of the small towns' water supply as introduced by CWSA is shown in Table 3-1. The agency with the oversight responsibility for monitoring the DA's role in water supply is clear. The DAs are directly under the Ministry of Local government and Rural Development (MLGRD) whereas the CWSA is under the Ministry of Water Resources, Works and Housing (MWRWH).

Table 2-8: Responsibilities of the actors in the STWSS sector

Actor	Responsibility
CWSA regional office	<ul style="list-style-type: none">• Provide professional back up service to the DA• Monitor progress of Small towns project• Arrange for capacity building• Monitor the effectiveness of the CWSA policy and guidelines
DA DWST	<ul style="list-style-type: none">• Monitor O & M – technical, financial and administrative• Audit WSDB account periodically• Review and approve community tariff• Contract consultant and contractors and supervise them• Provide technical approval for WSDB plans –extension
WSDB	<ul style="list-style-type: none">• Set tariff and connection and re-connection fees• Maintain financial records for O & M• Provide financial records for inspection by CWSA and DAs/DWST• Manage the small towns facility (under direct COM)• Monitor O & M of PO– technical and financial
PO	<ul style="list-style-type: none">• Management & Operation of the water supply system under a management contract with the WSDB

Source: Adapted from literature reviewed

2.10 Legal framework

Table 3-2 provides a summary of the various laws and policy statements governing the STWSSs. It lists the instruments establishing various agencies and their key functions.

Table 2-9: Relevant Laws and Policies in the Small Towns WSS

Title of legislation	Purpose and Key elements
Act 462 Local Government Act	This Act establishes and regulates the Districts and DAs in accordance with the constitution. It gives them the power for: <ul style="list-style-type: none">• Planning functions of the DA• Making bye-laws• Financial matters
Act 564 Community Water and Sanitation Agency 2003	<ul style="list-style-type: none">• provide support to District Assemblies to:- promote the sustainability of safe water and related sanitation services in rural communities and small towns;- enable the Assemblies encourage the active involvement of the communities, especially women, in the design, planning, construction and community management of projects;• design strategies for mobilizing resources for the execution of water and sanitation projects;• encourage private sector participation in STWSS
District Assemblies Model Bye-Laws, 2008	This bye-law is for the establishment and operations of the Water and Sanitation Development Boards.

Source: Adapted from literature reviewed

CHAPTER FOUR: STUDY AREAS AND METHODOLOGY

3 Introduction

This section describes the basis for selection of the study areas and the characteristics of the areas and their water supply systems. Based on the literature reviewed, it describes the proposed type of study and how it will be done. It also describes the subjects, the data collection procedure and the method of analysis.

3.1 Basis for selection of study communities

Bekwai and Atebubu formed part of the initial systems with population above 10,000 to be managed by private operators to test the new Public Private Partnership (PPP) concept. Mim is the latest private operated system (Population greater than 10,000). It is used to test the performance of the PPP concept and ascertain its development in the small towns. Wenchi (largest system under direct management by a WSDB) was initially intended for the pilot PPP concept due to its size but opted for community management. It is used as a control to test the performance of the PPP concept. Kuntanase is a small town (Population less than 10,000) under direct WSDB management. It is used as a control to determine if such systems have similar challenges as those with population above 10,000.

3.2 Description of the study areas

This section presents a brief description of the location and size and the socio-economic characteristics of the study areas chosen under this study. It further provides the characteristics of their water supply systems. The study areas are shown in figure 4-1.

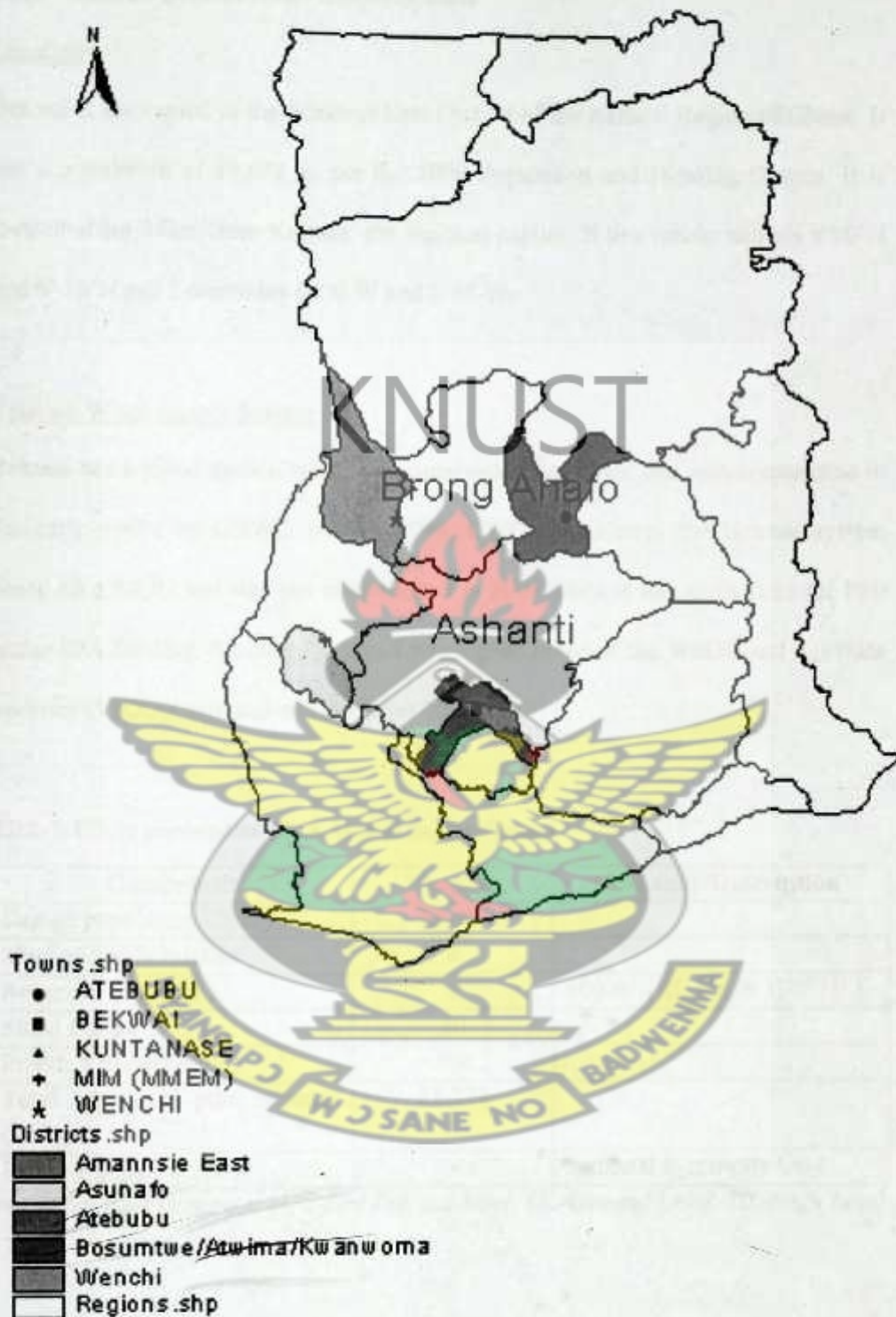


Figure 3-1: A map of Ghana showing the study areas

3.2.1 Ashanti Bekwai Water Supply System

Location

Bekwai is the capital of the Amansie East District of the Ashanti Region of Ghana. It has a population of 19,679 as per the 2000 Population and Housing Census. It is located about 35km from Kumasi, the regional capital. It lies within latitude 6°00'N and 6° 30'N and Longitudes 1° 00 W and 1°35 W.

Existing Water Supply System

Bekwai has a piped system which is groundwater-dependent and was constructed in the early 1960s by GWSC. In July 1999, GWCL transferred the Bekwai system based on a MOU and was last rehabilitated in 2001 when it was earmarked for PPP under IDA funding. An O&M contract was signed between the WSDB and a private operator (VICCO venture) on December 2001.

Table 3-1: Key components of the Ashanti Bekwai System

Component	Number	Capacity/Description
Design population (2005)	28,000	
Mechanised boreholes	5	
Reservoir (capacity)	2	600 m ³ (RC GL & HPS HL)
Stand Pipes	40	
Private Connections	500	
Total length of pipe network (2005)	25,771	
Power supply	-	National Electricity Grid

RC-Reinforced Concrete; HPS-Hot Pressed Steel; GL-Ground Level; HL-High Level

3.2.2 Atebubu Water Supply System

Location

Atebubu is the capital of the Atebubu-Amantin District of the Brong-Ahafo Region of Ghana. It has a population of 20,022 as per the 2000 Population and Housing Census. The people are mostly farmers and fishermen, with about 6% of the people in the industrial sector (i.e. agro-based, wood-based and artisans).

Existing Water Supply System

Atebubu has a piped system which depends on the Pru River. The water system has a natural treatment plant with low chemical application (chlorination). Pre-treatment is via a de-silting chamber (capacity-10 m³) and three up-flow roughing filters. The main treatment is by slow sand filtration. The system has a 135 m³ capacity Clear water tank. It was last rehabilitated in 2001, when GWCL transferred the Atebubu system based on a MOU when it was earmarked for PPP under EU funding and contracted to ARMCO Ltd under a management contract.

Table 3-2: Key components of the Atebubu System

Component	Number	Capacity/Description
Design population (2005)	20,000	
Water treatment plant (WTP)		Above
Mechanised boreholes	1	
Reservoir (capacity)	1	200 m ³ (RC HL)
Stand Pipes (2005)	36	
Private Connections	190	
Total length of pipe network (2005)	33,199	
Power supply		WTP-Diesel BH-National electricity grid

RC-Reinforced Concrete; HL-High Level

3.2.3 Wenchi Water Supply System

Location

Wenchi Municipal is the largest in the Brong-Ahafo Region. It is the administrative capital. It has a projected population of 32,623 based on 2000 Population and Housing Census.

Existing Water Supply System

Wenchi has a piped system which is groundwater-dependent. It was last rehabilitated in 2002 when it was earmarked for PPP under IDA funding. The WSDB opted for community management. Table 4-3 outlines the key components of the system.

Table 3-3: Key components of the Wenchi System

Component	Number	Capacity/Description
Design population (2005)	40,000	
Mechanised boreholes	8	
Reservoir (capacity)	1	875 m ³ (RC GL)
Stand Pipes (2005)	58	
Private Connection	525	
Total length of pipe network (2005)	28,005	
Power supply		National electricity grid

RC-Reinforced Concrete; GL-Ground Level

3.2.4 Mim Water Supply System

Location

Mim is one of the towns in the Asuanfo North District of the Brong-Ahafo Region. It is about 7 km from Goaso, the administrative capital of the district. It is located geographically between longitude 2.5° West and Latitude 7° south. It has a projected population of 29,121 (2009) based on the 2000 Population and Housing Census with a growth rate of 2.8 % per annum.

Existing Water Supply System

The Mim water supply system was completed in 2007 with funding from EU and contracted to a private operator (AD Resources Ltd). Previously the town was supplied water free of charge from the Ayum factory's water supply system as part of their social responsibility to the town. Ayum is a private timber firm. Their water is from two dams and goes through conventional treatment processes with a pressure filter incorporated. Currently, the Ayum WSS supplies the town twice a week via twenty number taps situated at the town centre.

Table 3-4: Key components of the Mim System

Component	Number	Capacity/Description
Design population (2015)	29,938	
Mechanised boreholes	6	
Reservoir (capacity)	2	200 m ³ each (RC HL)
Stand Pipes (2005)	50	
Private Connection	30	
Total length of pipe network (2005)	30 km	
Power supply		National electricity grid

RC-Reinforced Concrete; HL-High Level

3.2.5 Kuntunase Water Supply System

Location

Kuntunase is the capital of the Bosomtwe-Atwima-Kwanwoma (BAK) District of the Ashanti Region of Ghana. It has a population of 3024 as per the 2000 Population and Housing Census. The district is located at the eastern part of the Ashanti Region. It lies within latitudes 6°24' N and 6°43' and longitudes 1°15' and 1°46'W.

Existing Water Supply System

The Kuntanase Small Town Water Supply scheme was constructed in 2002. This system was funded by the Government of Ghana in partnership with the European Union. The system is under WSDB management.

Table 3-5: Key components of the Kuntunase System

Component	Number	Capacity/Description
Design population (2005)	3,000	
Mechanised boreholes	1	
Reservoir (capacity)	1	30 m ³ (RC HL)
Stand Pipes	9	
Private Connection (2005)	30	
Total length of pipe network (2005)	3,796	
Power source		National electricity grid

RC-Reinforced Concrete; HL-High Level



3.3 Assessment methodology of partnerships

Based on the literature reviewed, the conceptual framework adopted for assessing partnership performance has been presented in figure 4-2. This section also outlines the performance indicators used to evaluate the performance of the service.

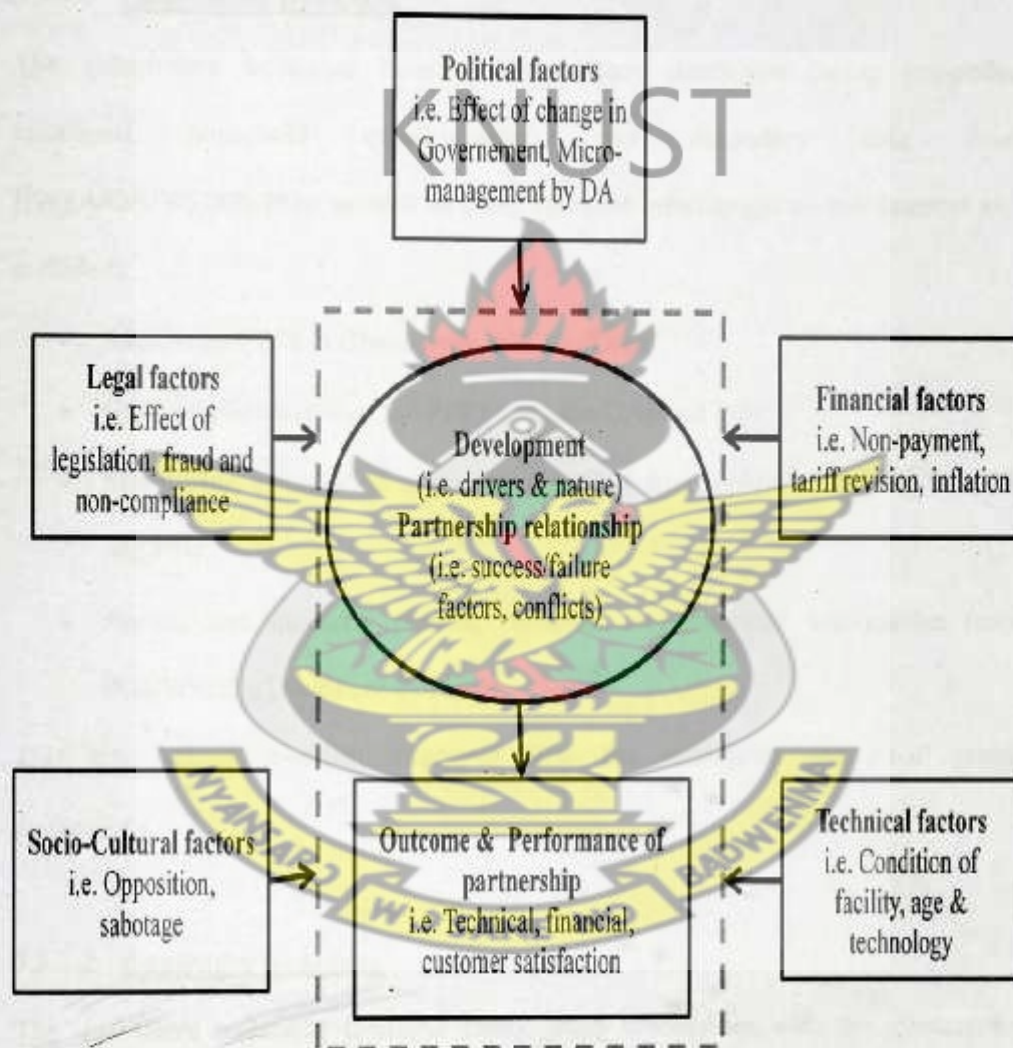


Figure 3-2: Conceptual framework for assessment of partnership

3.3.1 Data collection procedure

The methodology adopted was a case study research, within which other social research methods based on both quantitative and qualitative processes were employed.

3.3.1.1 Quantitative technique

The quantitative technique involved face-to-face interviews (using pre-coded structured household questionnaires) and secondary data from CWSA/DA/WSDBs/POs, as well as other relevant information on the Internet and included:

- Reports on PPPs in Ghana from WSDBs/DAs;
- Contract documents on the PPPs from the DAs and POs;
- Monitoring information and documentation from operating teams, WSDBs and POs.
- Annual and quarterly reports, technical and financial information from POs/WSDBs/DA where available.

This also helped re-affirm responses from the interviews and small group discussions.

3.3.1.2 Qualitative technique

The qualitative technique involved small group discussions with the community members (women, young people etc) and interactive discussions (POs, PO staff, WSDBs, Technical team, DA, and CWSA). Small group discussions were adopted for convenience and the timelines for each town visited. Household questions

focussed on perception of customer service satisfaction to re-affirm information gathered from the other data collection methods.

3.3.2 Study target groups

The main groups targeted for the study were consumers/community members, water boards, vendors, opinion leaders, unit committee members/assembly members where available; PO and staff where available; DA officials such as DWST and the CWSA staff involved in the study area/region.

3.4 Method of data analysis

The qualitative information from the small group and interactive discussions were recorded and documented. A summary of the operationalized assessment indicators for analysing the performance of the partnership relationships are shown in Table 4-6. Performance indicators with their criteria were adapted to assess the overall performance and sustainability of the water supply systems (Table 4-7) with data from the technical and financial reports obtained. Responses from the customer surveys were analysed using the "Statistical Package for Social Scientists" (SPSS) software, and results were used to provide a basis of customer satisfaction survey.

Table 3-6: Analytical framework for qualitative data analysis

Evolution and Development of partnership		
Objective	Questions	Source of info.
Understanding the drivers that have lead to the partnership	How did this partnership start? Who initiated it? How was the PO chosen? Which criteria were used?	CWSA/DA
	How many resources have been dedicated to this phase of the project? How have roles and responsibilities been distributed? How has the labour been divided? Do international donors include partnership with local actors as conditionality for funding?	
	Are there other incentives that have induced you to work in partnership? Have also disincentives induced partnerships in the service delivery.	
Understanding the nature of the contract	Is there formal contract between the actors in the partnership process? What type of contract prevails in the partnership arrangement?	WSDB/DA/PO
	Who are the parties to the contract? What is the duration of the contract? Is there a provision for re-negotiations? What is the share of the risk arrangement?	
	What is the scope of the contract (maintenance of system, extension, rehabilitation etc)? What are the main sources of funding of the operational maintenance of the water supply systems?	
	Are there performance indicators to assess the partnerships?	
	Has the contract model selected been successful? If yes, should this be replicated in other systems?	
	Will you be willing to opt for a higher level of contract (i.e. lease, concession etc)?	
Partnership relationship		
Understanding the factors that promote the good partnership relationship	Trust & confidence - How do you see the integrity, honesty, moral character and reliability of the PO?	DA/WSDB/PO
	Management support - How do the partners commit to the partnership and its success? Are there resource commitment (financial, personnel, etc) in the partnership?	
	Reciprocal accountability - How often does regular reporting among partners occur? How often does the PO meet with the WSDB/DA? Are the technical and financial reports read out to the community and how often? Who accounts to whom, how this is done, what is accounted for and how often this is done, who supervises?	
	Even benefit -Is there fairness in the benefit distribution? Are you satisfied with the sharing of benefits and the criteria being used?	

External factors		
Understanding the factors that influence the partnership and water service performance	<p>Social and cultural</p> <p>Was there any opposition in the involvement of the private operator in the operational maintenance of the system? What relations do you have with the community? How is the community involved in the decision-making? Are there any instances of vandalism? How have the cultural values/practices in the community affected the service delivery?</p>	WSDB/DA/PO
	<p>Legal</p> <p>What are the newly introduced legislations, regulations and policies in the sector? What are the fraud issues and non-compliance with laws and contracts? Has there been any instance where an actor has breached the contract? Has the contract been changed over the years? How has the change affected the performance in the service delivery?</p>	
	<p>Financial</p> <p>Are there mechanisms for variations in the cases of fluctuation in inflations and interest rates? Which actors suffer the most as result of this? What is the impact on the service delivery? What is the history of tariff modification? Do public institutions pay for the water they use? What is the level of cost recovery of the system?</p>	
	<p>Technical</p> <p>What are the factors that hinder effective and efficient functioning of the system equipment and processes? Where the systems in good order before the takeover by the PO?</p>	
	<p>Political</p> <p>How does change in government hinder the partnership delivery process? Has any change in laws/policies affected the performance of the partnership? How does the public sector interfere with the service delivery?</p>	
Outcomes of the partnership relationship		
Understanding the partnership outcomes and performance	<p>What are some of the qualitative synergistic outcomes (e.g. improvement in pro-poor arrangements) of the partnership? How has the partnership enhanced capacity and influenced the individual partners? What are the quantitative synergistic outcomes of the partnership? Have new technologies been used by your organization for the implementation of the project? How often is the water tested?</p>	WSDB/DA/PO
	<p>What performance indicators were specified in the contract to assess the performance of the PO? What are the technical and operational indicators used to assess the performance of the service delivery (e.g. UFW)? What is the financial performance indicators used in assessing the water service delivery?</p>	
	<p>What are the pro-poor arrangements in place? Is there a special subsidy for the poor? Who pays for the water used by the poor? How are the vendors selected?</p>	

Source: Adapted from reviewed literature

3.4.1 Basic performance indicators

The following indicators were adopted to assess the overall performance and sustainability of the water supply system as delivered by the partnership between the WSDBs/DAs and POs (Tables 4-7 & 4-8).

Table 3-7: Performance indicators for sustainability of STWSS

Indicator	Criteria (%)
Unaccounted for Water: $UFW = \text{Annual water losses} / \text{Annual water production}$	$UFW < 15\%$
Self Financing Ratio: $SFR = \text{Total Annual Income} / \text{Total Annual Expenditure}$	$SFR > 100\%$
Reliability: $RE = \text{Annual Number of operational days} / \text{Total number of days per year}$	$RE > 95\%$
Revenue Collection Efficiency: $RCE = \text{Annual revenue collected} / \text{Annual billed amount}$	$RCE > 75\%$

Source: Adapted from CWSA O & M guidelines (2005)

3.4.2 Other performance indicators

Table 3-8: Other performance indicators for assessing the service delivery

Parameters	Requirement
Accountability	
Internal auditing	At least quarterly
Reading of Technical, Administrative and Financial Reports to the community	At least once every six months
Water quality monitoring	At least twice a year

Source: CWSA O & M guidelines for Small Towns (2005)

CHAPTER FIVE: Findings and Discussions

4 Introduction

This chapter outlines the main findings from the study. The findings and discussions are presented in four parts: the evolution and development of the partnership; the partnership relationships; the external conditions affecting the partnership and the performance of the service delivered by the partnership.

4.1 Evolution and development of the partnerships in the small towns

This section presents the history of the partnerships in the small towns and the historical development. It outlines the drivers that initiated the partnerships and its development in the small town sector and the nature of the partnership.

4.1.1 Drivers for the partnership

Out of the three private operated systems visited, Bekwai and Atebubu in 2003, had their partnership between the Water and Sanitation Development Board (WSDB) and Private Operator (PO) initiated by the consultants on the project and the donor agency (EU-World Bank), with the District Assemblies (DA) and Community Water and Sanitation Agency (CWSA) as witnesses for the parties respectively. Wenchi was initially earmarked for the Public Private Partnership (PPP) under the same project. They believed they could meet the challenges of managing the system, and opted out. The study revealed that the main triggers for the PPP in the small town water supply sector were due to the size (Bekwai & Atebubu) and/or complexity (Atebubu) of the systems. Atebubu for instance had a water treatment plant which

relied on surface water making it technically complex. It was believed that the system could not be properly operated under management of the WSDB.

The other privately operated system (Mim) was under a different project in 2007 and sponsored by International Development Association (IDA). Interviews with CWSA, DA and WSDB revealed that, their partnership with the PO was mainly due to the size (greater than 10,000) of the town making it difficult for the WSDB alone to operate and manage it effectively which was in line with CWSA's policy for communities with population over 10,000 to contract a PO to manage and operate their systems. In all the cases studied, an open competitive bidding was organised by the DA/WSDB with assistance from their respective regional CWSA offices to select a local PO.

4.1.2 Nature of the contract/partnership

The nature of the partnership translates into the description of the contract. This could either be a formal, informal, signed agreement or verbal agreement. It also indicates the form of the contract, its duration, conditions for renewal/re-negotiation and termination, the scope of the contract and the presence of performance indicators to assess the partnership. Table 5-1 outlines the nature of the contract in Atebubu, Bekwai and Mim under PO management. The terms of this section do not apply to Wenchi and Kuntanase as they were under direct management by the WSDB. It is important to note that under WSDB management, the DA is the owner while the WSDB operates and manages the system either by hiring professional technical staff or by recruiting and training from the community. The WSDB has 100% of the water tariff for O & M, replacement, renewal and extension works. In all the WSDB systems, they were not given performance indicator targets to meet by a said date.

Table 4-1: Summary of the nature of contract under the privately operated systems

Aspect	Atebubu	Bekwai	Mim	Evidence
Ownership	DA			
Governance	WSDB			
Operator	PO			
Formality of contract	Formal by the signing of a contract document			Atebubu and Bekwai were initiated by EU, and Mim by IDA
Contract duration	5 yrs			The Mim contract is subject to mid-term reviews every 2 yrs.
Renewal/ Renegotiation of contract	5 yrs by written agreement		2 yrs upon expiry of first term after which it is subject to fresh proposals.	Based on performance & satisfaction of WSDB.
Scope of contract	O & M including replacement of pumps, pipes, valves, meters and concrete works at the WTP	O & M including urgent replacement of pumps, pipes, valves & meters	O & M including urgent replacement/repairs and minor extension.	Atebubu & Bekwai DAs - responsible for major replacement of BHs & tanks, and extension. Mim PO performs major renewal & extension works upon authorization by DA/WSDB.
Performance indicators	Technical & financial indicators stated but no specified targets [UFW (10%), Bill collection efficiency (90%)].		Technical & financial indicators stated with specified targets.	Mim WSS -Performance targets are reviewed after 3 yrs and new targets proposed.
Source of funds	Revenue from sale of water. 75% of revenue for O&M 25% paid to DA/WSDB for major replacement and extension works and sanitation			POs had to invest start-up capital at the start of operations

Source: The fieldwork

The study revealed that Atebubu and Bekwai had similar contract features since they were both under the same EU project. The Mim system sponsored by IDA, also had similar features but differed in the area of the renewal/renegotiation clause, the scope of work and the presence of performance indicators/targets in the contracts as it was only implemented in 2007. From the study, it was seen that the Mim contract limited the renewal period to 2 years after which fresh proposals were to be opened as against the cases in Atebubu and Bekwai where the renewal period was set at five years after the contract period, without a clause indicating fresh proposals. This implies the operator was always going to have an extension on his contract provided he was deemed to be performing. The Atebubu and Bekwai cases were seen to promote post-contract opportunism. Nyarko (2008) suggests that re-negotiations would eliminate the competition that is generated for the water market and subject the contract to post-contract opportunism. Major replacement and extension works were not explicit. In all the systems under POs, the DAs failed to perform these roles despite been paid 25% of the water tariffs for these tasks. This was the main area for the PO-DA rifts. Generally, the POs were unsatisfied with the commitment of the DAs in the partnership. The study also revealed that the Atebubu and Bekwai cases also lacked performance indicator targets [e.g. UFW (10%), Bill Collection Efficiency (90%), etc] and review clauses. The performance of their systems and the POs were difficult to assess to ascertain if they were delivering services effectively and efficiently. The Atebubu and Bekwai renewal clauses should be revealed and reduced and performance indicator targets should be set with provision for mid-term reviews.

4.1.3 Contract renewal and termination

This section presents the issues as pertaining to the running of the systems in each case after the end of the contract periods and the factors influencing them.

In Atebubu, the PO opted out three months to the end of the contract (May, 2008). He was frustrated as the DA failed to connect the treatment plant to the national electricity grid as recommended by the consultant and had to run on diesel powered generators. The PO made heavy losses due to inflation in diesel prices resulting in annual deficits in savings. An Interim Management Committee (IMC) took over the system and the water board was dissolved. The IMC comprised members of the DA, and took on some of the PO's workers as the technical staff. From the study, it was seen that the O & M under the IMC still faced challenges. The system had not run for three months due to lack of funds to power the diesel generators. Financial reports were also not obtained to assess their performance under micro-management by the DA.

In Bekwai, the PO had been given an extension by WSDB. On the 03 April, 2007 a letter (Ref: VUL/WSDB.01/07) was written to the water board by the PO notifying them on the expiration of the contract which was due to end on 08 April, 2007. The WSDB replied on the 25th March, 2008 renewing their contract for another 5 year term effective from April 2008 to April 2013. At the time, the old WSDB had a court case against the DA/former District Chief Executive (DCE) demanding accountability of funds paid into their accounts and illegal change in signatories to the WSDB account. Due to the pending court case, a formal contract is yet to be signed between the WSDB and the PO.

On the 27th May, 2009, a letter referenced C.15/Vol. 2/103 was written to the Mim PO by the DA terminating the PO's contract after only one year of operating. The contract was due to end on the 19th November, 2013. The reasons given for the termination were financial improprieties (i.e. failure to open an Escroll account in the name of both PO and WSDB); dishonouring payment of percentages to the WSDB/DA and failure to pay electricity bills to the Electricity Company of Ghana. The system is yet to be handed over to another PO. The study suggests that the DA did not perform its monitoring role in ensuring that the Escroll account was opened before the signing of the contract and that all monies passed through the accounts.

In the Wenchi there is no PO, the system is being run by an IMC pending the formation of a new board. The old had been dissolved by the new DCE. The old board is therefore opposing the decision and has filed a court case against the DCE/DA.

In Kuntanase, the WSDB has had their term in office extended by the community with approval from the DA based on satisfactory performance. The study suggests that the small towns with population below 10,000 do not face similar problems as their counterparts.

4.2 Partnership relationships

This section outlines the success/failure indicators used to assess the partnership relationship amongst the WSDB, DA, CWSA, PO and the Community/Consumer. The indicators include trust/confidence level, management support, degree of conflict and accountability. These indicators are used to assess the success of the partnership in terms of their working relationship.

4.2.1 Trust and Confidence

From literature, trust is operationalized as being character-based: perceptions of integrity, honesty and reliability. The confidence is however operationalized in terms of execution of contractual agreements and the degree of formality of the partnership. Table 5-2 provides the evidence of the trust/mistrust taking place in the respective private operated systems.

Table 4-2: Summary of trust/mistrust accorded the PO by the WDSB/DA

Case	Trust level	Reasons for trust/mistrust
Atebubu	DA had mistrust for PO	PO was alleged to have channelled a large part of the water revenue into paying salaries/allowances leading to annual deficits in savings.
Bekwai	DA/WSDB had trust in the PO	PO operated with only a written letter of extension from the DA/WSDB pending a contract signing.
Mim	DA/WSDB lost trust in the PO-mistrust	PO failed to open an Escrow account (i.e. in the name of both PO & WSDB) for revenues collected as stipulated in the negotiations. He deposited the revenue in an account in his name. His financial report was rejected by the DA/WSDB.

Source: Fieldwork

The study revealed that the confidence level between the DAs/WSDBs and the POs were grounded in the signing and complying with terms and conditions of the contract. With time trust/mistrust developed and was linked to the integrity, honesty and reliability of the POs. For instance, the Bekwai PO had his contract extended based on performance and compliance to the terms of the contract without the signing of a formal contract due to a court suit between the WSDB and the DA.

In Mim, the PO failed to submit regular financial reports on the system and opened an account for the water system in his name only rather than the Escroll account specified in the negotiation phase. The DA/WSDB therefore alleged the PO to be misapplying the funds after several attempts to meet on the matter failed. Finally, the PO's contract was abrogated by the DA/WSDB.

The study suggests that trust and openness (i.e. information exchange, response to information request and full participation in the partnership) form fundamental elements for a successful PPP. The results suggest that the level of trust accorded the POs by their clients can increase if they adhere to the terms of the contract, remain honest and constantly liaise with their clients via adequate reporting. According to Brinkerhoff (2002), repeated interaction among partners can increase the level of trust as they accumulate experience demonstrating partner dependability and trustworthiness.

4.2.2 Management Support by the DA/WSDB, PO and CWSA

The management support by the DA/WSDB, PO and CWSA translates in the partnership by trying to provide resources (i.e. financial, personnel etc.) and support to members in the partnership by being responsive to unforeseen situations. Table 5-3 outlines the management support performance of the DA/WSDB, PO and CWSA.

Table 4-3: Summary of management support by stakeholder in the partnership

Case	Management Support	Reasons
Atebubu	The PO invested his personal funds to run the system when he was making deficits due to low cash. According to the PO, this money has not been retrieved as the public institutions still owed the company. CWSA donated GH¢20500 to pay off the PO's creditors and workers after the PO opted out.	The public institutions failed to pay their bills and the DA failed to approve the PO's tariff request to reflect inflation. CWSA was aware of the peculiar challenge with the complexity of the system.
Bekwai	The PO re-developed all BHs for the next phase. PO installed safety devices on all pump houses to curtail the frequent damages to the pumps due to power fluctuations at his expense during the contract period as part of O & M cost.	All major renewal works were to be borne by the DA but they believed it was the PO's duty since he had to transfer the system in good working order before any further renewals.
Mim	The PO worked in the defect liability period of the contractor.	All maintenance costs were the responsibility of the contractor.

Source: Fieldwork

The study showed that the POs were committed to the partnership and its success as they made sure all aspects of the facility worked to continue production. They performed the replacement and renewal works that were to be borne by the DAs/WSDBs in certain cases (Bekwai) due to bureaucracy in the system and failure of the DAs to perform them as there were only interested in the payment of percentages due them. These were however captured as part O & M cost which reduced their profit margin. The DAs in all the systems did not perform the extension works to increase the customer base of the system for increased profit.

Brinkerhoff (2002) suggests that for partnership relationships to improve, partners should be responsive to unforeseen situations and must provide resources and support to members participating in the partnership.

4.2.3 Degree of conflict resolution

Conflicts were common between the DAs and the WSDBs. Out of the five systems visited, three recorded conflicts between their DA and the WSDB. These were generally on a large scale leading to dissolution of the water boards by the DAs and court suit to oppose the dissolutions. In all the cases studied, the WSDBs saw the DAs to be dominating as they used their political power to influence the operations of the systems. Table 5-4 outlines the degree of conflicts in all the cases studied.

The study revealed that the WSDB had been politicised and was linked to the government in power. The WSDBs' term in office has been reduced from the initial six years to four years according to the small towns' bye-laws to coincide with the electoral calendar of the country. This was done to curtail the conflicts between the DAs and the WSDBs that was linked to change in governments. The study revealed that this was still existent as the WSDBs were still viable to another term based on their performance, but were dissolved immediately after a new District Chief Executive took office after a change in government. Conflicts between DAs and POs were due to non-payment of money to DAs by the POs.

The study suggests that the formation of the WSDB should be based on the community's recommendation and linked to their performance as was the case in Kuntanase and not on the authority of the presiding District Chief Executive which is now becoming the norm.

Table 4-4: Summary of conflicts amongst members participating in the partnership

Case	Degree of conflict	Reasons for conflicts/no conflicts
Atebubu	WSDB dissolved by DCE. PO confronted by DCE/DA.	Conflicts surrounded PO's inability to pay the 25% of the water tariff due the DA/WSDB and recorded of annual deficits. WSDB alleged to have condoned and connived with the PO to misapply money accrued from the system as the percentage of cost of staff/allowances compared to the overall operational cost was high by the DA.
Bekwai	WSDB and DA have a case pending at the high court.	Case due to unlawful dissolution of WSDB by DCE. Claimed to be purely political. WSDB members were alleged by the DCE to be members of the then opposition party. Rift lasted the contract period.
Mim	DA/WSDB has threatened a court suit against PO.	PO's contract has been terminated. His books were being audited. The PO failed to open an Escrow accounts in the name of the PO & WSDB and acknowledge meetings with DA/WSDB. PO submitted a single report on 8 months of operation.
Wenchi	WSDB is contesting its dissolution by the DCE.	The WSDB claim they are autonomous. Dissolution due to change in government.
Kuntanase	WSDB term has been extended.	Community satisfied with performance.

Source: Fieldwork

4.2.4 Reciprocal Accountability and Transparency

Reciprocal accountability translates into regular reporting among partners, access to performance information and financial controls. Table 5-5 outlines the reporting performance of the cases studied based on the assessment indicator for accountability (Table 5-6).

Table 4-5: Reporting performance of the cases studied

Target	Score					Description
	Ate.	Bek.	Mim	Wen	Kunt.	
Operating team/PO reporting to WSDB	2	2	0	1	2	Atebubu case: Operational reports were submitted to the WSDB by the PO quarterly and annually. Bekwai case: Operational reports were submitted quarterly by the PO for the first three years to the DCE. It changed to semi-annually and finally to annually for the last two years since the DA failed to regularly audit the reports. The DCE failed to copy the reports to the DWST.
WSDB reporting to DA/DWST	2	1	0	1	1	Mim case: PO only submitted a report on eight months of operation to the WSDB/DA. The report was rejected by DA/WSDB due to alleged misapplication of funds and inconsistent records.
DA/DWST reporting to CWSA	0	0	0	0	0	Wenchi case: No operational reports were prepared by the operating team/WSDB. Only audited reports were available. Audits were not consistent.
DWST/DA/WSDB meeting with community	0	1	0	1	1	Kuntanase case: Operational reports are prepared and submitted to WSDB. DA is not consistent with system auditing
Overall score	1	1	0	0.75	1	Poor accountability across all towns

Source: Fieldwork

Table 4-6: Assessment indicator for accountability amongst stakeholders

Score	Ranking	Description
0	Poor	A. Operational reports submitted annually or Not at all B. Community meetings not done at all
1	Satisfactory	A. Operational reports submitted semi-annually B. Community meetings only due to emergencies
2	Excellent	A. Operational reports submitted monthly or quarterly B. Operating team meets with community twice annually

Source: Based on literature reviewed

In all the systems, reporting between the operating team/PO and the WSDB was excellent except for Mim and Wenchi (Table 5-5). The WSDB had a close working relationship with the operating team/PO by way of monitoring. The accountability relationship here was also seen to be closely linked to transparency. In Bekwai for instance, the PO staff and WSDB shared the same office premise making information sharing very efficient. According to Brinkerhoff (2002), transparency translates into response to less formal and/or structured media, such as impromptu telephone calls, e-mails, and conversations.

Reporting between the DA/DWST and the WSDB/Operating team/PO were strong under the PO management as it was a requirement in the contract for the PO to submit quarterly operational reports to the WSDB/DA. These were forthcoming, but the DA failed to audit them on a regular basis. This made the Bekwai PO to revert to only annual reporting. In the case of the WSDB management, they were not compelled by any contract to do such. No operational reports were prepared by the

operating team, only audited reports by the DA on the system were available. However, these were not conducted regularly and those conducted covered a number of operational years. In Kuntanase, quarterly operational reports were prepared.

Reporting between the DA/DWST and CWSA were weak or non-existent. The CWSA regional offices were far away from the geographical areas of their respective district assemblies making it difficult for regular consultations unless there was a pressing issue.

The study revealed that once the water service was perceived by the community to be satisfactory, they would not enquire about the system unless there was a quality problems or a tariff increment. There were exceptions in Bekwai and Wenchi where the community was briefed on the system during their annual community forum and during emergencies. According to the CWSA O & M guidelines, the WSDB is responsible for reporting on the system performance to the community in both managements under the PO and the WSDB.

The study suggests that the regulatory role of the DAs were generally weak and relaxed. Figure 5-1 summarizes the accountability relationship amongst the partners as observed during the study.

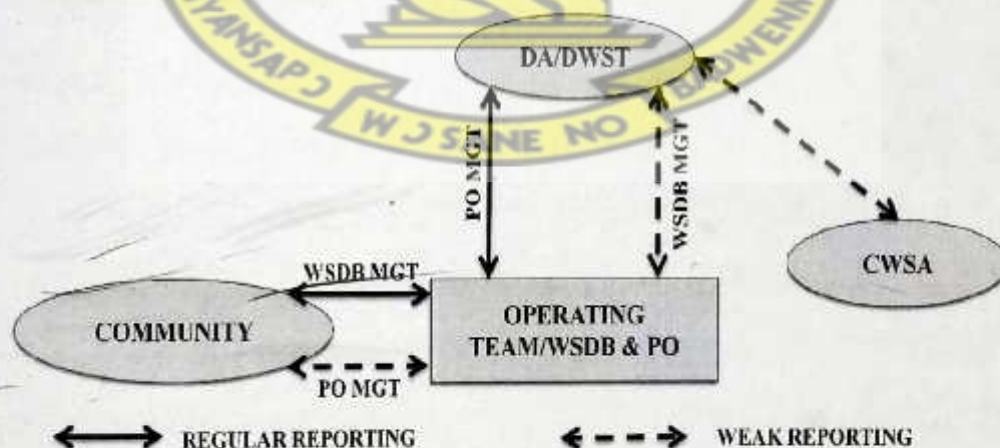


Figure 4-1: Existing accountability relationship amongst partners in the partnership
Source: Fieldwork

From literature, partners should have access to performance information on a regular basis and/or upon request. The operating team/PO, are required to submit periodic operational reports (monthly, quarterly and annually) to the WSDB. The WSDBs are required to forward copies to the DA, and then the DA is to forward these to the CWSA. Figure 5-2 shows the accountability relationship expected between the partners in the small towns. The community have to be met twice in a year to get information on the performance of the systems (Nyarko, 2008).

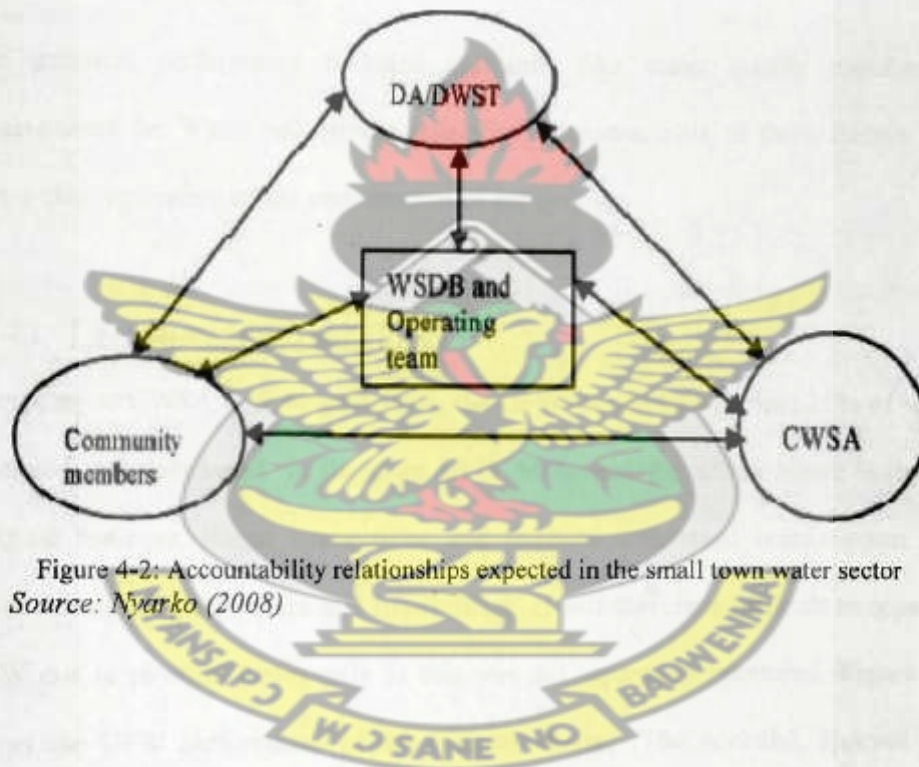


Figure 4-2: Accountability relationships expected in the small town water sector
Source: Nyarko (2008)

4.3 Outcomes and performance of the partnership

Outcomes of the partnership relationship have been captured in terms of technical, financial, customer satisfaction and organisational performance. The PO managed systems are compared with the WSDB managed systems in order to draw lessons for decision making that will be used to improve service delivery in other PPP replicated systems elsewhere.

4.3.1 Technical Performance

The technical performance included indicators like water quality monitoring, Unaccounted for Water and service reliability. Measurements of these factors will give a clear indication of the performance of the system.

4.3.1.1 Unaccounted for Water (UFW)

According to CWSA O & M guidelines, the UFW should be less than 15% of water produced and distributed. In literature UFW accounted for actual losses is due to physical leakages, illegal connections and unbilled authorized consumption like water for cleaning reservoirs and fire-fighting. It was therefore difficult to separate UFW due to physical losses only as this was not separately measured. Figure 5-3 shows the UFW performance of the systems studied. The Atebubu, Bekwai and Wenchi systems were all old systems rehabilitated and transferred to the communities under WSDB management after an MOU agreement GWCL.

From the study, Mim and Kuntunase were the only systems that met the CWSA criterion. The Mim system hardly operated throughout the year due to the operation of a sister water supply system running alongside it. It also had fewer private connection points (only 5 DPPCs), thus the reduced tendencies for illegal connection

and leakages. In addition, the system was only one year old. It is also important to note that Kuntunase is a new system (7 yrs old) and has a simple network with majority of its customers buying from standpipes unlike the other systems. They could therefore monitor losses well. The Wenchi system being the largest system serving over 40,000 people did not monitor the bulk meters meant to record the amount of water leaving the reservoir into the system. They only monitored the household meters for billing purposes. However, that at the production sites was monitored. The study showed that some important societal groups most especially the traditional council and the chiefs undermined the authority of the operating team by connecting to the system without their notice. They felt as the traditional leaders, they were entitled to free water supply. With the exception of Mim and Kuntanase, all the other systems were rehabilitated 7 years ago. The study suggests that the POs were more determined to reduce UFW, keen to avoid wastages and increase their profit margin. The study also suggests that the small towns (Kuntanase) with population less than 10,000 do not face serious challenges as their counterparts.

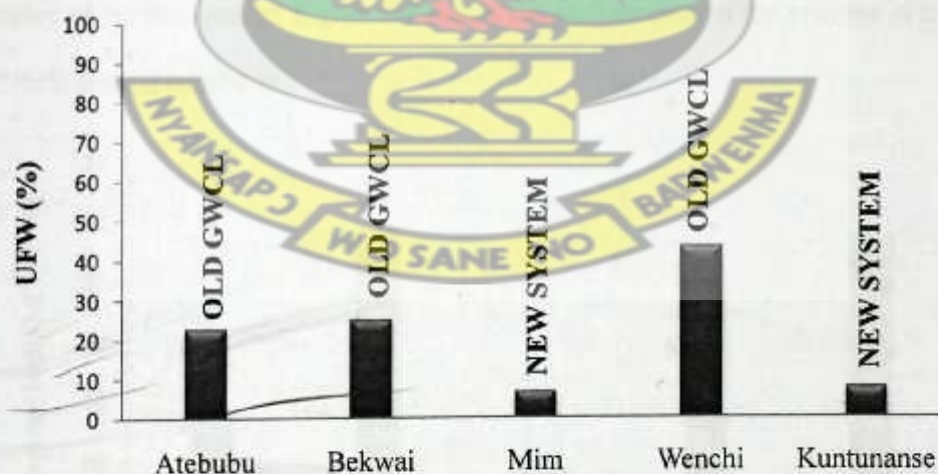


Figure 4-3: Annual unaccounted for water of the systems

4.3.1.2 Water Quality Monitoring

Generally, all the systems failed to do the physico-chemical tests of the water supplied twice a year as specified in the CWSA O & M guidelines. However, Bekwai and Atebubu did this once every year over the whole contract period. The Mim system was yet to do the quality tests since it only operated less than a year before its contract was abrogated. Wenchi and Kuntanase performed it as and when it was deemed necessary by the operating team. The study revealed that the cost of performing water quality tests was the main obstacle that deterred them from meeting the specified target. However, the POs were compelled to perform it because it was stipulated in their contracts.

4.3.1.3 Service Reliability

Service reliability is defined as the ratio of the number of operational days to the total number of days per year, expressed as a percentage. CWSA O & M guidelines (2005) propose that service reliability should be greater than 95% to achieve a high degree of service quality. Figure 5-4 shows the performance of the systems in terms of their service reliability.

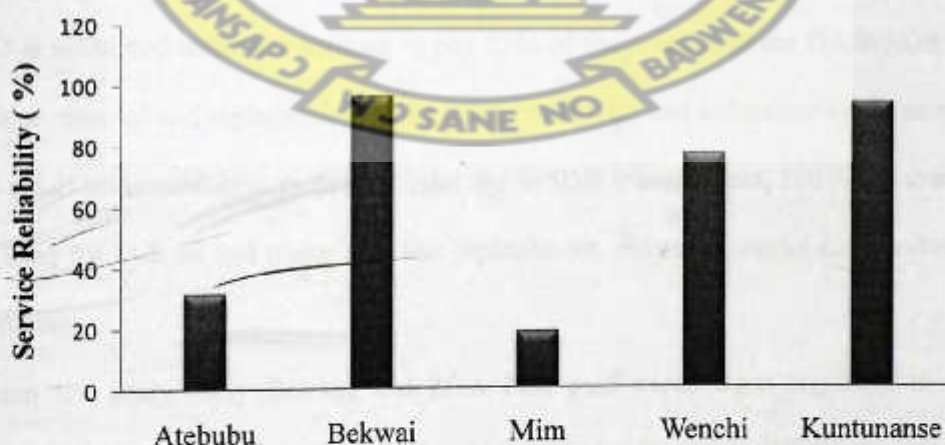


Figure 4-4: Annual service reliability of the systems

The Atebubu, Mim and Wenchi systems failed in this respective due to the economic and technical conditions affecting the systems. The Atebubu system only produced when it had money to buy diesel to power the generators at the water treatment plant (WTP). Again it operated effectively for six months in a year since majority of the community depended on hand dug wells in the wet season. The Mim water supply system (WSS) had a sister system (Ayum timber WSS which supplied water free of charge to the community as part of its social responsibility to the town) operating alongside it and captured part of its market share. Wenchi had frequent burning of pump motors and relays. According to the operating team, the pumps were been over-used due to the increase in population. The Kuntanase WSS is a simple system, thus faced less problems pertaining to production.

4.3.2 Financial and Commercial Performance

One reason for involving the PO in managing WSS services was to ensure increased operating efficiencies and annual operating savings to the system owners. The figures 5-5 and 5-6 present the cost breakdown and annual savings of the systems. Under the PO management, the PO is responsible for the O & M of the system. The PO is mandated under the contract to pay 25% of the revenue to the DA/WSDB for major renewal and replacement works (tanks and BHs) and extension works as well as small scale sanitation projects. Under the WSDB management, 100% of revenue is used for O & M and major renewal, replacement, extension works and sanitation projects.

From the study, only Bekwai and Mim POs paid percentages regularly to the DA/WSDB. The Atebubu PO failed to achieve this due to annual deficits recorded as a result of the complexity of the system (diesel powered generators at the WTP

pumped both surface water for treatment and treated water 18 km into the town for distribution). The study revealed that the DAs in the PO management systems (Atebubu, Bekwai, and Mim) failed to perform the extension works. This limited the profit margin of the POs with time as potential private consumers were not connected to the network. In Mim for instance, the responsibility of replacement of submersible pumps sparked conflicts between the PO and the DA. Figures 5-5 and 5-6 show that Bekwai had relatively minimal spending on operations thus made enough profits to pay percentages due the DAs/WSDBs. It is important to note that other sources of income like funds from NGOs were not considered in the analyses (e.g. Kuntanase had funding from some NGOs). It is also important to note that the annual savings of the system were directly influenced by the technical (e.g. technology of the system in Atebubu), financial (non-payment by public institutions in all the systems) factors and political (politicized tariff, micro-management by DA) factors.

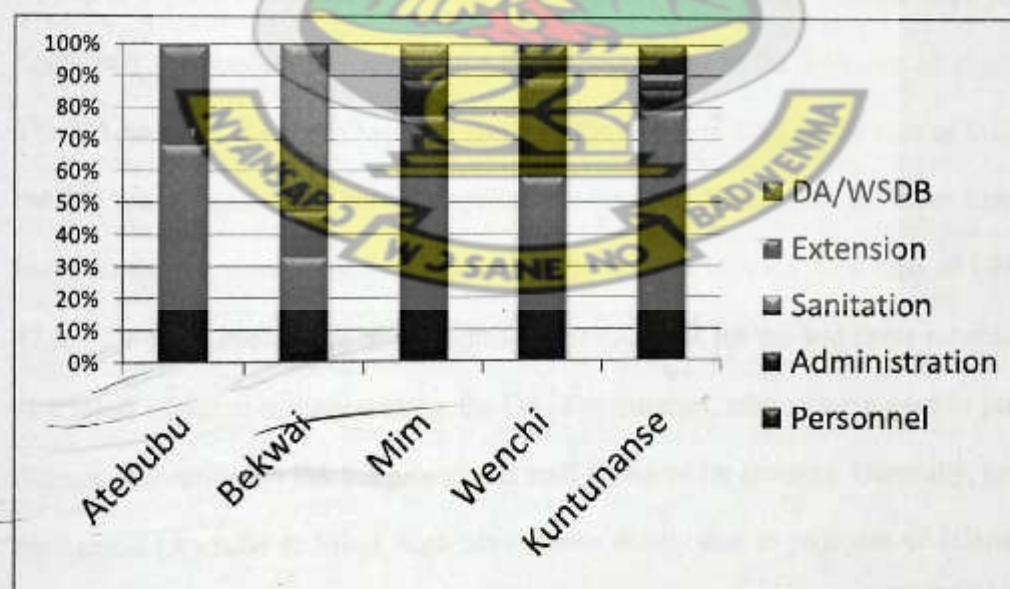


Figure 4-5: Comparison of the cost breakdown in the towns

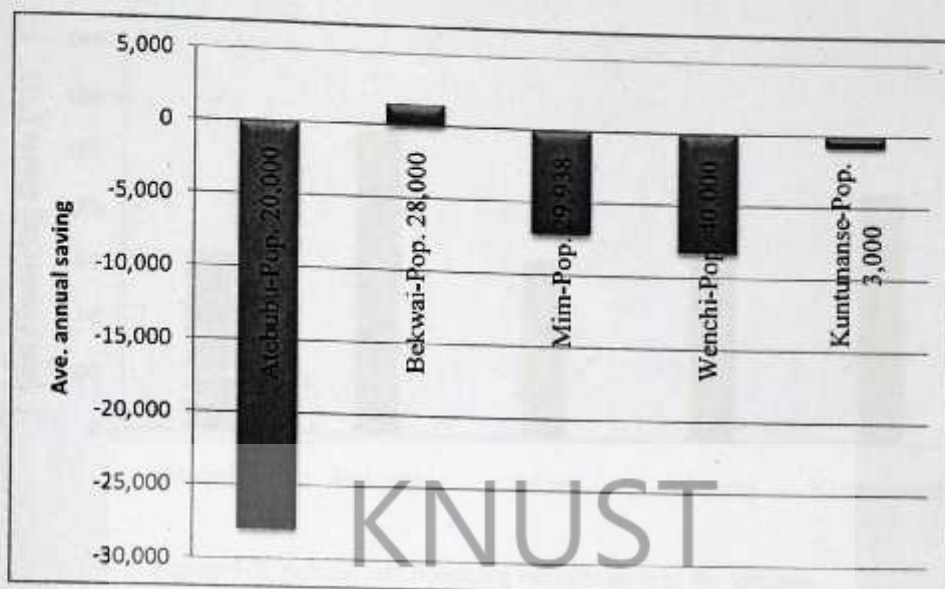


Figure 4-6: Comparison of the annual savings of the towns

4.3.2.1 *Financial Sustainability*

Self Financing Ratio is defined as the ratio of the total annual income to the total annual expenditure, expressed as a percentage. According to the CWSA O & M guidelines (2005), their self-financing ratios should be greater 100%. The results as shown in Figure 5-7 revealed that the Atebubu and Mim water systems were not financially sustainable. In Atebubu, the PO attributed this to the high cost of diesel. The DA however felt the PO spent a lot on staffing (Figure 5-5). In the case of Mim, the PO was alleged to have misapplied the revenue. Wenchi on the other hand, had outstanding accumulated electricity bills to be paid to VRA to a tune of GH¢ 47,000. Wenchi could have made significant savings but for the bad debts recorded as a result of micro-management by the DA. For instance, monies were used to pre-finance connections to DA bungalows and staff premises for instance. Generally, low production (Atebubu & Mim), high expenditure mostly due to payment of salaries and low consumption (Atebubu & Mim) were identified as the main factors affecting the Self Financing ratio of the systems.

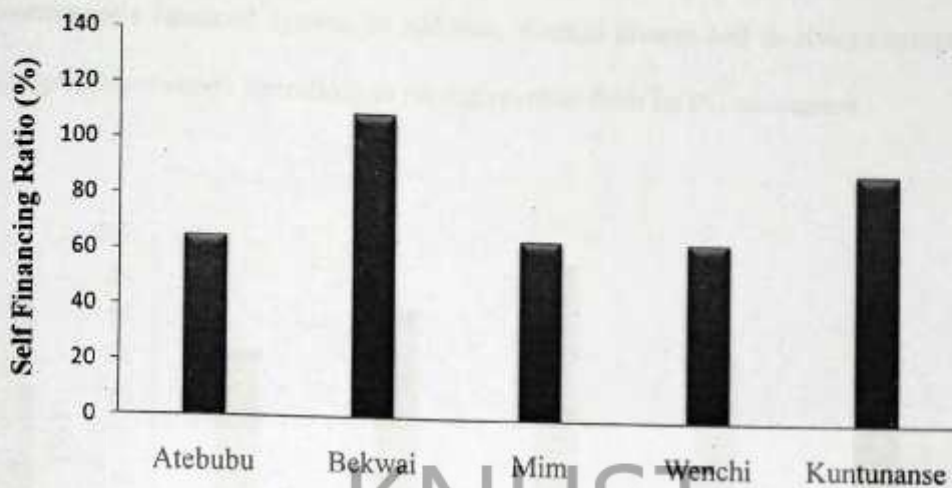


Figure 4-7: Annual self financing performance of the systems

4.3.2.2 Revenue Collection Efficiency (RCE)

According to Tynan and Kingdom (2002), commercial performance of a system looks at revenue from consumers only. Based on the same authors RCE target of 90 days or less, a performance target indicator of 75% was deduced for RCE. The collection efficiency performance of the systems is presented in figure 5-8. The Kuntunase system was very efficient in revenue collection. This is due to the fact that its main source of revenue was via standpipes by pay-as-you the fetch method of revenue collection. The Mim system also depended mostly on revenue from the SPs as the Ayum WSS running alongside it covered majority of the high income areas and public institutions and supplied water free to certain parts of the town. The study suggests that the systems with a lot of public institutions (e.g. Wenchi and Atebubu) failed to meet this target as the bills to be paid by GoG delayed. However, the Bekwai case was exceptional as the PO was able to retrieved 85% of public institution areas. Atebubu and Wenchi had 46% and 52% of public institution bills in arrears. The system of payment always delayed due to bureaucracy in the

government's financial system. In addition, Wenchi always had to always resort to regular disconnection operations to recoup revenue from its PC consumers.

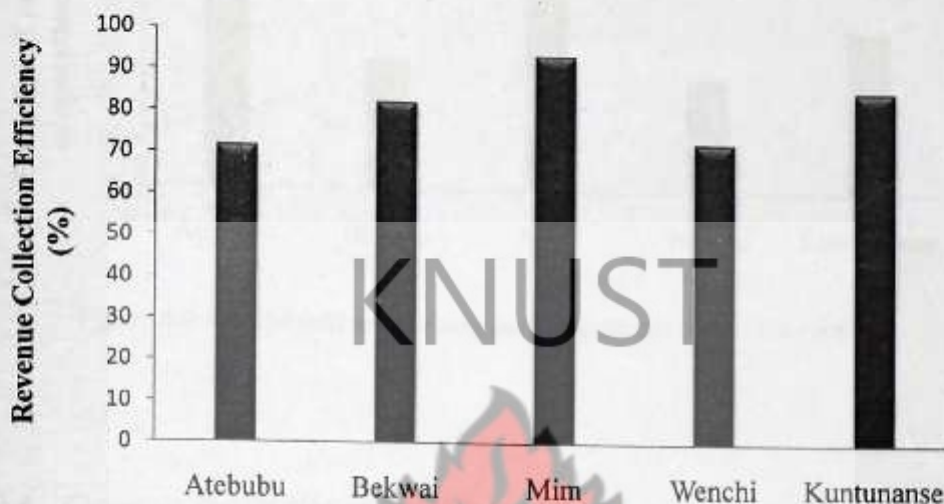


Figure 4-8: Collection efficiency of the systems

4.3.3 Organizational Performance

Organisational performance as used in this section refers to the percentage of cost of staff (i.e. personnel of management team and commission to water vendors) to the total operational cost (Figure 5-10). It is evident that if a system spends less on the cost of staffing (typically in allowances and benefits), it has enough earnings for running the system which reflects in the general performance of the management and the system in general. A typical instance is seen in Bekwai. The Bekwai PO had his contract extended while that for the Mim PO had his contract terminated after only a year of operating. It is important to note that, unlike the WSDB members who had their own jobs and were only paid sitting allowances, the PO staff still took salaries irrespective of any break in production. The study suggests that this indicator is very crucial as it shows the level of confidence the owner has in the operator.

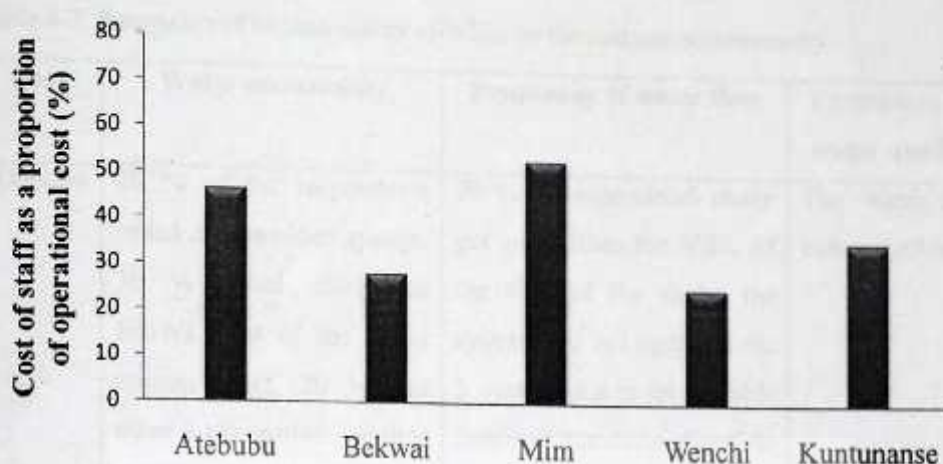


Figure 4-9: Cost of staff as a percentage of operational cost of the systems

4.3.4 Customer Satisfaction and service quality

To understand the performance of the service by the partnership, the views of the consumers were obtained through household surveys and small group discussions. The consumers' views corresponded to the service reliability from the technical reports. Twenty questionnaires per system were administered. Table 5-8 presents the customer satisfaction and water service quality of the systems.

The results in Table 5-8 showed that generally the communities were satisfied with the service quality delivered with the exception of the Atebubu (reliability) and Mim (colour problem) systems. The community were aware of the peculiar problem with the water treatment plant of the Atebubu WSS. Consumers in Mim however criticised the water quality of the water supplied. In the systems, the community did not have a say in the setting of tariffs and was generally acceptable to the standpipe users. However, the private connection consumers felt the tariffs were too high.

Table 4-7: Perception of service quality of WSSs by the customers/community

Case	Water accessibility	Frequency of water flow	Perception of water quality
Atebubu	70 % of the respondents relied on the piped system. 30 % relied solely on HDWs. Out of the piped system users, 70 % had other alternative source (i.e. HDWs and rain water). Others carted water from an abandoned dam that supplied the town under GWSC control.	70 % of respondents rarely got water from the WSS. At the time of the study, the system had not operated for 3 months due to unavailable funds to purchase diesel to produce water at the treatment plant.	The water had colour problem.
Bekwai	The survey revealed 100 % dependence on the piped system.	The respondents claimed they had water throughout the week at any time. Bekwai had a big tank capacity of 600 m ³ .	
Mim	42 % of the respondents relied on the piped system. The other 58 % relied on the Ayum factory WSS and/or HDWs. At the time of the study, the Ayum timber factory WSS supplied water twice a week via a centralised taps.	Only 36 % had water up to 9 hrs per day. Mim had two tanks of capacity 200m ³ each. Only one was functioning. The other in the territory of the Ayum WSS was a white elephant.	Respondents were not satisfied with the water quality. The water had a problem with iron content.
Wenchi	The survey revealed 100 % dependence on the piped system. 67 % relied on SPs.	SP customers spent less than 30 minutes. To fetch water. 76 % had water up to 9 hrs per day. Wenchi had a tank capacity of 875 m ³ .	

Source: Fieldwork

4.4 External conditions affecting the partnership and the service delivery

The partnership between the WSDBs and the POs though functioning had a number of external factors influencing it and the service delivery. The factors affect the partnership both positively and negatively. The factors were peculiar to the cases studied. The following conditions are elaborated in the following sections: political interference; legal; Socio-cultural; financial and technical conditions.

4.4.1 Political conditions

Political factors translate into the changes that occur in the public sector structures and its effects on the partnership and the water service delivered and their interferences in the O & M of the system. Table 5-9 presents the political factors identified to be affecting the partnership and the service delivery.

The study revealed that the political factors were persistent in all the cases studied. This was largely due to interferences from the DAs on the WSDBs/or the operating teams. The POs hardly experienced political interferences from the DAs and still operated in the midst of the interferences on the WSDBs by the DAs. However, the study revealed that the tariffs were politicised and this affected the income levels of the POs. A typical example was the Atebubu case where the DA failed to revise his tariff request to reflect inflation in diesel prices. It was perceived by the DAs that the POs were making money from the system. The study suggests that this is the reason for the failure of the DA to approve the POs tariff revision request. Again, the DA was seen to be engaging in micro-management of the systems, a clear indication that they are not in favour of the PPP concept. It has been two years since the Atebubu PO contract ended. The system is still been managed by the IMC composed of assembly members.

Table 4-8: Political conditions identified in the study areas

Case	Political factors	Reasons for presence/absence of political factors
Atebubu	Tariffs were politicised. The WSDB was politicised. The New DCE dissolved the old board. There is micro-management by the DA after PO era. An IMC comprising 5 assembly members currently manages the system. The DA protects defaulters.	Community demonstrated against the PO's first tariff revision on grounds that it would make the then government unpopular. After the change in government, the new MCE claimed the old board comprised members from the opposition party.
Bekwai	There has been a long lasting rift between the DA/DCE and the old WSDB. The DCE soon after taking office due to change in government, instructed the bank holder of the WSDB accounts to revert the signatories to the DA without their consent.	The old WSDB was the pioneer and was formed in one political era after the completion of the system. After a change in government, the new MCE tried to dissolve the board but they resisted. It was perceived the WSDB were members of the opposition party.
Mim	No political interference was recorded.	The PO was given the free role to operate by the DA and the PO had only operated for a year before his contract was terminated alleged breach of contract and poor financial reporting.
Wenchi	Tariffs were politicised. The DA protected defaulters. The WSDB was politicised. There was micro-management by the DA/IMC. In this period, revenue was used to defray a loan incurred by the DA; pay ex-gratia to former assembly members, pre-finance connection to the District Coordinating Director's residence.	It was believed that tariff increment would affect the ruling government. The defaulters were mostly DA workers and prominent societal groups. The new DCE dissolved the old board soon after taking office after the change in government.
Kuntanase	DA protected defaulters	The defaulters were mainly DA staff.

Source: Fieldwork

4.4.2 Legal condition

Legal conditions come as a result of the introduction of new legislation, regulations and policies. It also translates into issues of fraud and non-compliance with laws and contracts. Table 5-10 outlines the legal factors affecting the partnerships in the study areas.

The study revealed that the legal conditions were closely linked to the political factors experienced in the cases studied and was predominant between the WSDBs and the DAs. In Bekwai and Wenchi for instance, the WSDBs had taken their respective DAs to court contesting the illegal dissolution of their boards by the DCEs. The Bekwai case was on a large scale as it had reached the high court after having failed to yield to interventions from the Ministry of WRWH. It is important to note that the WSDBs under question had served their term of office but according to the small towns' bye-laws, were entitled to a re-election by the community based on good performance. According to the small towns' bye laws "a member of the board may be removed from office by the Executive Committee in consultation with the constituency for inability to perform his functions or misbehaviour, and endorsed by the DA", thus the illegality on the part of the DCEs to dissolve the boards.

The study suggests that the introduction of the small towns' bye-laws is helping check political interference by the DA as it has given the WSDBs power to prevent manipulations by the politicians which hitherto was absent due to the weak constitution of the WSDBs. The study also suggests that good monitoring mechanisms should be enforced to avoid any member in the partnership from taking advantage of the contract.

Table 4-9: Legal factors identified to be affecting the systems/partnerships

Case	Legal factors	Reasons for presence/absence of legal factors
Atebubu	No legal case recorded.	The CWSA intervened by providing money to pay the PO's creditors due to the complexity of the system. The system depended on diesel generators and the public institutions owed the PO.
Bekwai	The WSDB is in court with the DA/former DCE at the high court.	The WSDB is demanding the DA to render accounts since the DCE had their signatories averted to the DA unlawfully. Purely due to politicised WSDB.
Mim	DA/WSDB has threatened a court suit against the PO should the auditing of his books reveal any financial malfeasance. The PO contract has been terminated and his operational reports rejected.	The PO failed to open an Escroll account with the WSDB for the revenue from the sale of water. He has been accused of financial malfeasance by the DA/WSDB.
Wenchi	The WSDB has taken the DA to court.	The WSDB claim they were wrongfully dissolved by the DCE which is largely due to political motives.
Kuntanase	No legal case recorded	WSDB has had their term extended for good performance.

Source: Fieldwork

4.4.3 Socio-Cultural condition

According to DANIDA report (2000), insufficient consideration of cultural and social factors in programme planning and implementation impedes peoples' participation. Community interferences ranging from protests to sabotage can interrupt smooth operation of the system and affect the income position of the systems.

The study revealed that there were no serious resistance to the PPP concept as the stakeholders (i.e. CWSA, DA, WSDB and the community members) were all involved in the implementation stage. It is important to note that not all the stakeholders consented to the PO take-over. Table 5-11 presents the socio-cultural factors affecting the systems. The study revealed that the systems under direct management by the WSDB experienced no community interference. However, they had problems with their traditional council as they deliberately failed to pay for the water they used. The POs experienced little interference from the traditional councils in their era. The study suggests that, the community should be educated on the PPP concept and involved entirely in it's to eliminate their fear of the POs' excessive control and take-over of their systems.

Table 4-10: Socio-Cultural factors identified to be affecting the partnership

Case	Social factors	Cultural factors	Reasons
Atebubu	Some DA staff vehemently opposed the PSI even after Consultations. The Community demonstrated against the tariff increase of the PO.	The Chiefs were willing and committed to the partnership.	DA still believed they should be allowed to manage the system. They were against a private person coming to make profit from their system. The chief secured funding to replace the generators that powered the WTP when they broke down.
Bekwai	Two SPs were vandalised after a day of the PO starting work.	The chiefs of the town had requested for special treatment in terms of their water bills.	Some members of the community were not in favour of the PO's take-over. The chiefs feel they should not be charged for the water they consume.
Mim	Two weeks into operations, cables to two BH sites were stolen.	No case recorded.	
Wenchi	No case was recorded.	The traditional council/Chiefs do not pay for the water they use. They threatened the operating team when they were disconnected.	The WSDB/community members opposed the PO take-over. The system has since been managed by the WSDB.
Kuntanase	No case recorded.	No case recorded.	The system is under WSDB management.

Source: Fieldwork

4.4.4 Financial condition

The financial conditions translate into cost-recovery of the system by consumers paying for the water they use. It also looks at the mechanisms for tariff modification to reflect inflation. Table 5-12 outlines the financial factors affecting the systems.

The study revealed that the public institutions, private domestic consumers and traditional council/chiefs were bad payers. The privately operated systems had no problems with the chiefs and the private connectors unlike those under direct management by the WSDBs. In all the systems, the availability of alternative water sources affected their operations. A typical example was in Atebubu where majority of the Zongo community relied on HDWs in the raining season.

The study revealed that Kuntanase, with a simple WSS had no economic difficulties as it depended heavily on consumers who bought by the bucket to run the system. They however faced problems with the failure of the public institutions to pay their bills, most especially the DA staff bungalows.

The study revealed that the systems with population above 10,000 which had numerous public institutions rather faced problems due to non-payment. It is important to note that the DA measured the performance of the POs by the payment of their percentages due them irrespective of the fact that the public institutions were bad payers.

The study suggests that the policy of GoG paying for public institutions and POs paying percentages to the DAs should be rationalised for effective running of the systems. The non-payment by the public institutions should be reconciled with the percentages to be paid to the DA/WSDB by the private operators.

Table 4-11: Financial factors identified to be affecting the systems

Case	Economic factors	Reason
Atebubu	The public institutions/GoG failed to pay for the water they consumed. The DA demanded for their percentages from the revenue despite their inability to pay for the water they used. The PO operated effectively for six months in a year. The system was complex with a WTP powered by diesel operated generators.	There was bureaucracy in the payment of public institution bills by the GoG. The community heavily depended on HDWs during the raining season. Diesel prices increased rapidly in the PO era. The DA failed to connect the treatment plant to the national electricity grid as recommended by the consultants to the project.
Bekwai	The system made deficits in the last year of operations.	The DA failed to act on the PO's tariff increase request to reflect inflation due to a court suit by the WSDB.
Mim	The PO lost a large part of his market share.	The Ayum timber firm supplied water free of charge to the community. Their WSS covered its workers quarters, some key institutions and high income areas. HHs close to the Ayum quarters preferred to fetch from their taps rather than buy from the Mim WSS.
Wenchi	The chiefs/public institutions did not pay for the water they consumed. The PCs were bad payers. The system owed VRA heavily.	The GoG delayed in paying its bills. The chiefs felt they should not be made to pay. The operating team had to resort to massive disconnection to retrieve money from private connectors.
Kuntanase	No case recorded.	Kuntanase is a small system and relied mainly on consumers who bought from the SPs. They were good payers as the method of payment was by the pay-as-you fetch method.

Source: Fieldwork

4.4.5 Technical condition

Technical factors translate into the efficient functioning of components (i.e. equipment, materials, processes etc) of the facility. It is linked to the technology, age and condition of the facility. Table 5-13 presents the technical factors identified in the study to be affecting the partnership and the service delivery.

The study showed that the technical conditions affected the systems negatively. In Atebubu, the system was not cost effective as diesel prices kept doubling over the years without a corresponding tariff increase. The PO had to resort to borrowing to continue operations. Again, the absence of the non-return valve also increased the pressure on the transmission line whenever the tank got full due to back flow. There was constant bursting of the transmission line leading to high water losses and interruption of the system. In Bekwai, there was frequent burning of pump motors due to fluctuating current until the PO installed safety devices. The study identified that, the responsibility of the DAs in performing major replacement and renewal works was not done as stipulated in the contract. The responsibility of replacement and renewal works in the contract should be explicit.

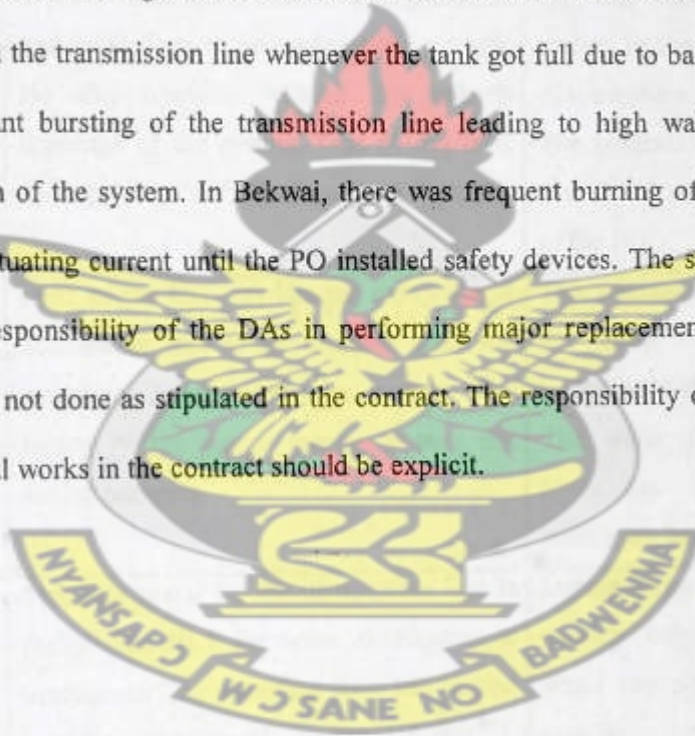


Table 4-12: Technical factors identified to be affecting the systems

Case	Technical factors	Reasons
Atebubu	The treatment works was not connected to the national grid. Raw water had to be pumped to be treated and pumped again to the town, 18 km away by diesel powered generators. There was no non-return valve installed on the transmission line.	The DA failed to connect the WTP to the national grid before giving it out to the PO as recommended by the consultants to the system.
Bekwai	Safety devices were not installed on the pumping stations.	They were not considered in the design.
Mim	The PO faced many maintenance problems and corrections to be made on the system. He also operated without the as-built drawings of the system. One of the BHs had a problem with dissolved iron content.	He was handed over the system in the liability period of the system. The contractor did not hand over the drawings to the DA or the PO.
Wenchi	Parts of the facilities like the pump relays and wiring had to be changed after the contractor handed over the system. The motors of the pumps constantly burn out during pumping.	The contractor was alleged to have used inferior materials in the construction. The water demand of the town has increased. The pumps are been over-used.
Kuntanase	The bulk meter on the distribution line is faulty. The HLT for water distribution is inadequate. The operating team has started installing additional tanks (10,000 L capacity) near the SPs in high demand areas. The system has only one source without a standby generator.	During power cuts, the tank quickly empties due to its small capacity. There is no standby generator to continue production.

Source: Fieldwork

5 CHAPTER SIX: Conclusions and Recommendations

5.1 Conclusions

The main drivers that triggered the involvement of Private Operators (POs) in the operation and maintenance of small town water systems were the size of the town and complexity/technology of the water system. The water boards are deemed not capable of operating effectively such systems. The new PPP in Mim has improved the on-going PPP concept in the small towns by addressing the deficiencies in the old PPP contracts in Atebubu and Bekwai. The inclusion of performance indicator targets (e.g. UFW is set at 10%) in their contract now gives a basis for assessing the performance of the POs and the service delivered by the system. In addition, the mechanism to prevent favouritism after the end of the contract period also makes the systems not susceptible to post-contract opportunism which creates the opportunity for lapses in the contract to be taken advantage of by the POs.

The study identified two critical indicators for effective and efficient working relationship among the partners as the trust level accorded the POs by the Local Authorities and regular reporting by the operating teams. The Mim and Atebubu systems that had their contracts terminated and not renewed respectively were due to mistrust from the Local Authorities and/or poor reporting. The study suggests that the level of trust accorded the PO can be enhanced if there is regular reporting and transparency most especially on the finances of the water systems. The study also suggests that the regulatory role of the District Assemblies was generally weak and relaxed which created a gap in the reporting mechanism of the POs.

Generally, the partnership arrangement was marred by conflicts which were persistent between the DAs and the WSDBs, a clear indication that there is a struggle for power. Under the decentralization process in the rural sector, the District

Assemblies are the owners of the water systems who have mandated the water board for its governance. There is still a lack of understanding of the PPP concept in the small towns, most especially at the DA level who have failed to commit fully to the partnership process but are only interested in the outcomes.

The POs have reduced UFW, keen to reduce losses and make profit and improved service reliability, water quality monitoring and self-financing of the systems compared to the control. The study suggests that the POs are bound by the contract to record such performances as compared to direct management by the water boards that are not bound by any form of contract. The performance of the systems is deemed to increase if performance indicator targets are specified in the contracts.

The study suggests that some external factors worked in both directions to affect the partnership and have to be examined in that context. Legally, the establishment of the Small Towns' Bye-laws has given the WSDB power to curtail political interferences which hitherto was absent due to their weak constitutions. Political interferences were pervasive in all the systems. The water boards were politicized with changes in government. The study suggests that if the external factors affecting the PPPs are rationalised the performance of the small towns' water supply will increase and the partnership relationship will improve.

5.2 Recommendations

The following recommendations are made for policy development to enhance the on-going PPP concept in the small towns.

The accountability system (typically financial accountability) should be enforced for effective monitoring of the systems. An independent regulator should be established at the district level to ensure effective regulation.

Capacity building should be organized for the DAs to regulate the PPPs. Workshops and seminars should be organized for the District Assemblies and community representatives to build their capacity on the PPP concept in water service delivery.

The external factors and contractual issues should be rationalized to increase the performances of the systems and partnership relationship:

- Micro-management by the DA/IMC should be discouraged; further studies should be conducted to compare performance under the DA micro-management to that of the Pos.
- The Atebubu and Bekwai contracts should be revised to give major replacement and extension works to the POs.
- Clear-cut performance indicator targets should be set for POs to meet by a said date with allowance for mid-term reviews and this should be enforced.
- Mechanisms should be included in the contracts to reduce viability to post-contract opportunism after the end of the contract period of a particular PO.

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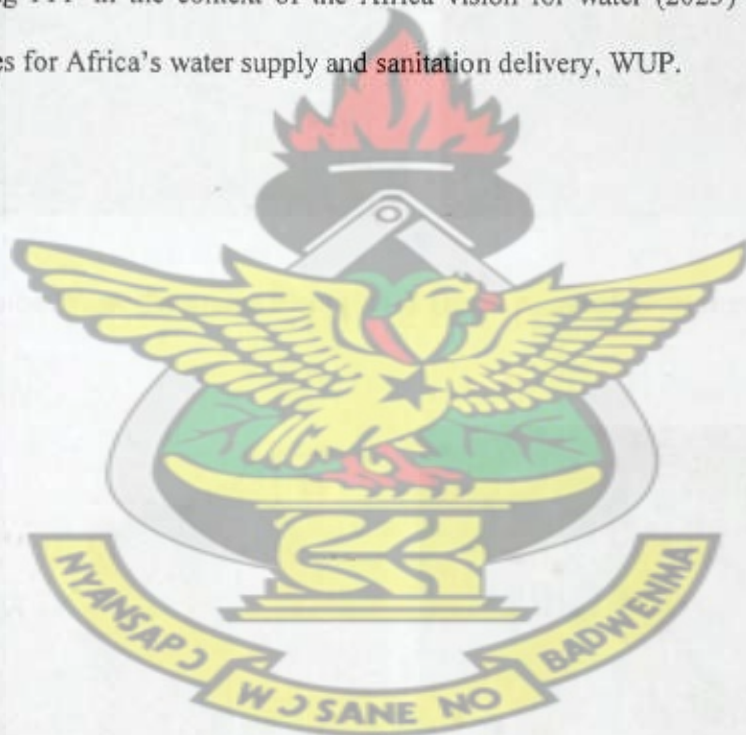
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APPENDICES

Appendix 1A: Plates showing existing conditions of Atebubu water supply system

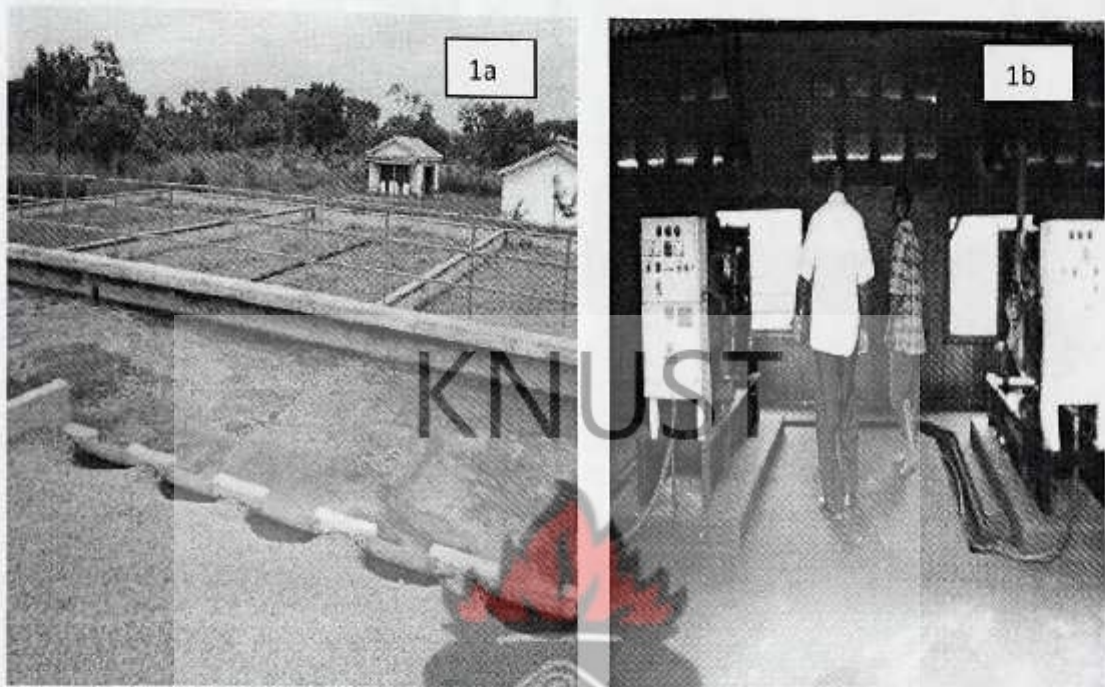


Plate 1: Atebubu Water Treatment Plant (1a) & Diesel powered generators (1b)



Plate 2: Atebubu water intake structure (2a) & Major alternative water source-HDW (2b)

Appendix 1B: Plates showing existing conditions of Bekwai water supply system

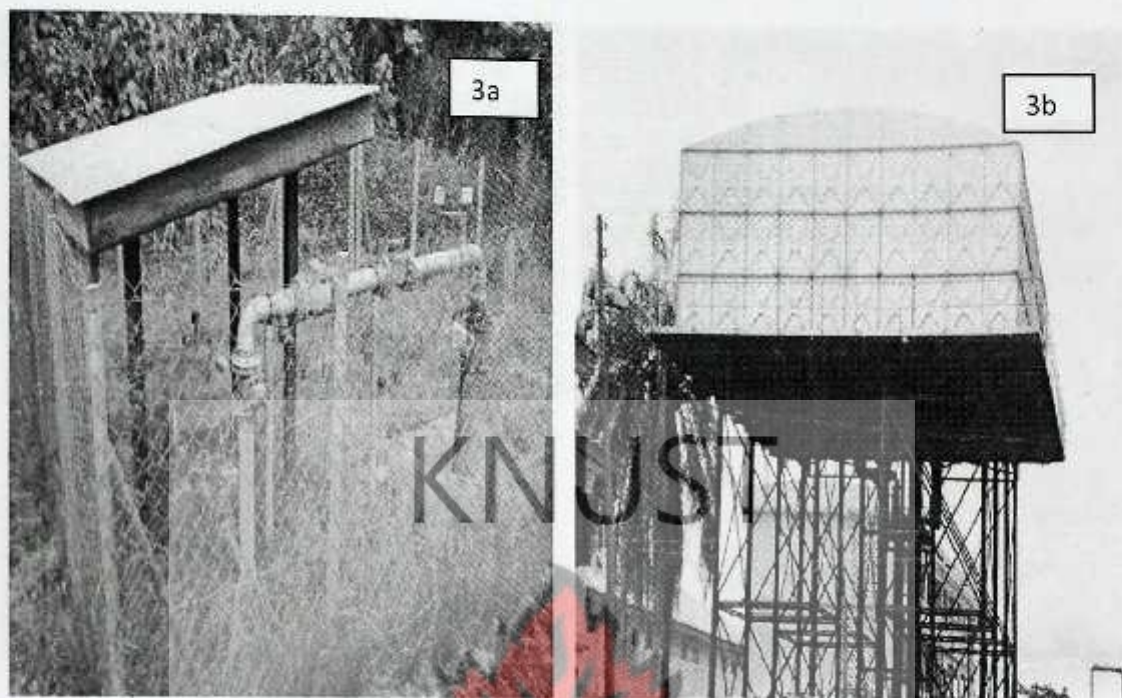


Plate 3: Main Bekwai BH water source (3a) & Main high level steel tank (3b)



Plate 4: Safety device out in by Bekwai PO (4a) & Bekwai SP distribution point (4b)

Appendix 1C: Plates showing existing conditions of Mim water supply system

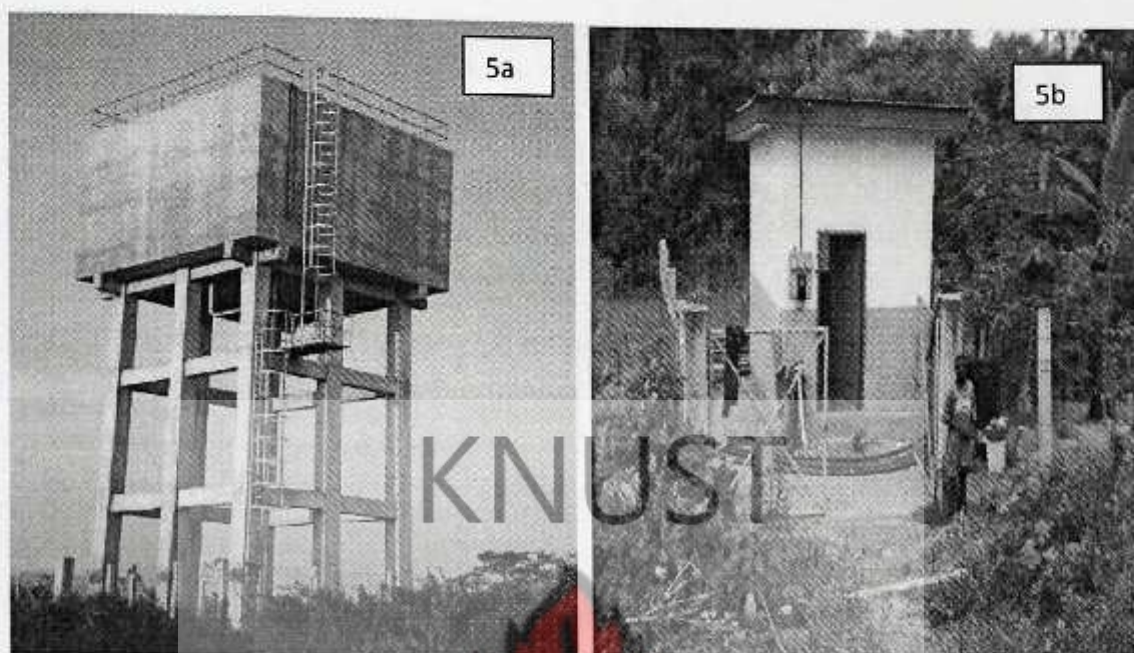


Plate 5: Mim 200 m³ RC HLT (5a) & BH water source (5b)



Plate 6: Ayum WSS distribution point-Mim (6a) & Abandoned BH with Fe problem (6b)

Appendix 1D: Plates showing existing conditions of Wenchi water supply system



Plate 7: Wenchi 875 m³ GWT (7a) & SP distribution point (7b)



Plate 8: Unconnected DPPC in Wenchi (8a) & Uncovered DPPC (8b)

Appendix 1E: Plates showing existing conditions of Kuntanase WSS

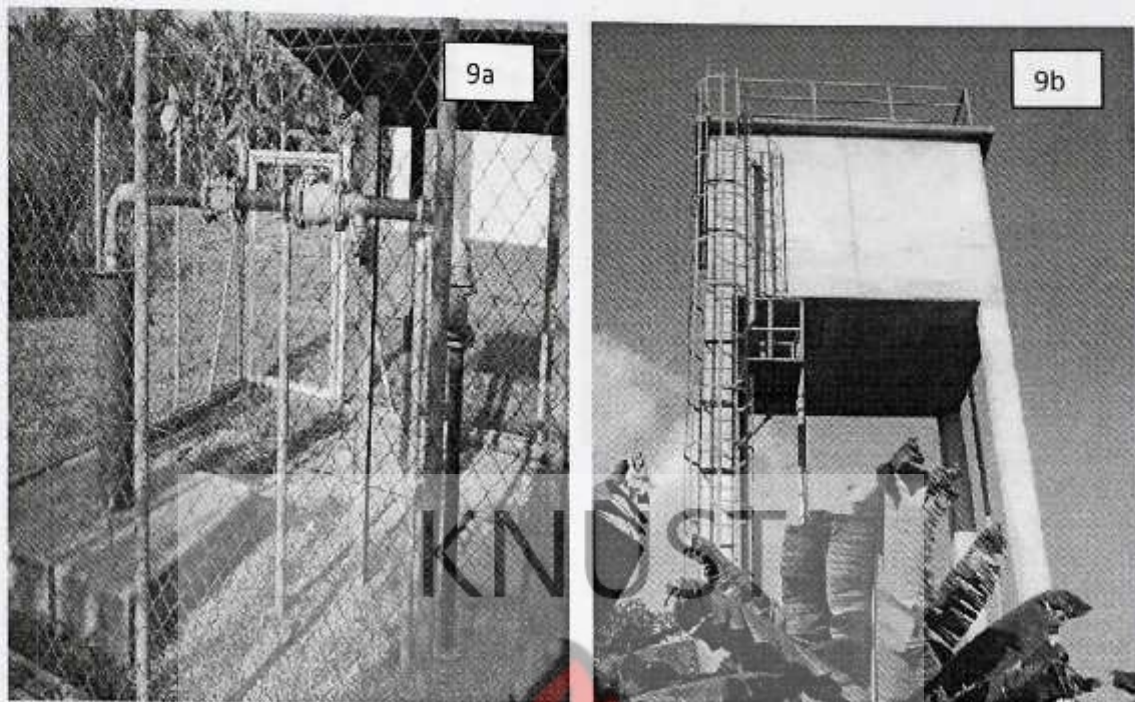


Plate 9: Kuntanase WSS borehole source (9a) & 30 m³ capacity High level tank (9b)

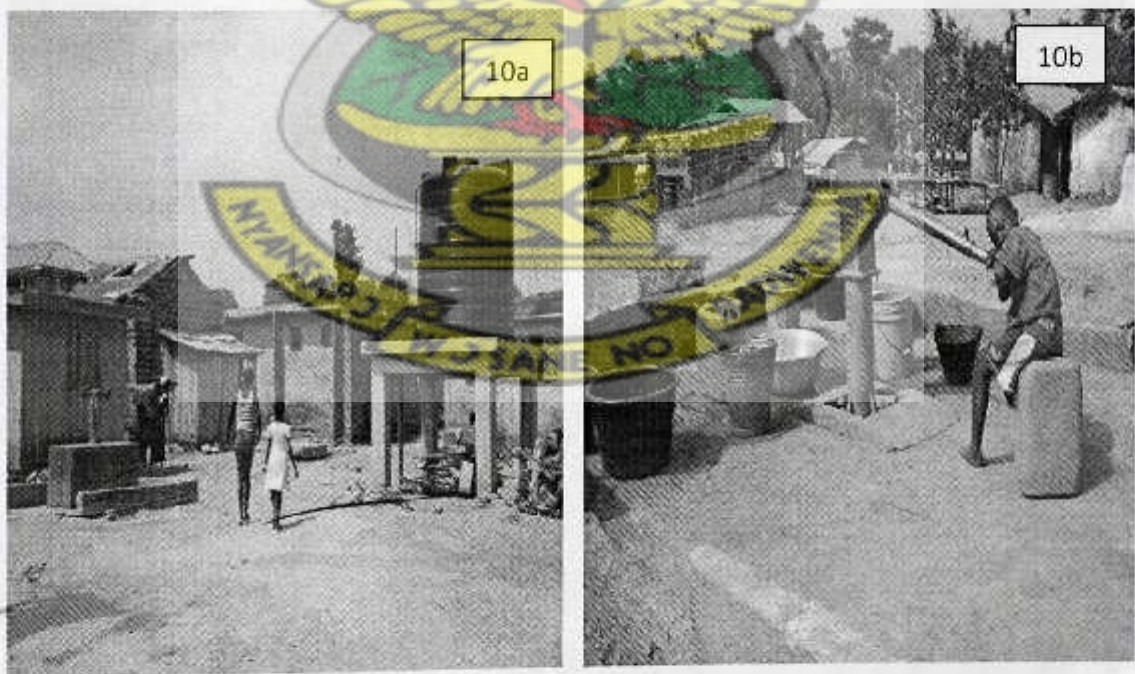


Plate 10: Kuntanase SP with booster 10,000 L reservoir (10a) & Old HDW supplied free of charge during WSS shut down (10b)

Appendix 2: Plates showing methodology for data collection

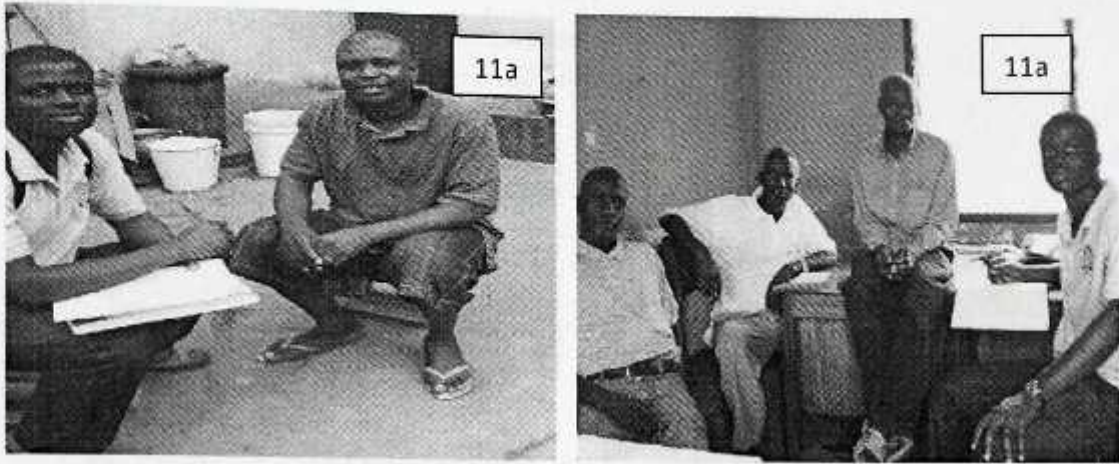


Plate 11: Household survey (11a) & Interview with technical staff of PO (11b)

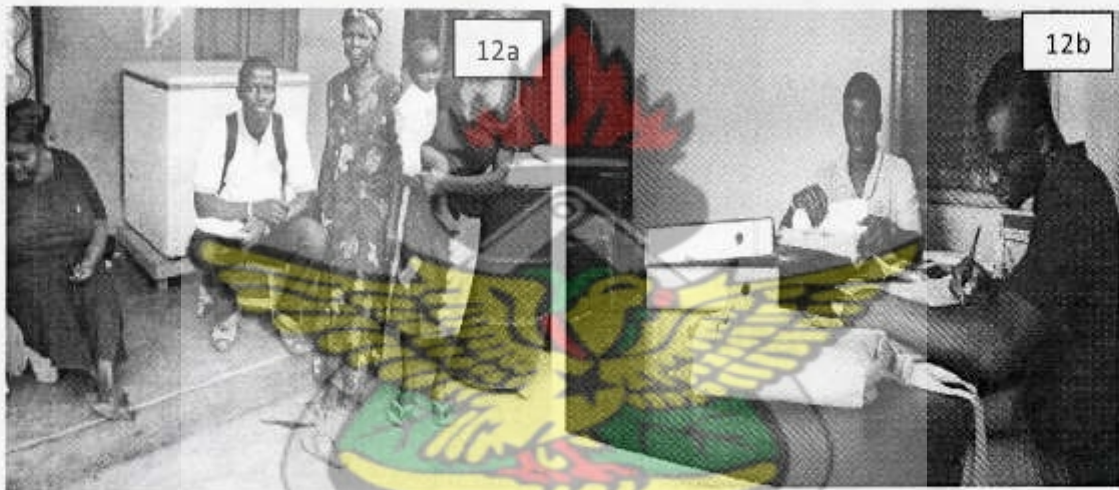
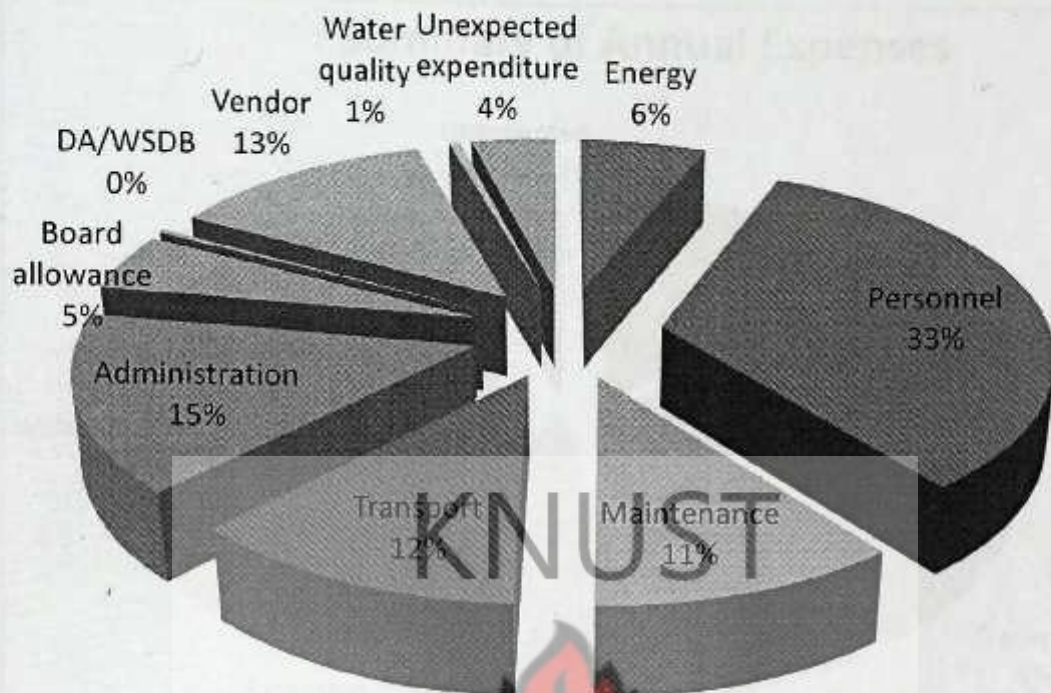


Plate 12: Small group discussions with consumers (12a) & Data collection from technical and financial reports of water systems (12b)

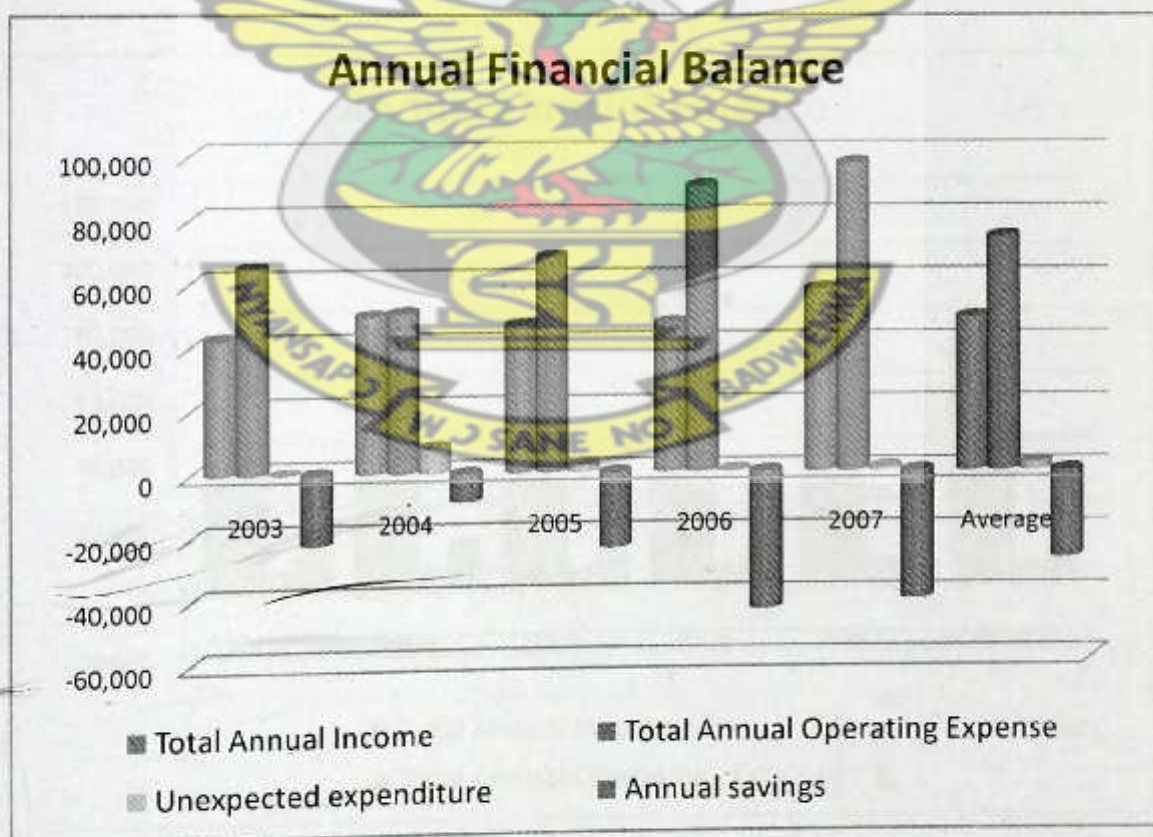


Plate 13: Interviews with WSDB members and PO staff

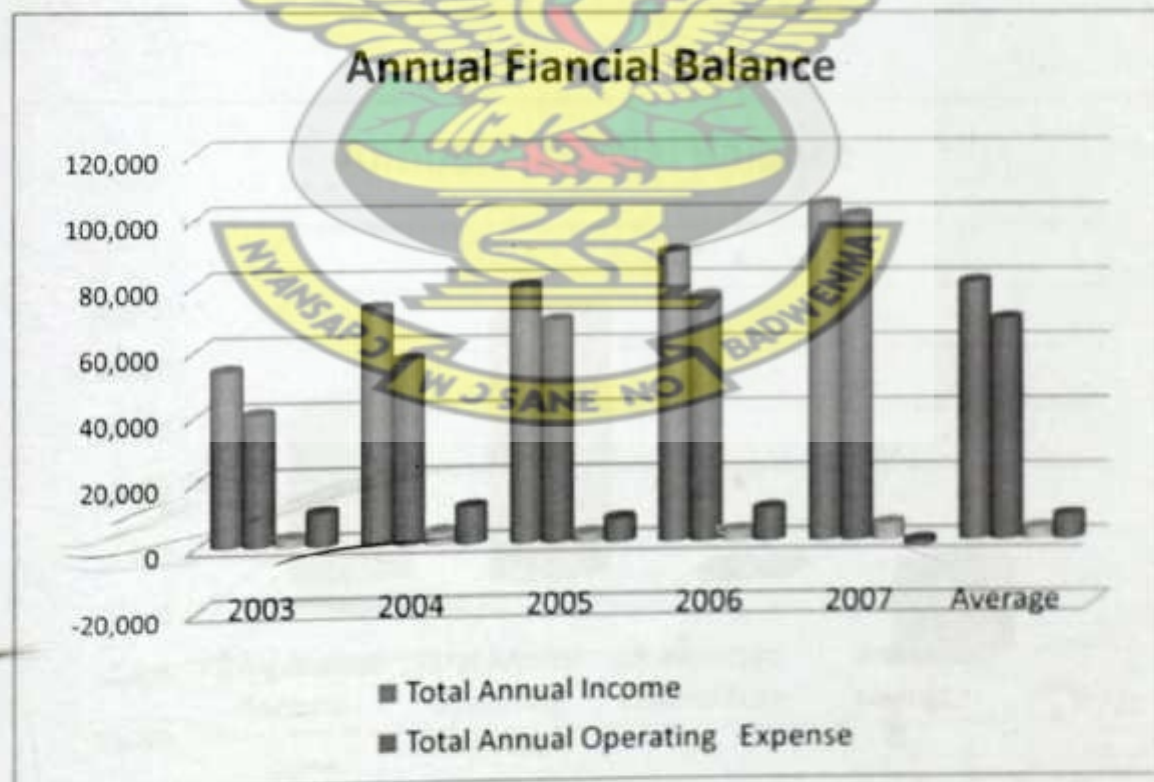
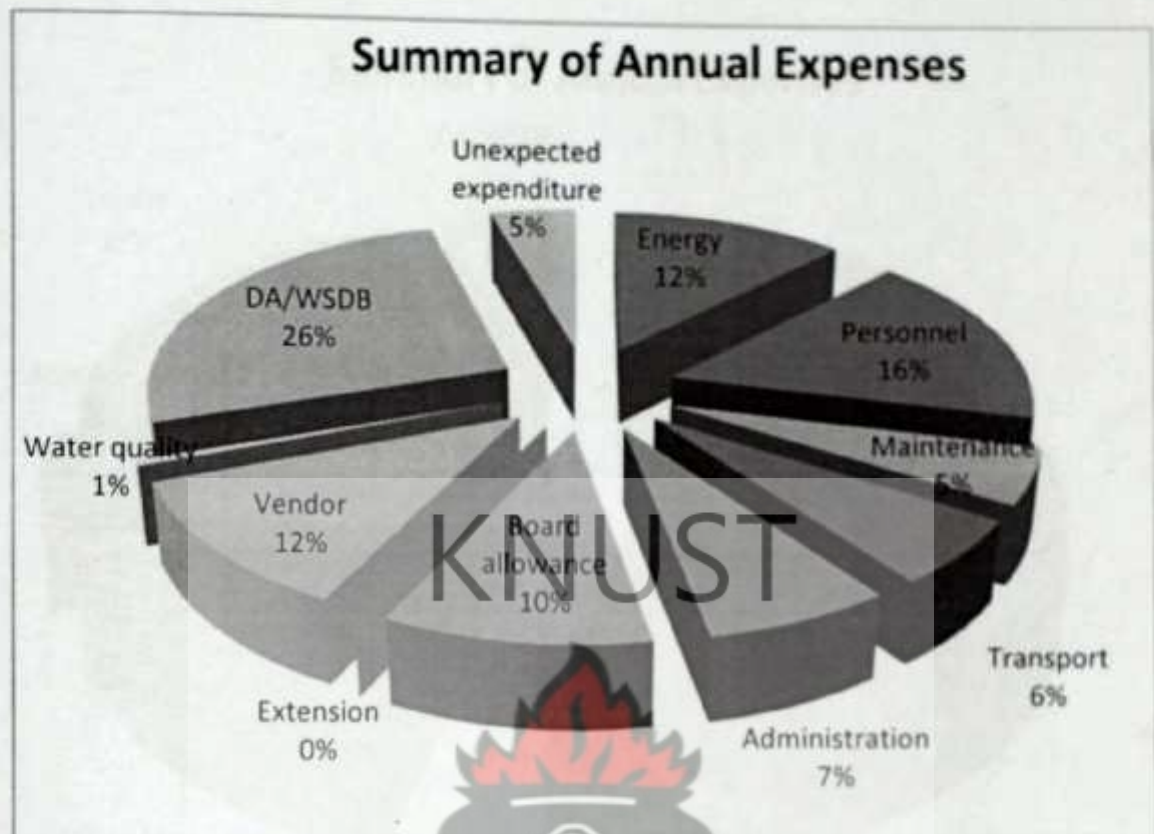
Appendix 3A: Annual operational expenses and financial balance of Atebubu WSS



Summary of annual expenses

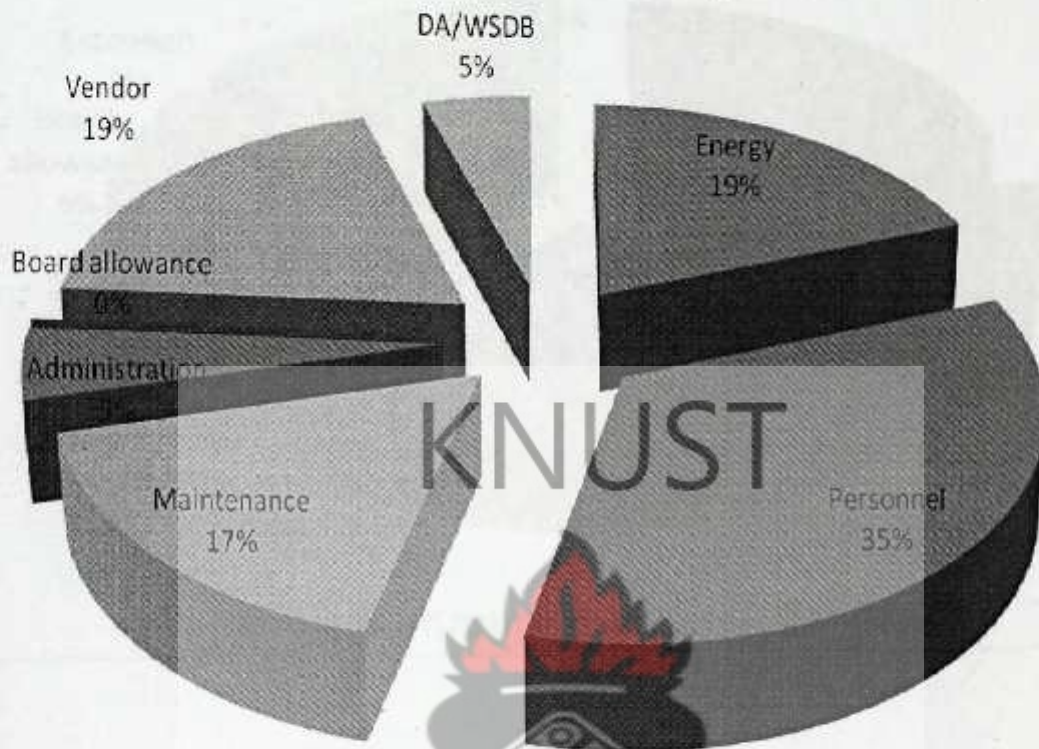


Appendix 3B: Annual operational expenses and financial balance of Bekwai WSS

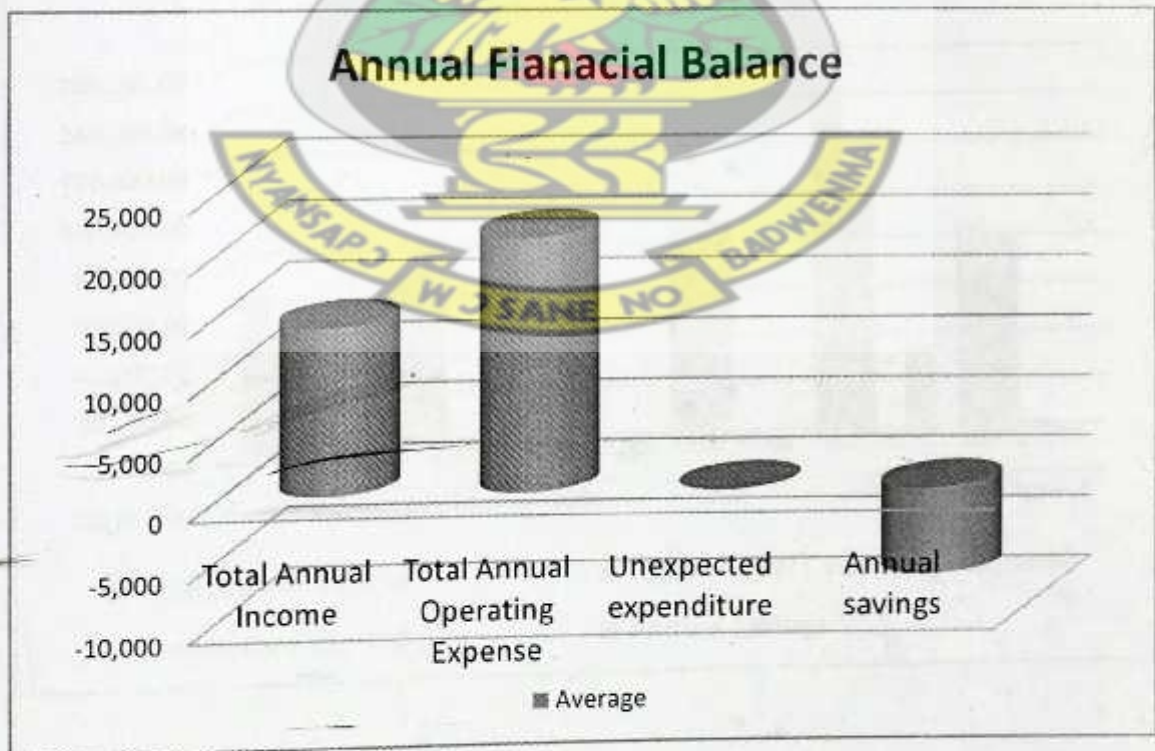


Appendix 3C: Annual operational expenses and financial balance of Mim WSS

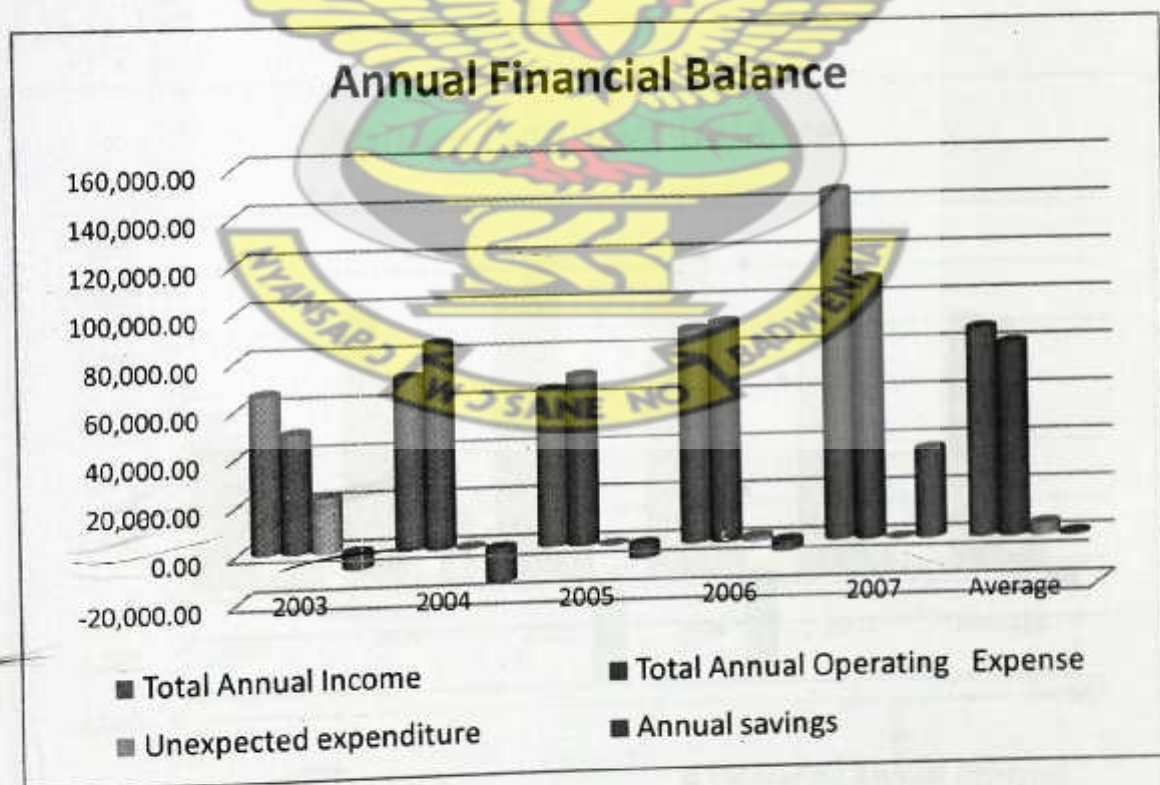
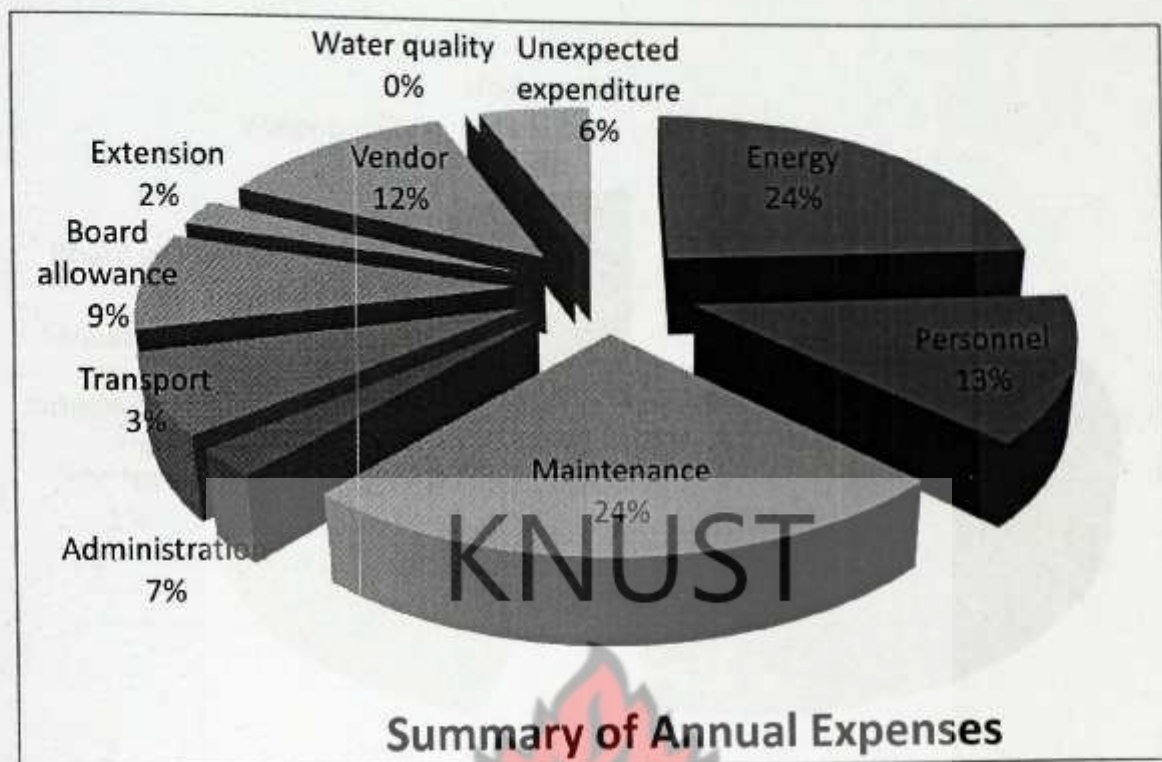
Summary of Annual Expenses



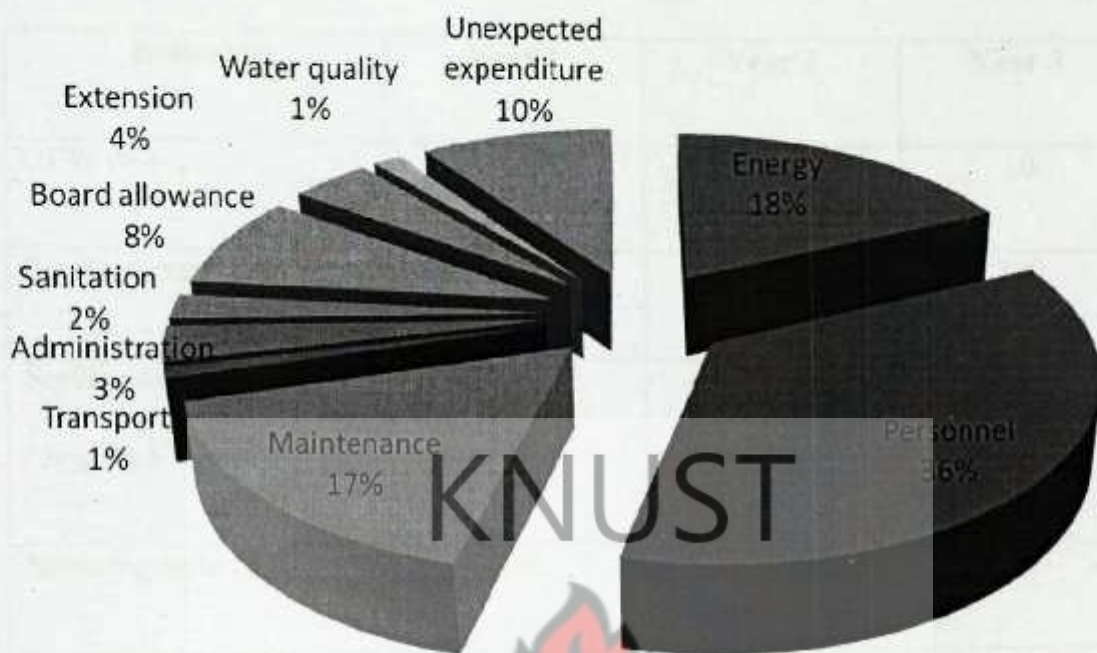
Annual Financial Balance



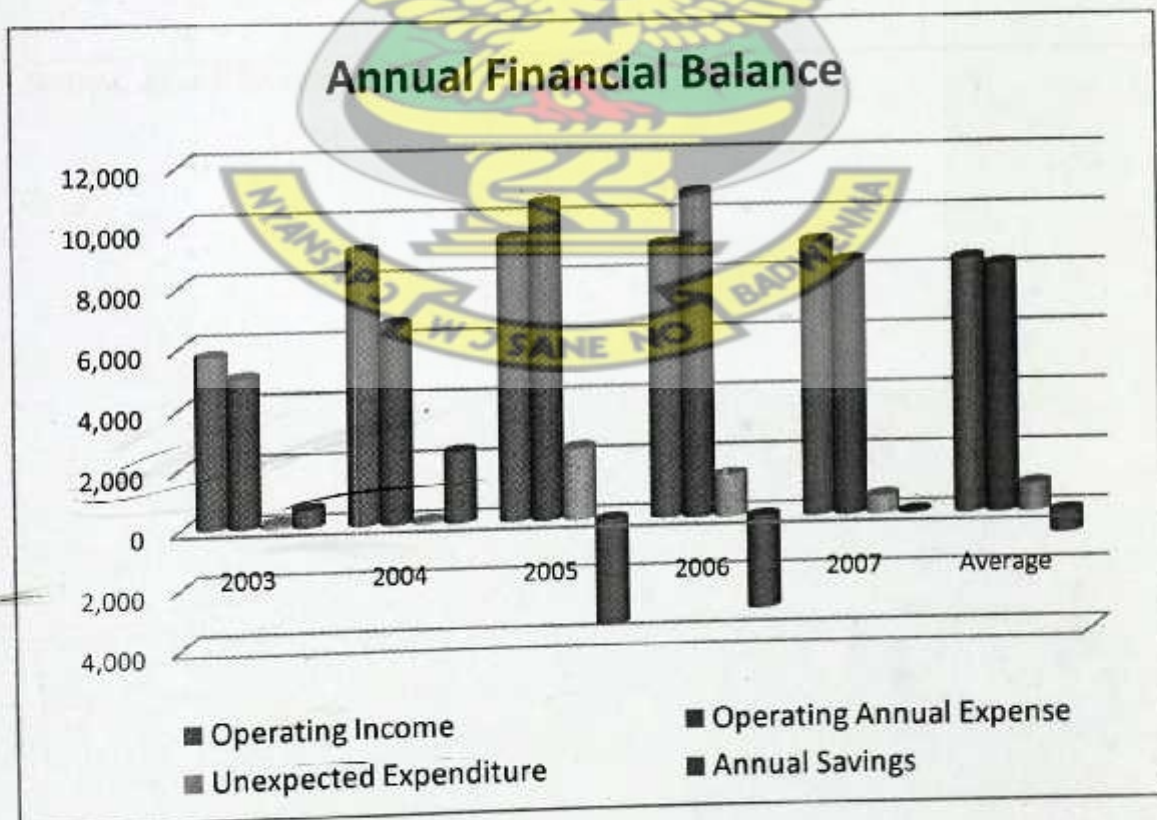
Appendix 3D: Annual operational expenses and financial balance of Wenchi WSS



Appendix 3E: Annual operational expenses and financial balance of Kuntunase WSS



Summary of Annual Expenses



Appendix 4: Performance indicators of Mim WSS contract

Indicator	Year 1	Year 2	Year 3
UFW (%)	10	10	10
Pipeline extension (m)	200	300	300
Service availability (hrs/day)	18	18	18
Metering ratio (%)	100	100	100
Bill collection efficiency (%)	90	92	95
Water quality	CWSA standards	CWSA standards	CWSA standards

Source: Mim WSS contract document



Appendix 5: Household survey questionnaire

A. Survey Data		
1. Date:	2. Interviewer:	3. Survey No:
4. Region:	5. District:	6. Community:

B. Household (HH) General

7. Sex: <input type="checkbox"/> M or <input type="checkbox"/> F	8. Age:
9. How many people live with you in the house?	

C. Household Wealth

10. (Accommodation type) Do you live with another household in this house?	<input type="checkbox"/> Shared <input type="checkbox"/> Not-shared
11. What is the type of housing structure (by observation)	<input type="checkbox"/> Modern (block, brick, sandcrete blocks, and rendered house) <input type="checkbox"/> Traditional (Mud/thatched house, hut, tent, kiosk)
12. What is your status in the house? <input type="checkbox"/> Owner <input type="checkbox"/> A tenant <input type="checkbox"/> Rent free (Family relation, friend, other).	
13a. What is the main livelihood of the household? <input type="checkbox"/> Salaried <input type="checkbox"/> Self-employed	
13b. If Q13a is self-employed, then which of the following is/are applicable? <input type="checkbox"/> Health personnel <input type="checkbox"/> Farmer <input type="checkbox"/> Trader <input type="checkbox"/> Tailor/Dressmaker <input type="checkbox"/> Mason <input type="checkbox"/> Plumber <input type="checkbox"/> Carpenter <input type="checkbox"/> Other (specify)	
14. Which of these assets do you and your household own? (tick all if applicable): <input type="checkbox"/> Car <input type="checkbox"/> Motorbike <input type="checkbox"/> Bicycle <input type="checkbox"/> Mobile phone <input type="checkbox"/> Television <input type="checkbox"/> Radio <input type="checkbox"/> Jewellery <input type="checkbox"/> Traditional Cloth (Men and Women) <input type="checkbox"/> Livestock <input type="checkbox"/> Other.....	

D. Water Tariffs

Source		Container size (litres)	Price per container (GH¢)	No. fetched/day	Quantity of water used/day (litres)	Cost of water per day	Cost of water per month	Mode of Payment
Main	Stand pipe							
	Sealed Borehole/Well with Hand pump							
	Yard connection							
	Indoor plumbing							
	Pond/Lake							
	Sachet water							
	Water tanker/Vendor							
	Yard connection							
	Indoor plumbing							

Mode of Payment

1 = Free 2 = Pay-as-you-fetch 3 = Weekly 4 = Monthly 5 = Other.....

E. Water Storage and Treatment in the Home

15. Do you treat water in the home? ☐ Yes ☐ No

16. If Q15 is YES, how do you treat water in the home?

Source		Type of treatment	Remarks
Main	Stand pipe		
	Sealed Borehole		
	Yard connection		
	Indoor plumbing		

Type of treatment

1 = Boiling 2 = Filtering 3 = Bleach 4 = other (specify).....

F. Customers/Community perception of the performance of the PO/WSDB

17. Are you aware that a PO has been managing your water facility?

Yes b. No c. don't know d. No response

18. How do you rate the competence/performance of the PO in terms of service continuity (hours per day access to water?)

a. Extremely Satisfied b. satisfied c. Poor d. don't know

19. Does the PO meet or consult with the community periodically to discuss problems?

a. Yes b. No c. don't know d. No response

20. Do you have a say in the setting of the water tariff/fee?

a. Yes b. No c. don't know d. No response

21. Impression about water tariff

1 = Too high (it stops me using as much water as I would like).

2 = Acceptable (it is a fair price, and I use as much water as I would like).

3 = Low (I would be willing to pay more if it was required)

22. How long do you take to fetch water at the standpipe

a. Less than 15mins b. 15-30min c. 30min d. Above 30mins

23. How many times in a week does the water flow?

a. Rarely b. 2 days c. 4 days d. Everyday

24. How long does the pipe flow in a day

a. Up to 3hrs b. Up to 6hrs c. Up to 9hrs d. Up to 12hrs

25. Are you satisfied with the water quality?

a. Extremely Satisfied b. satisfied c. Poor d. don't know

26. What problems do you have with the water quality?

27. Do the water vendors charge the tariff as set by the DA? What problems do you have with the vendors?