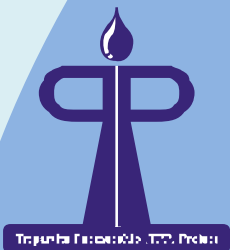


# Case Study

September 2010

## Public-Private Partnership Model in Small Towns (O&M Contract in Bekwai, Atebubu and Wassa Akropong)

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## **LIST OF ABBREVIATION**

AWF	-	Africa Water Facility
COM	-	Community Ownership and Management
CWSA	-	Community Water and Sanitation Agency
DA	-	District Assembly
DCE	-	District Chief Executive
DPPC	-	Distribution Points for Private Connection
DWST	-	District Water and Sanitation Team
EU	-	European Union
GIS	-	Geographic Information System
GWCL	-	Ghana Water Company Limited
GTC	-	German Technical Co-operation
IMC	-	Interim Management Committee

NCWSP	-	National Community Water and Sanitation Programme
NGO	-	Non Governmental Organisation
NRM	-	Non Revenue Water
O&M	-	Operation and Maintenance
PPIAF	-	Public Private Infrastructure Advisory Facility
PPP	-	Public-Private Partnership
TPP	-	Tripartite Partnership
TREND	-	Training Research and Networking for Development
PPP	-	Private Sector Participation
PURC	-	Public Utility Regulatory Commission
UNICEF	-	United Nations Children's Fund
WASH	-	Water, Sanitation and Hygiene
WSDB	-	Water and Sanitation Development Board

## 1. INTRODUCTION

The Tripartite Partnership (TPP) Project is a joint collaboration among the Netherlands Water Partnership, TREND, the lead implementer and some National actors and stakeholders in the water and sanitation sector in Ghana, working to identify and promote Innovative Management Models for the delivery of water, sanitation and hygiene (WASH) services to the urban poor. TPP started in January 2008, as a response to the lack of knowledge and capacity for dealing with the challenges of pro-poor urban water and sanitation services delivery. The overall goal of the TPP is to ensure a “Strengthened sector capacity for planning and delivery of pro-poor water and sanitation services.” The specific objectives of the project are to:

- Identify a range of innovative management models for providing water services to the urban poor.
- Test innovative models through selected demonstration projects.
- Utilize the learning outcomes of the project to support the creation of the enabling environment (policy, regulation and legislative frameworks) for these models to be scaled up.

TPP has reviewed various management models, both locally and globally to identify promising innovative ways of ensuring sustained delivery of WASH services to the urban poor. The best practices which were critically obtained from the various studies would inform the design of various tools and guidelines for replication within the Ghanaian WASH sector. Using knowledge management, advocacy and promotion of networking, the results will be used to ensure improved service delivery at the and strengthened policy at the sectorial level. Plans are advanced for TPP to pilot promising innovative management models with the support of the African Water Facility (AWF) of the African Development Bank (AfDB) for infrastructure development.

As part of the project activities to achieve the above objectives, a scoping of existing Management Model and a GIS mapping exercise were carried out between April and November, 2008. At a meeting with stakeholders on 12 November 2008, the outcomes of the scoping studies were presented, and a number of case areas were identified, covering a wide range of issues across the four main ecological zones of Ghana, for further studies to provide better understanding on the ways different management models affect WASH service delivery in Ghana.

In line with the central theme of the TPP - Innovative Management Models for services delivery to the urban poor, this report describes the Public-Private Partnership (PPP) model, where the operations and maintenance of small towns water supply schemes have been delegated to private operators. The report is on three small towns' water supply schemes with PPP model in Bekwai in the Ashanti Region, Atebubu in the Brong Ahafo Region and Wassa Akropong in the Western Region, as part of a series of nine (9) cases conducted under the TPP Project on promising management models in the water and sanitation sector in Ghana.

### **1.1. Objective of this study**

The objective of this study is to examine the Public Private Partnership (PPP) management model for small towns WASH services for innovative mechanisms to inform the design of appropriate management models for WASH service delivery to the urban poor. The study is based on the PPP arrangements in Bekwai, Atebubu and Wassa Akropong for delivering WASH services to small towns.

The case study highlights the following issues:

- WASH situation before the PPP model
- Reasons for using the PPP arrangement
- The selection of the private operator
- Analyses of the PPP management model for delivery services
- Factors affecting the performance of the PPP model
- An assessment of ‘next steps’ in terms of knowledge and application at scale.

### **1.2. Approach for the study**

A review of the WASH sector documents and management models for the delivery of water services was the starting point. In particular the review of the work conducted by CWSA and PPIAF in 2000 and 2001 provided valuable information on the factors that informed the introduction of the management models and the process of introducing the management model specifically to the PPP. Extensive field work in the study areas provided useful information on how the PPP model worked in the three towns. The information was provided by consumers, Water and Sanitation Development Boards (WSDBs), District Assemblies (DA) and respective CWSA Regional Offices, through a combination of interviews and discussions. Triangulation from multiple sources was used to ensure the quality of the information provided.

### **1.3. Organisation of the report**

This chapter has provided the introduction, objectives and approach for the study.

Chapter 2 describes the study area and highlights the location, socio-cultural, economic profiles of the towns and provides an overview of the water supply system.

Chapter 3 presents the PPP model. The historical development of the model is presented first, followed by the development and implementation in the study areas.

Chapter 4 provides an assessment of the model with respect to transparency and accountability, cost recovery, sustainability and delivery of WASH services

Chapter 5 presents the conclusions and recommendations

## DESCRIPTION OF CASE STUDY AREAS

The study areas are Bekwai in Ashanti Region, Atebubu in Brong Ahafo Region and Wassa Akropong in the Western Region. Figure 1 shows the location of the study areas. The next sub-sections give an overview of the three study areas covering location, socio-cultural, economic activity and the water system description to give a good background to the cases in the subsequent sections.

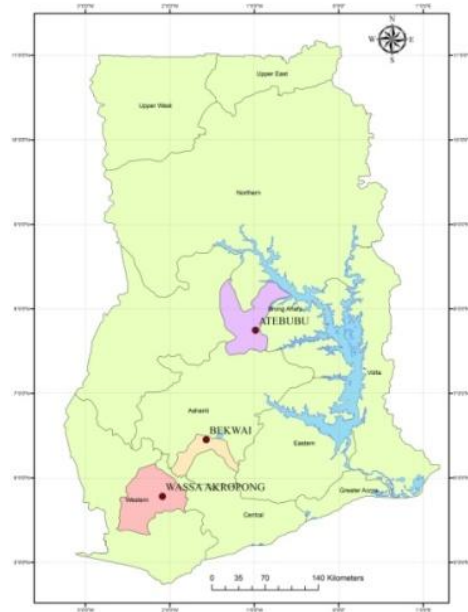


Figure 1.1: Location of Study Areas

### 2.1. Overview of Bekwai

#### 2.1.1. Location

The Bekwai Township (also referred to as Asante Bekwai) is located about 24 km south of Kumasi, the Regional Capital of the Ashanti Region (see figure 1). Bekwai is the capital town of the newly created Bekwai Municipality, one of the 27 administrative

Districts in the Ashanti Region. The Municipality shares boundaries with Amansie West District to the west, Bosomtwe District to the north, Adansi South and West Districts to the south and the Asante Akim South District to the east.

#### 2.1.2. Socio-Cultural

According to the 2000 Population and Housing Census in Ghana, the town had a population of 19,679, with male to female ratio of 1:1.1. The population of the town is approximately 9% of the entire District population. The population growth of the town is believed to be slightly higher than the district average of 3.0%.

#### 2.1.3. Economic Activity

The major economic activity in the Bekwai Municipality is farming followed by trading and formal employment in decentralised departments of the Municipal Assembly, health institutions and schools.

#### 2.1.4. Existing Water Supply System

The original water system was a conventional system constructed in the early 1960s by Ghana Water and Sewerage Corporation (GWSC). In July 1999, Ghana Water Company Limited (GWCL) transferred the Bekwai water system to the District Assembly. CWSA with support from European Union (EU) rehabilitated the system and Bekwai now has a piped system using groundwater since 2001.

The water system was designed for a population of 28,000. The water system has five mechanised boreholes, 500 house connections, 2 reservoirs (570m<sup>3</sup> and 30m<sup>3</sup>), a pipe length of 25 km and 40 standpipes. The source of electricity is the national grid.

## **2.2. Overview of Atebubu**

### **2.2.1. Location**

Atebubu is the capital town of the Atebubu-Amanten District in the Brong-Ahafo Region. The population was 20,002 at the 2000 population and housing census. Using estimated district population growth rate of 4%<sup>1</sup>, 2009 population of Atebubu is estimated at 29,595. Atebubu town, for the purpose of local administration, has been divided into 13 wards. According to a report done by TREND in 2006<sup>2</sup>, average household size of the town is 6 with concentration in the Zongo areas. This average is higher than the national average of 5.1 (2000, Ghanaweb.com).

### **2.2.2. Type of Community**

The Atebubu community is heterogeneous with an estimated 65% being Akans, 30% being from northern parts of Ghana and 5% being from non-Akan speaking areas from the southern part of Ghana. Despite the ethnic diversity of the town, the people co-exist peacefully. Both the Christian and Islamic regions show their significant presence in the community.

### **2.2.3. Existing Water Supply System**

GWSC transferred the piped schemes based on a conventional treatment system to the District Assembly. This was subsequently rehabilitated by CWSA with support from the EU. The existing water system for Atebubu is a piped system, relying on the Pra River. The water system has a pre-treatment achieved through a de-silting chamber (capacity-10m<sup>3</sup>) and three up-flow roughing filters. The main treatment is by GENEPI system that is a self cleansing slow sand filtration (does not require washing and re-sanding). The system has a 135m<sup>3</sup> capacity Clear water tank. The water treatment system was constructed in 2001 as part of the major rehabilitation, after which the system was contracted to ARMCO Ltd under a management contract. The water system was designed for a population of 20,000. It had 190 house connections and 36 standpipes. The power source is two diesel generators. Further to the treatment plant system is an additional mechanised borehole which is connected to the national grid. The total length of pipe network is 33 km.

## **2.3. Overview of Wassa Akropong**

### **2.3.1. Location**

Wassa Akropong lies about 58km NNW of Tarkwa, within Ghana's "mining quadrilateral". Wassa Akropong is the district capital of the Wassa Amenfi East in the Western Region. The Wassa Amenfi East District is located in the middle part of the Western Region of Ghana. The District shares boundaries with Mpohor Wassa East to the east, Upper and Lower Denkyira to the north and Wassa West District to the south.

### **2.3.2. Socio-cultural**

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<sup>1</sup> Final report: Assessment of Current Waste Management Practices in Atebubu, TREND 2002

<sup>2</sup> Draft Final Report – Phase One Situation Assessment and Revised Proposal for Implementation of an Improved Waste management System in Atebubu, TREND 2006



The total population of Wassa Akropong, according to the 2000 Population and Housing Census was 6,170. This was composed of 3,113 or 50.5% male, and 3,057 or 49.5% female. The town's population is expected to reach about 9,000 by the year 2012. There are 1,490 households living in 658 houses. On the average there are about 4.1 persons per household.

Majority of the population of the town are Akan (mainly Wassa). They constitute over 70% of the total population. There are other minority ethnic groups such as, Mole Dagbani, Ewe, Ga-Adangbe etc.

Wassa Akropong is the seat of the paramount chief of the Wassa Amenfi traditional area. The paramount chief is at the apex of the authority structure in the traditional area and the town. He rules the traditional area, with the assistance of a number of divisional chiefs and community chiefs. The town also has its own chief. He administers the town with the support of sub-chiefs and clan heads who constitute a council of elders who are advisors. Besides ensuring that socio-cultural norms are observed, the key operators in the authority structure also deal with matters of varying gravity ranging from marriage, family, to land and other disputes.

### 2.3.3. Economic Activities

Food and cash crop farming is the most widespread occupation of the population. The town falls in the Bogoso – Enchi belt of ochrosol soils noted for cocoa production in the Western region. Trading is also an important activity. It manifests itself in the number of small retail shops in the town. The town is also an important market centre. The main items of trade include merchandise, foodstuffs and fish. A significant portion of the population is also engaged in informal activities - artisans, dressmakers, food vendors, etc.

## 2. PPP MODEL FOR SMALL TOWNS WASH SERVICE DELIVERY

This section is focused on the management models (PPP arrangement) used to deliver WASH services in the three towns. An overview of the PPP management models is first described followed by a description of each PPP arrangement in the three towns. For each town, the development of the model, model characteristic, model implementation and post contract arrangement are described.

### 3.1. Development of PPP management models for small towns in Ghana

The Ghana Water and Sewerage Corporation (GWSC) had responsibility for both urban and rural water service delivery in Ghana. As part of the water sector reform, the rural water supply was first transferred to the District Assemblies for Community Ownership and Management (COM) in 1994. Subsequently the relatively smaller urban system numbering over 100 was also transferred to the District Assemblies for COM eventually in 1999. Most of the transferred systems were in need of rehabilitation

As a result of the transfer, the Government of Ghana through the Community Water and Sanitation Agency (CWSA) with support from the European Union (EU) selected 26 small towns' water supply systems for rehabilitation and extension. An assessment study conducted by BURGEAP and Colan Consult<sup>3</sup> as part of the European Union (EU) project proposed the use of private operators for the operations and maintenance of big and complex systems in Wenchi, Bekwai, Bibiani, Bechem, Duayaw-Nkwanta and Atebubu.

The rationale was that the systems were relatively big for direct community management by WSDBs, with recruited staff. In the case of Wenchi, with a population of 40,000, the process started but the PPP idea was rejected by the WSDB, and so could not be implemented. Only two out of the six systems earmarked for PPP were eventually implemented. These are Bekwai and Atebubu and they constitute the first set of small towns where PPP was organised by the Government of Ghana through the CWSA and supported by the European Union (EU).

Following the EU initiative for PPP in Bekwai and Atebubu, the CWSA, with support from Public-Private Infrastructure Advisory Facility (PPIAF) carried out a study in 2000 to examine the justification for PPP. PPIAF is a multi-donor technical assistance facility that has the aim of helping developing countries to improve the quality of their infrastructure through private sector involvement. The results of the study led to the second phase of the work

*The Ghana Community Water and Sanitation Agency requested PPIAF funding to study the potential for local small and medium-size enterprises to take on a greater role in providing small-town water services, and to develop the tools water boards would need to negotiate contracts for this purpose. The PPIAF-funded activity also included implementing two pilot projects. Communities took part in tendering the projects and deciding how they would be managed. The management models are big improvements on traditional community-driven approaches in Ghana, and a national workshop was held to start replicating them in other small towns. (James Leigland, May 2006)*

**Box 3.1: PPP in Ghana**

<sup>3</sup> Referenced from Eva Youkhana's Research Report on EU Financed Small Towns Water Project (STWSP) in Ghana, the Case of Kumasi, 2004

that focussed on the development of management models that were piloted in Wassa Akropong and Enchi small towns' water supply in Western region. The PPIAF study also provided templates to guide other small towns' interested in implementing PPP in small towns' water supply.

### **3.2. Bekwai case study**

#### **3.2.1. Introduction of the PPP arrangement**

The reason why the Bekwai water system was selected for PPP management by the CWSA was the need to sustain the investment and water services to be delivered. The water system was relatively big and the WSDB had qualified team but lacked the management competence to carry out the billing of 500 household connections.

The process of introducing the PPP started with awareness creation and education of the stakeholder as part of the project to rehabilitate the water system by the project consultants and CWSA. The beneficiaries represented by the WSDB initially raised a strong opposition to the PPP arrangement, mainly because of lack of understanding of the PPP arrangement. The WSDB's initial perception was that they (WSDB) would be losing control to the private operator. This was the first PPP in small towns which coincided with the big debate and discussion of the urban PPP process. The WSDB, in the year 2000, presented a resolution to the DA and the CWSA and expressed their objection to the PPP. However, with continuous sensitisation, the project consultants managed to convince the WSDB of the need for private sector participation.

The CWSA head office and the Bekwai project consultants handled the procurement of the private operator. An advertisement was placed in the national dailies for interested private firms to respond by expressing interest in operations and maintenance of small towns' water systems in 1998. Over 32 potential private operators responded. A shortlist of firms that expressed interest were invited to bid for the contracts. The consultants and the CWSA selected the best-evaluated bidder. With the assistance of the consultants, the WSDB and the DA negotiated with the operator and then entered into an agreement. The WSDB did not play a significant role in the procurement of the operator. Their involvement was minimal.

#### **3.2.2. PPP model characteristics**

The PPP model adopted was a management contract which commenced in May 2002 for a five year term. The parties to the contract were the WSDB (on behalf of the DA) and the private operator whilst the CWSA and DA acted as witnesses. The private operator is responsible for operations and maintenance that covers production and distribution of water, collection of revenue from water sold and undertakes maintenance of the system (including pipes, tanks, valves, surge vessels, pumping system). The WSDBs provides oversight over the activities of the operator on behalf of the DA and the people. The WSDB is also responsible for sanitation and hygiene promotion. The DA is the legal owner of the facility and has the responsibility of system renewal and expansion.

The contract agreement states that, the operator is entitled, generally, to 75% of revenue collected from operations, to cover their operational expenses and margins. 25% is to be paid to the WSDB and the DA mainly for system rehabilitation such as renewal of boreholes and tanks (10 %), extension of the system (5 %), small scale

sanitation and hygiene promotion (10 %). The contract made provisions for penalties for poor performance (see Table 3.1). There is a performance guarantee, which is 5 % of planned income for the first year and would be given back to the operator at the end of the contract if all facilities were in good condition.

Table 3.1: Penalties for non-performance - Bekwai

Description	Penalty
Non justified total interruption of the service for more than 12 hours	100,000 cedis/hour of interruption (US \$ 15/hr)
Non justified interruption of the service to one or several distribution points for more than 12 hours	100,000 cedis/hour of interruption (US \$ 15/hr)
Non submission of reports	10 million cedis (US \$ 1600)
Non adherence to water quality standards and reporting	15 million cedis (US \$ 2500)

The operator is required to submit periodic reports (quarterly and annually) on his activities to the DA through the WSDBs. The WSDBs are required to inform the community members periodically on the performance of the operator and the system.

The contract also has a tariff adjustment formula based on price changes in electricity for the domestic consumer, minimum daily wage and diesel. The tariff adjustment formula is as follows:

$$P_m = P_o [ 0.2 + (0.2 E_m/E_o) + (0.4 W_m/W_o) + (0.2 F_m/F_o) ]$$

$P_m$  = revised tariff.

$P_o$  = previous tariff.

$E_m$  = price of KWh of electricity for the domestic consumer for the considered year.

$E_o$  = value of same prices for the last year.

$W_m$  = price of minimum daily wage for the considered year.

$W_o$  = value of same prices for the last year.

$F_m$  = price of a gallon of diesel for the considered year.

$F_o$  = value of same prices for the last year.

### 3.2.3. PPP Implementation phase.

The Partnership in Bekwai has operated well in terms of production, distribution and supply of water to the community. The operator is able to supply 150m<sup>3</sup> of water daily to the people and supply is 24//7. In any instance where supply has to be interrupted, the operator gives prior notice to the customers. In 2006 for instance, out of the 365 days, the company was able to supply for 350 days with only 15 days when the

system was out of operation<sup>4</sup>. These fifteen days were for maintenance and when there were power outages.

Under the agreement, the private operator is required to submit reports on their activities to the DA, DWST, WSDB and CWSA Regional office for review of its performance. The quarterly and annual reporting requirement was initially adhered to but after some time, it became half yearly and for the last two years it was only yearly reports that the company submitted. No reason was given for the change and this has not become a concern for the WSDB nor the DA probably because the operator was efficiently delivering water to people. This non-adherence to the reporting requirements has not attracted the penalty stipulated in the contract. It was also noticed that the District Water Sanitation Team (DWST) in Bekwai does not get copies of the report on the operations.

The private operator has adhered to the financial arrangement where 25 % of the revenue was paid to the WSDB/DA for system rehabilitation, extension and hygiene promotion. However, significant activity is yet to be seen with respect to rehabilitation, extension, sanitation and hygiene promotion to be performed by the WSDB and the DA. This has created suspicion on the part of the WSDB, that the DA has misapplied the funds. The WSDB also complains that they do not have access to the WSDB account. At the time of opening of the WSDB account, only the WSDB chairman was a signatory to the account and he has passed away since October 2006 and the signatories have not been replaced.

Generally, the relationship between the WSDB and the DA (the former District Chief Executive – 2001-2008) has not been very cordial. According to the WSDB, they did not get the needed support from the Chief Executive but threats of dissolution of the WSDB. In some cases, the CWSA-Ashanti Region and even national level stakeholders had to step in to resolve the differences<sup>5</sup>. At the time of the study, there was a pending case where the District Chief Executive (DCE) had requested for the dissolution of the WSDB, while the WSDB had also requested for the DCE to provide the proper financial state of their account before they would resign and hand over<sup>6</sup>. The WSDB had reported the case in court for redress. However, this ran into the 2008 general elections which resulted in a change of government. In 2002 the DCE dissolved the WSDB in response to the proposed demonstration threat by some community members. It took the Bekwai Chief who managed to help resolve the impasse between the WSDB and the DAs, after which the WSDB was re-instated after about 6 months. The DWST does not seem to play any role in the partnership. The poor collaboration among the DA and the WSDB does not provide a good oversight and monitoring mechanism for efficient and effective PPP. Even though there is no evidence presently, a breakdown of the oversight and monitoring system for the PPP can be grounds for misconduct by the private sector.

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<sup>4</sup> Annual Report for the year 2006, Operation Maintenance of the Bekwai Water Supply System by Messrs Vicco Ventures Limited

<sup>5</sup> According to the 2006 Annual Report of Vicco Ventures Limited, page 14, “On June 23<sup>rd</sup>, 2006 the Director of Water from the Water Directorate of the Ministry of Water Resources, Works and Housing, Mr. M. A. Aboagye and the then Acting Chief Executive of Community Water and Sanitation Agency Mr. R. K. D. Van-Ess visited to resolve some issues between the Water Board and the District Assembly.”

<sup>6</sup> Data collection was done at post election period and it was not possible to reach the DCE for his version of the story.

The O&M contract with private operator had the duration of 5 years, ending in 2007. The operator therefore requested for renewal of the contract. During the study, though a formal agreement had not been signed, the operator had been given a written assurance to continue operation pending formal signing of the renewal.

Tariff setting and review under the PPP provides interesting results. After one month of operation in June 2002, the operator realised that the water bills for the customers with private connections were rather high, even though the contract allowed for that. The private operator therefore initiated the process and reviewed the tariff to lower levels as indicated in the Table 3.2. A second downward review of tariffs also became necessary after the Public Utilities Regulatory Commission (PURC) approved tariffs for the urban water sector was announced. Bekwai customers argued that the Bekwai tariff was far higher than the PURC tariff and that something should be done about it. The private operator, the WSDB, DA and CWSA met to discuss the issues and resulted in the September 2002 tariff structure.

Table 3.2: Water Pricing and Structure in US\$<sup>7</sup>

	<b>Start of CPP (May 2002)</b>	<b>1<sup>st</sup> review (June 2002)</b>	<b>2<sup>nd</sup> review (Sept 2002)</b>	<b>PURC tariff 2002</b>	<b>UWS</b>
Stand post	0.83 US \$/m <sup>3</sup>	0.83 US \$/m <sup>3</sup>	0.83 US \$/m <sup>3</sup>	0.42 US \$/m <sup>3</sup>	
House connection 0-10 m <sup>3</sup>	0.98 US \$/m <sup>3</sup>	0.98 US \$/m <sup>3</sup>	0.83 US \$/m <sup>3</sup>	0.45 US \$/m <sup>3</sup>	
10- 20 m <sup>3</sup>	2.25 US \$/m <sup>3</sup>	1.5 US \$/m <sup>3</sup>	0.83 US \$/m <sup>3</sup>	0.45 US \$/ m <sup>3</sup>	
> 20 m <sup>3</sup>	2.25 US \$/m <sup>3</sup>	1.5 US \$/m <sup>3</sup>	0.83 US \$/m <sup>3</sup>	0.675 US \$/ m <sup>3</sup>	
Connection fee	113 US \$ plus 30 US \$ as deposit against non payment of tariff				

The procedure for subsequent tariff reviews was not based on the tariff adjustment factor. Subsequent tariff reviews were based on proposals made by private operators to the DA through the WSDB for approval. The operator in Bekwai secured one review in 2006 from US\$0.45/m<sup>3</sup> to US\$0.52/m<sup>3</sup> (using the current exchange rate of US\$1.00 to GHC1.45). These same figures would have been US\$0.83/m<sup>3</sup> and US\$.95.m<sup>3</sup> respectively using 2002 exchange rates. This has been the last review. For standpipe customers, however, there was a denomination challenge with the 18 litre bucket (the basic unit for measurement). The tariff was rounded up to the equivalent of US\$0.58/m<sup>3</sup> (or US\$1.06 based on 2002 exchange rates) to facilitate easy transaction with the denominations. This however, implies higher cost for poor consumers who buy by the bucket. The variations in the figures are due to deterioration of the Cedi but also indicate that, in dollar terms, the operator loses money.

#### 3.2.4. Post Contract arrangement

<sup>7</sup> The Cedi figures have been converted using 2002 average exchange rate of US\$1.00 to GHC0.79.

The contract expired in 2007 but the private operator was asked to continue operating the system with a letter of extension from both the DA and the WSDB. On the 03 April, 2007 a letter was written by the operator to the water board notifying them of the end of the contract which was due on 08 April, 2007. The letter also requested for their intention on the management of the system after the said date. The WSDB replied the operator on the 25th March, 2008, renewing their contract for another 5 year term, effective from April 2008 to April 2013. At the time, the WSDB had a court case against the DA/former Municipal Chief Executive (MCE) demanding accountability of funds paid into their accounts. The former MCE had apparently dissolved the old board and constituted a new one, which was vehemently opposed by the old board. The new MCE, under a new government has retained the old board as at the time of the study. Due to the pending court case, a formal contract is yet to be signed between the WSDB and the operator.

The post contract arrangement has followed a contract renewal instead of re-bidding for interested bidders. Clearly this arrangement eliminates the competition that is usually generated from the water market. Given the current situation of an impasse between WSDB and the DA and its attendant court action, it may be even difficult to organise a re-bidding to eliminate post-contract opportunism.

### **3.3. Atebubu Case Study**

#### **3.3.1. Introduction of the PPP arrangement**

The original Atebubu water system was transferred by GWCL to the District Assembly in February, 2001. The water system was a conventional treatment system relying on surface water that was in a poor state and required urgent attention. The WSDB in 2001 described the challenges facing the system as difficulty in getting chemicals and the funds to buy them, community frustration and anger at poor service and poor quality of the water, lack of capacity to set tariff as GWCL took everything away, including tariff cards and very low salaries of the technical team brought in to keep the system running.

The CWSA with the support of EU came in to rehabilitate the old water system. A new water treatment system, using river Pra was put in place at a distance of 18 km from the town as part of the rehabilitation works. The water system was considered complex due to its size, technical complexity (surface water) and complex revenue collection. As a result, the CWSA and the project consultant recommended PPP arrangement. It was also recognised at that stage that the tariff will have to be substantially high (compared to Bewkai) to keep it sustainable.

When the WSDBs was asked in 2001 if the private sector could have a role in the small towns water system, they gave the possible areas for PS involvement as the supply of chemicals, advisory service on water quality testing, routine maintenance and system extension. They were not in favour of total privatisation. At that time the Deputy Co-ordinating Director of the District was in favour of PPP arrangement as a good option to eliminate the many problems they had. The problems were given as a general lack of capacity of the current operators and difficulty of the WSDB to submit accounts, monthly technical and financial report. He was against arrangements based on voluntarism as that will result in embezzlement of funds and advocated for permanent staff to work on the system to deliver improved services.

The procurement system was very similar to the Bekwai process. In fact the same advertisement for private water operators placed by CWSA was used. Following a bidding of the shortlisted contractors, a private operator was selected for a five year management contract. The Bekwai PPP started a year before the Atebubu contract. This gave the Atebubu WSDB and the DAs the opportunity to visit the Bekwai system to learn from their PPP arrangement. As a result there was no strong objection to the process. The consultants and the CWSA selected the best-evaluated bidder. With the assistance of the consultants, the WSDB and the District Assembly negotiated with the operator. The WSDB and the Private operator then entered into an agreement, which was witnessed by the district assembly and the CWSA. The WSDB did not play a significant role in the procurement of the operator. Their involvement was minimal.

### 3.3.2. PPP model characteristics

The characteristics of the PPP model were the same as the Bekwai model. The PPP model adopted was a management contract which commenced in 2003 for five years duration. The parties to the contract were the WSDB and the private operator whilst the CWSA and District Assembly acted as witnesses. The private operator was responsible for operations and maintenance. The tariffs adjustment formulae, penalties, reporting requirement and financial arrangement were the same as the Bekwai contract discussed in section 3.2.2.

### 3.3.3. PPP Implementation Phase

The partnership has faced a major challenge with respect to delivering sustainable water services. The lack of a suitable ground water source resulted in the complex water treatment 18 km from the town. The project could not take up the cost of extending the national electricity grid from the town to the treatment plant. Instead two 60 KV diesel powered generators were installed for the water system, which obviously had adverse implications on cost of delivering water to the consumer. The situation was compounded by a series of major breakdowns of the generators and pumps leading to serious service disruptions. In 2007, one of the generators suffered a serious breakdown<sup>8</sup> and it took three months to mobilise funds to fix it; the other generator also broke down.

The community had to rely on the mechanised borehole in the town which had a low yield and could only fill the 135m<sup>3</sup> overhead tank in three days if it was pumped continuously. Water production was interrupted for about three weeks. A philanthropist came to their aid to donate a new generator to the town. Later on, one of the old generators was repaired and the pump for the mechanised borehole was also replaced with the assistance of a philanthropist. The other generator (old) could not be repaired because the estimate given for the repairs was not affordable (US\$9,547 while at the same time a new one would cost US\$15,331).

In the middle of 2008, the old generator which was repaired broke down again leaving the new one. For this reason the mechanised borehole was the only source of water. Given the situation, the generator operated for 6 hours everyday (3 hours to pump to the intake and 3 hours from the treatment plant to the overhead tank). The amount that

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<sup>8</sup> The exact dates/months could not be recollected and were also stated in the reports



could be pumped in 3 hours was seriously inadequate for the whole town. Therefore the supply of water to the community was in a critical stage. Water was therefore rationed in three zones. Everyday, only one of the zones got water for just about 3 hours.

According to the private operator their operations were effective for only six months of the year as majority of the community members depended on hand dug wells and only used the piped water during the dry season when the wells dried out. Furthermore, there were problems of non-payment or delayed payment from the public institutions and also low per capita water consumption which was estimated to be below 10 l/c/d. As a result the water revenue was far less than expected. These problems adversely affected the operator to the extent that his obligation with respect to payments to the DA and WSDB were only met partially (see Table 3.3).

Table 3.3: Summary of Performance of Atebubu Water System: 2003 – 2007

Year	Production (m <sup>3</sup> )	Consumption (m <sup>3</sup> )	Per Capita Consumption per day (litres)	Revenue (US\$)	Expenditure (US\$)	Payment to DA/WSDB (US\$)
2003	75,669	55,407	6.9	29,895.47	34,285.71	2,229.97
2004	66,139	58,202	7.3	39,233.45	34,843.21	3,623.69
2005	81,793	67,707	7.7	53,031.36	46,271.78	6,550.52
2006	84,572	60,612	8.0	50,452.96	63,135.89	836.24
2007	89,921	66,500	7.7	61,602.79	67,949.25	905.92
<b>Total</b>	<b>398,094</b>	<b>308,428</b>	<b>37.6</b>	<b>234,216.03</b>	<b>246,485.84</b>	<b>14,146.34</b>

Source: compiled from 2007 Annual Report on Atebubu Water System

The DA was never pleased with the performance of the operator. The DA thought the WSDB was weak and did not monitor the operator to cut down on certain expenses, especially cost on staffing since the DA believed that the staff size of 14 was higher, given the operations of the system. When the contract ended it was not renewed.

The contract made provision for tariff adjustment based on price changes in electricity for the domestic consumer, minimum daily wage and diesel. Thus the operator was entitled to tariff reviews to reflect inflation changes in the contract. However this was not used. Rather tariff reviews were based on proposals sent by the operator to the DA for approval. Thus the operator was at the mercy of the DAs for tariff approvals. When the DA approved the first tariff adjustment, a section of the community (the Zongo area) demonstrated against the upward review of the tariffs.

The reaction led to suspension of the new tariff by the same DA that approved it. Meanwhile, the relatively complex system was making use of generators running on diesel to pump both the raw water for treatment and then treated water to the town. The operator also suffered from diesel price increase twice in the first two years after taking over the system, which adversely affected their finances. The operator also had a relatively large staff size and spent a lot more on salaries and allowances compared to Bekwai. Further to this was the non payment of bills by the public institutions. Given the challenges of managing the system, the operator proposed for tariff increases and was granted increases in 2005 and 2007 from US\$0.58m<sup>3</sup> to US\$0.77

and US\$1.16 respectively for standpipes. The 2007 figure had been adjusted to allow flexible transaction with the denominations at the standpipe and therefore, tariff for customers with house connections was US\$1.12/m<sup>3</sup> for consumption up to 20m<sup>3</sup> compared to US\$1.16/m<sup>3</sup> for those relying on standpipes. For comparison, at the time when Bekwai was selling a metre cube at US\$0.45, it was going for US\$0.58 in Atebubu.

#### 3.3.4. Post contract arrangement

When the contract ended, it was not renewed since the DA was never pleased with the performance of the operator. The DA has also dissolved the WSDB and put in place a five-member Interim Management Committee (IMC) since January 2008. The IMC comprised members of the DA, and took on some of the PO's workers (7 staff). The membership (all men) consists of a District Accountant, District Co-ordinating Director, Chairman of Works Sub-Committee of the Assembly, a representative from Urban Council, an opinion leader who is also an Assembly Member. The District Water Sanitation Team leader is an ex-officio member. A well constituted WSDB will be considered when the new DCE is appointed. None of the interim management committee members served on the previous WSDB.

The staff strength of the operator which used to be 14, has been cut down to 7 including Operations Officer, Commercial Officer, the Revenue Collector, Pipe Fitter, the Headworks Manager and 2 watchmen. The accounting aspects are handled by the DA Accountant. These staffs were formerly with the operator Armco and they were asked to reapply. The DA still sees the private operation as an option but would like to work on extending electrical power to the site first.

### 3.4. Wasa Akropong

#### 3.4.1. Development of the PPP arrangement

The Wasa Akropong PPP was informed by the CWSA/PPIAF study which worked on the development of pilot PPP models for testing. During that period, the water system in Wasa Akropong was in need of rehabilitation. The CWSA/PPIAF study selected the Wasa Akropong water system as a potential pilot for PPP arrangement. This happened when the Bekwai PPP had just started and the Atebubu operator was being procured.

The Wasa Akropong WSDB, on taking over the water supply system, recognised the need to ensure long-term sustainability of the system and increase the supply coverage. Therefore it readily accepted to participate in the CWSA/PPIAF pilot project so as to benefit from the professional inputs in the development and implementation of the contract arrangement with the private sector.

The process involved a number of meetings, workshops and interactions organized by the CWSA/PPIAF project team for the WSDB. These were facilitated by the Western Regional office of the CWSA and the Wasa Amenfi District Assembly. As part of the PPP process, a technical assessment and financial viability was conducted to prepare the information memorandum and business plan. The information memorandum prepared for the potential bidders was detailed. The partnership also recognised the need for additional capital expenditure where these are clearly beyond the revenue capacity of the present water system. This may be forthcoming from

public sources, i.e. local and central government. The financial assessment suggested that some of the capital expenditure could be covered by the revenue.

The procurement of the private operators was done by the DAs and WSDB with the support of CWSA. This was organised such that the DAs and WSDB played important roles in the process after they had gone through some level of capacity building on the PPP arrangement and the way to procure the operator. The procurement committee was made up of representatives from the consultants, CWSA, DAs and WSDB. Based on the evaluation criteria and the active participation of all the relevant players the procurement, process has not been questioned.

#### 3.4.2. PPP model characteristics

The partnership arrangement is a management contract. Under this arrangement, the WSDB transferred the operation and maintenance of the entire water supply system to the private operator. The private operator is responsible for the production and distribution of water from source to end-user, whilst ownership and control, policy-making and tariff-setting still reside with the community and DA. Capital expenditure is the responsibility of the community and WSDB. However, in order to provide more direct access to currently unserved communities in Wassa Akropong, and to raise effective demand, the private operator is expected to source funds for carrying out needed extensions, undertake metering and minor capital expenditure for appropriate rewards. The duration of the contract was 5 years and with the possibility for renewal if the performance of the operator meets the expectations of the community.

The vision of the Water Board cited in the information memorandum was to ensure that all communities in Akropong were provided direct access to the network by the end of the contract period. The strategy was to ensure adequate expenditure on new pipework to unserved areas and possibly develop a second borehole. The expectation of the WSDB was that the water supply system will be efficiently run to ensure its long-term sustainability, and to make it one of the best-run small town water systems in the country.

The contract had clear performance indicators shown in Table 3.4. There were penalties in place linked to non-justified total interruption of the service, non-justified interruption of water supply to one or several distribution points and non-adherence to all specified standards. The contract specified reporting requirement to monitor the operations. Under the agreement, the operator is required to submit periodic reports (quarterly and annually) on his activities to the DA through the WSDBs.

Table 3.4: Performance Indicators

<b>Indicator</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
UFW	10 %	10 %	10 %
Pipeline extension	200 m	300 m	300 m
Service availability	18 hrs/day	18 hrs/day	18 hrs/day
Metering ratio	100%	100%	100%

Water quality	CWSA standard <sup>1</sup>	CWSA standard	CWSA standard
Bill Collection efficiency	90%	92%	95%

### 3.4.3. Performance of the PPP

The Wassa Akropong Partnership started with a lot of operational challenges. The system did not receive any improvements in the infrastructure. The operator took over in 2003 and had to rely on the old infrastructure transferred from GWCL. The water supply system was not in a good condition. The technical assessment of the water supply system at the time when the operator was being selected revealed the following as short term rehabilitation needs:

- Repair of leaking Steel high level tank (HLT).
- Repair of Non functional Generator set.
- Procurement of 4” Bulk Meters for borehole/pump and transmission line.
- Procurement of ordinary meters (2”) For distribution system.
- Extension of pipe 100 mm diameter uPVC network to Appiakrom, Anloga and Low Cost
- Construction of additional metered stand post, chamber etc.
- Repairs of Pump House – locks, re- screeding.
- Provision/laying of 25 mm diameter uPVC for new private connections.
- Replacement of pump 3 phase 10KW (12.5 HP).
- Repair of Chain link fence around pump house.

Thus the water system was in a poor state when the operator was brought in. The electricity supply in the community was so erratic and power went off frequently. The community received a World Bank support of about US\$22,222 for the rehabilitation of the overhead tank and fixing of the submersive pump which had broken down. The operator also sourced a loan of US\$697 from Amenfiman Rural Bank to undertake some extension of the network. These could not however, alleviate the situation. The poor performance of the system caused a lot of displeasure of the community with the operator.

Over 30% of the water consumption was from the institutions whose bills were paid by central government and are not prompt. This left very little money in the hands of the operator for operation and maintenance, given the operational challenges. The operator could not honour its financial obligation to the WSDB and DA. In the second half of 2004, the pump broke down and the operator was not financially sound to repair it. Therefore, for about one month, the town did not get water from the system. This resulted in a huge Community outcry against the operator and pressure on the

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<sup>1</sup> water quality and sampling frequency

WSDB. The WSDB organised an emergency meeting in September 2004 and resolved to take over the system and blamed the operator for lack of transparency and lack of commitment to deal with the water problem.

In 2004, the town was selected to benefit from an EU project but the WSDB could not mobilise the capital cost contribution. In the same period, the Wassu Amenfi East District was created out of the Wassu Amenfi District and as a new district, they could not also mobilise the funds on behalf of the town.

The WSDB, in collaboration with the DA mobilised some funds to fix the pump. The WSDB started full operation and maintenance of the system from January 2005. However, nine months into their operations, the DA was not happy with the WSDB's activities and took over the operation and maintenance of the system from them. The WSDB initially resisted and demanded reasons but the DA used the police to eject them from their office.

A little after the DA took over in the later part of 2005, the DA decided to sink two new boreholes and abandoned the old borehole. These new boreholes were reliable but low yielding. The system has since depended on these boreholes and at the time of the study, early 2009, the overhead tank still had some leakages at the upper part (see figure 4.1) and therefore, could be filled only two-thirds full.



Figure 3.1: Pictures Showing Leakages



### Figure 3.2: Typical Situation at the Standpipe in the Morning

The amount of water pumped a day could only supply water to the town for one hour (6am – 7am). Before 6am, customers who patronise stand-pipes would deposit their containers at the stand post and vendors fill for them even if they are not around (figure 4.2). Consumers supplement their water needs by fetching water from wells and stream sources.

The town now has the opportunity to benefit from another EU project which is ongoing and that will hopefully end the technical problems of water supply in Wassa Akropong. In respect of this new project, a new WSDB has been formed and members are currently undergoing capacity building.

### **3. ASSESSMENT OF THE MANAGEMENT MODEL**

This section analyses the functioning of the PPP management models in the three towns with respect to Accountability and Transparency, Tariff Review, Pro-Poor Interventions, Environmental Sanitation and Hygiene Promotion and Sustainability

#### **4.1. Transparency and Accountability**

The selection process of the prospective operator followed a fair and a transparent process. All the three towns made use of the advertisement for potential operators to express interest for short listing. The contract had clear duration and a mechanism for review of tariff, which was not used to the letter. The roles of the parties were clear except greys areas related to minor and major maintenance. In the case of Bekwai and Atebubu the CWSA and the project consultants were the key players in the procurement process whilst the WSDB had minimal roles. This was the first PPP model and there was certainly inadequate capacity at the WSDB and DA levels. In the subsequent arrangement specifically, the PPIAF pilots, special effort was put on capacity building of the WSDB and DAs to play active roles in the procurement with a view to enhancing the WSDB and DA ownership of the process.

The community ownership arrangement for the small towns water service delivery has clear accountability relationships which are good. The PPP arrangement rather strengthens the accountability relationship and provides a good framework for financial planning for operations and maintenance, extension, hygiene promotion, where the revenue is shared in a specified ratio. Regular technical and financial reporting (quarterly and annual reports) are stipulated in the contract. Furthermore the WSDBs are mandated to interact quarterly with the community members to give an account of the water service delivery.

The contracts had specific reporting schedule to provide the platform for assessing the progress of the partnership. The reporting schedule was followed by Atebubu until the end of the contract. The reports formed the basis of the regular quarterly meeting between operator and the WSDB and DA. In the case of Bekwai, the reporting schedule was followed initially and gradually changed to annual reporting instead of quarterly reporting. The WSDB and DAs did not complain about the change in reporting frequency. The poor WSDB and DAs relations may have contributed to long reporting periods. An implication of long reporting could affect the monitoring role of the WSDB and DA.

The roles of the WSDB, DA and the operators were clear with respect to hygiene promotion and extension of the network. In Bekwai where the operation of the system is good and the operator honours the financial responsibilities by keeping 75 % of the revenue for his work and 25 % to the WSDB and DA. However the 25 % meant for expansion, rehabilitation and hygiene promotion fund has not been used over the years by the WSDB and DA. According to the WSDB, they have not been able to access the hygiene and sanitation fund because they are not even signatories to the accounts, and the efforts to get the DA to release the funds have been futile due to conflicts between the two parties over the years.

In the case of Atebubu, where there were operational challenges, the operator could not honour the financial obligation of 25 % of revenue to the WSDB and DA. This led to the perception of the DA that the WSDB was not doing effective monitoring of the operator. The operator seldom met the financial obligations to the DA and WSDB. The situation in Wassa Akropong was even more challenging and the contract had to be abrogated after barely a year of operation.

#### **4.2. Water Tariff review and financial sustainability**

In the Bekwai case, the tariffs levels stipulated in the contract were found to be relatively high for the consumers. Consequently the tariffs were reviewed twice within 10 months of operation to lower levels against the contract provisions. The review was accepted by the operator in the spirit of partnership. However, subsequent tariff review did not follow the tariff adjustment formula in the contract. The process for the subsequent tariff reviews was for the operator to submit proposals to the DA, through the WSDB, for approval. After the reduction in tariff in the 10 months of operation, tariff increase occurred once in 2006, whilst fuel and electricity prices increased every year. Yet still the improved water services have been delivered

In the case of Bekwai and Atebubu, the contract stipulations for tariff adjustment were not used. This may mean that the tariff adjustment formulae resulted in high tariffs or the use of the formulae was going to result in frequent tariff reviews, as key components such as fuel was changing frequently in some years. In the Bekwai case the initial tariff agreed in the contract was too high, especially for the house connections. It is important to start an appropriate tariff structure and also have a better tariff adjustment procedure.

Even though Atebubu was charging 50 % high tariffs compared to Bekwai, it was not adequate to keep the system going. This contributed to their inability to honour financial obligation of the WSDB/DA. The 2006 annual report on the Bekwai System revealed that the total revenue for the year was US\$58,983 compared with the total expenditure of US\$55,181 giving a surplus of US\$3,802 (2005 surplus was US\$5,592). However, in the case of Atebubu for the same year 2006, the revenue was US\$50,444.00, compared to an expenditure of US\$63,170.

In the case of Wassa Akropong there were no financial records available on the PPP model. In the case of the financial obligations of the operators both Bekwai and Atebubu used the same arrangement of 75 % of the revenue for operations and 25 % of the revenue to the WSDB and DA for extension, rehabilitation and hygiene promotion. The nature of the water systems in terms of complexity and staffing suggests that probably a higher percentage of the revenue should have been allocated to the operator in Atebubu. After the end of the PPP contract, the IMC is now working with reduced staff strength of 7 compared to 14 by the operator. It is too early to conclude if the reduced staff strength can work adequately, which will suggest that the operator was not efficient.

#### **4.3. Special measure for ensuring pro-poor focus**

Usually for the small towns pro-poor water arrangements are usually made by the WSDB based on their particular context. There are cases where the elderly and the vulnerable are given specified quantities of water per person per day at no cost to the



consumers. In the case of the PPPs, especially in Bekwai where water flows regularly, there is no stated arrangement but it is done at the discretion of the vendors.

The different service levels provided specifically, house connection and standpipes, and serve different categories of consumers. Generally, the relatively low income earners opt for the standpipes. However, tariffs for the standpipes are usually slightly higher than the house connection. It may be argued that when those using the standpipes get a house connection, they may be able to pay as the tariffs are comparable. However, the small towns water system are usually designed for 60 l/c/d for 20 % of the population through house connections and 20l/c/d for 80% of the population through standpipes.

#### **4.4. Health and hygiene promotion and health and environmental considerations**

In Bekwai and Atebubu where there were infrastructure improvements, the intervention did not include sanitation infrastructure. However, the capacity building for the WSDB included hygiene and sanitation since one key role of the WSDB is hygiene and sanitation promotion. The study however, found that the WSDBs have not met that expectation. They have focused basically on water. It also shows that, in Bekwai, where the hygiene and sanitation fund is operational, the WSDB has not been able to access the funds. In the case of Atebubu, hygiene promotion activities have not been implemented and the operator has not met the 10% contribution to the sanitation and hygiene fund.

#### **4.5. Factors affecting the PPP performance**

The performance of the model in the three towns brings to bear important factors that affect successful performance of the PPPs. In the case of Bekwai some factors worked in favour of water service delivery. First the infrastructure was in a good condition. The water system relied on simple technology. Secondly, the civil engineering contractor who worked on the system still had responsibility for defects in the system for one year.

Finally the revenue was sufficient to run the water system and deliver services as the cost of running the system was relatively lower, compared to Atebubu. However, there were some challenges affecting the PPP. The poor WSDB and DAs relationship was not good for the partnership. Fortunately its effect on service delivery was minimal to the extent that when there was no WSDB for six months water services delivery was reliable. The implementation of the contract in Bekwai also revealed the lack of clarity between minor and major repairs in relation to the responsibility of the operators DAs and WSDB.

The lack of clarity between minor and major rehabilitation was clarified in the Wassa Akropong PPP, where key terminologies were clearly defined. These were repairs, rehabilitation, extension, etc. The Wassa Akropong water system had an ambitious contract with the expectation that the operator will fund some level of capital investment. Meanwhile the system was very old with significant short term rehabilitation needs. Unfortunately the contract was not backed by sufficient mechanisms to address the substantial rehabilitation needs. The key government

agencies could not provide the necessary funds to address the rehabilitation needs when they occurred.

The PPP arrangement in Atebubu did not work partly because of relatively complex system that was using an expensive power source. The complexity and the different locations also called for relatively more staff compared to Bekwai. This made the operational cost high which could not be borne by the user fee.

The performance of the water system is influenced by type and condition of the water system. When the water supply infrastructure is not in good condition, the performance is negatively affected. When water systems are relatively expensive to run, they pose challenges to sustainable service delivery. Both the Bekwai and Atebubu system were rehabilitated before the operator came on board. At that time, the civil works contractors were also responsible for defects for one year period. The Atebubu system was relatively complex and tariffs required to keep the system running was estimated to be at least twice the Bekwai tariff. During the implementation phase in Atebubu no mechanism was put in place to address the concern that higher tariffs would be required to keep the system going. The case of Wassa Akropong was even worse as the system was not rehabilitated and in a relatively poor state.

It is not surprising that Bekwai system is working well and the other have difficult challenges. Future designs should consider the state of the infrastructure as well as special needs and put mechanisms in place to make it work. The revenue from the system delivering poor service (Wassa Akropong) could not address the many years of maintenance neglect that was adversely affecting the system.

There were problems related to delayed payments of institutional bills. This is not peculiar to only the PPP models but to all small towns' water systems. These are bills of water consumed by government institutions including decentralised institutions, health units, security services, schools, departments and agencies. The bills are paid by the central government and it takes time (about a year) for payments to be effected. Institutional bills normally constitute between 20% and 40% of total consumption representing a substantial amount for operation of the system.

The tenure of the WSDBs also creates problems in some cases. Usually, after national elections, rampant change of WSDBs occur prematurely. Thus WSDBs are not allowed to serve their terms of office in full. The size of membership of the WSDB also dwindles along the line due to resignations, transfers and deaths. This reduces the numerical strength of the board and can affect the totality of the role the members have to play. Even if replacements are made, those members will require some capacity building to function. Structures to ensure that this happens are not functional at the moment and not clear. For WSDBs to play their roles on a sustainable basis, they need refresher training to be able to handle emerging challenges of their work.

Poor collaboration between the DA and WSDBs:

While the DA is the legal owner of the system, the WSDBs see to the proper management of the system by monitoring the private operator to operate according to the tenets of the contract. Tension between these two parties means the breakdown of the monitoring and oversight systems for the partnership and this is a potential for

inefficiencies in the partnership. The conflicts sometimes take political dimensions which do not augur well for the future of the system.

#### **4. CONCLUSIONS AND RECOMMENDATIONS**

The following conclusions can be made from the three study areas:

There were proper procedures in place for procuring the private operators. The process was transparent and fair in all the three study areas. The involvement of the WSDBs in the procurement process increased from the Bekwai and Atebubu to Wassa Akropong.

In the implementation of the PPP models the operators had to suffer irregular and subjective tariff review, contrary to the contract provisions. First the tariff adjustment formula used in the contract was not appropriate and hence was not used. In the absence of an appropriate tariff adjustment formulae the operators had to suffer irregular reviews and also had the weaker bargaining power. A better tariff adjustment formula is needed to make things happen.

In Bekwai and Atebubu, where the contract made provision of funds for WSDB and DAs for system extension and hygiene promotion, these funds were not used. In the Bekwai's case, the WSDB tried but failed to have access to the funds. With respect to accountability, it is important to have inbuilt mechanisms that will allow the funds to be used when needed for such purposes.

A number of factors were identified that affected the PPP performance. These are:

- Technical viability of the water infrastructure'.
- Financial viability.
- Appropriate contract that allows the operator to delivery WASH services on a sustainable basis.

Success of PPP approach is dependent on the capacity and the functionality of the system to be managed. The system should be reliable. A system that is technically defective and or challenged is likely to deliver less service and this will result in higher costs and lower revenues (affecting financial viability). This leads to unreliability of service delivery and consumer dissatisfaction. Again, the capacity of the system should be adequate to produce water to meet the demand.

PPP has a great potential for efficient and effective delivery of water supply in small towns but, aside the system capacity, the issue of size of the population (demand level) is of importance. CWSA Operation and Maintenance Guidelines recommend towns with population, above 15000 to adopt PPP. Beyond this, what is of direct

effect on financial viability is the actual population that will patronise water from the system (instead of their traditional sources which they fetch mostly free of charge) and also the actual per capita consumption levels. This is an issue in the Atebubu case. The size of the population or real demand should be high enough to ensure adequate revenue to meet cost of operations. Also related to the financial viability is the source of energy for operation. This has huge and direct implications on cost of production and it is critical to the performance of the system. This normally forms a large proportion of O&M costs

Based on the financial and technical viability, appropriate management fee should be incorporated in the contract to enable the operator deliver sustainable services. Comparing Bekwai and Atebubu systems, the Atebubu system should have given the operator a relatively high proportion of the revenue to deliver the WASH service. Thus where Bekwai had 75 % of the revenue, Atebubu should have been given between 80 % and 85 %, based on their peculiar circumstance.

## *References*

- TREND 2002: Final report: Assessment of Current Waste Management Practices in Atebubu; A report submitted to GTZ and the Atebubu-Amantin District Assembly under the Community Managed Solid Waste Management in Project in Atebubu.
- TREND 2006: Draft Final Report – Phase One Situation Assessment and Revised Proposal for Implementation of an Improved Waste management System in Atebubu; A report submitted to GTZ and the Atebubu-Amantin District Assembly under the Community Managed Solid Waste Management in Project in Atebubu.
- Youkhana, Eva 2004: Research Report on EU Financed Small Towns Water Project (STWSP) in Ghana, the Case of Kumasi
- Messrs Vicco Ventures Limited, 2007: Annual Report for the year 2006, Operation Maintenance of the Bekwai Water Supply System. Report submitted by the private operator to the Bekwai Water and Sanitation Development Board (WSDB) and the Bekwai Municipality.

## ANNEX

### Annex 1: Recommended Operational Models in Small Towns Sector in Ghana

#### Operational Management Options

There shall be three main options for Management of Operations and Maintenance of the Water Supply System.

**Option 1:** The *community*, through its WSDB and employees, operates and maintains the Water Supply System entirely by itself. A trained Manager, Operator, and Financial/Administrative staff shall be employed by the *community* to carry out daily operation and maintenance activities. They shall be supported by skilled artisans, e.g. plumbers, electricians, mechanics etc., from within the *community* whose services may be procured when necessary on a retainer basis.

**Option 2:** The *community*, through its WSDB hires staff for the daily operation (financial, administrative, technical and maintenance) and signs a contract with a firm or firms to perform other *specialised* technical, financial or administrative functions on a periodic basis. Such functions may include the preparation of financial reports, internal auditing or some aspects of planned maintenance.

**Option 3:** The *community*, through its WSDB contracts a firm to completely operate and maintain the Water Supply System including meter reading, billing and revenue collection, etc., for an agreed fee. This arrangement enables the WSDB to set performance standards for a set period of time.

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

- *The complexity of the Water Supply System;*
- *The quantity of water being produced/Number of people served;*
- *The socio-economic status of the community, and*
- *The interest and commitment of the community towards operational management of the system, etc.*

Generally, the following guidelines shall apply:

1. Communities with up to 5,000 people served with groundwater, spring based or slow sand filtration systems may adopt Option 1, provided they are interested and committed to the *operational management* of the Water Supply Systems themselves.

2. Communities of 5,001 – 15,000 people served with simple boreholes, gravity or slow sand filtration based piped systems may adopt Option 2.

3. Communities with populations of above 15,000, and/or *communities* served with complex Water Supply Systems may necessarily adopt Option 3, unless they have the requisite expertise within the *community*.

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

distribution network, depending on its size and complexity.

*Source: Operation and Maintenance Guidelines, Small Towns Sector Policy, CWSA, 2004*