

WATER SERVICES ■ ■ ■ that last

■ ■ ■ LOOKING BACK STUDY:

A study of rural water service delivery models in the Volta Region of Ghana



IRC-CWSA publication with support from Triple-S

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Author:

Reviewed and edited by:

Dr. Tyhra Carolyn Kumasi, Marieke Adank,
Prosper Dzansi and Tom Laari Chimbar

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Executive summary

Tremendous interventions in the provision of potable water to rural communities and small towns have been made by various donors and the Government of Ghana in the Volta Region (VR) since 1982. Currently there are 156 piped water systems and over 2,200 point sources (boreholes with handpumps) culminating in a regional water coverage of 62% as at 2010. (VRCWSA, 2010)

Despite the interventions and high level of community commitment, there are still challenges associated with operation, maintenance and management of facilities and this is affecting quality and reliability of service. Non functionality of systems in the Volta Region is estimated at 33% for point sources and 1.5% for piped systems. (VRCWSA, 2010b).

There are rich experiences in the implementation of different models of donor interventions in the provision of water facilities, but unfortunately these have not been adequately documented to inform policy and project design.

The International Water and Sanitation Centre (IRC) in collaboration with CWSA instituted the Sustainable Service at Scale (Triple-S) study in the Volta Region between September 2010 and February 2011 (CWSA/Triple S Head Office, Accra 2010). The Study sought to document processes and learning experiences in various projects and how these impacts on sustainable water service delivery of installed facilities and arrangements put in place for operation and maintenance and other post project activities. This is to build a body of knowledge on past learning and innovations so as to inform policy makers on current and future design, and pre and post implementation issues.

Findings from the Study showed that though effective community mobilization and awareness creation was carried out by the Regional staff of VRCWSA and the DWSTs in almost all the communities studied there has been differential management performances. Important to mention that apart from the initial training paid for by the donors, almost all the systems have not carried out any training for the Board nor their staff.

Record Keeping is a challenge to WSDBs and WATSAN Committees, while some keep some of the records on systems, others do not keep any. Giving information to the community about operations of the water system is another difficult area for the Boards and Committees.

Some of the systems satisfied the guidelines set by CWSA for tariff setting. In other cases important elements of O&M are left out of the tariff. Water quality sampling and analysis has not been taken seriously in any of the systems studied. Only Anlo-Afiadenyigba and Kpetoe carried out some water quality test 3 years ago. It is only Agbagblakope that has bye-laws on facilities and is able to enforce it. Others like Anlo-Afiadenyigba and Kpetoe WSDBs have bye-laws but are not able to enforce it. Wegbe Kpalime and Bodada WSDB do not have the bye-laws at all.

Some of the conclusions are that effective community mobilisation enhances O&M delivery of Small Towns and rural community water supply. The problems at Gbefi Hoeme can be attributed largely to lack of community mobilisation at the initial stage

of project implementation. The effective community mobilisation at places like Agbagblakope and Anlo-Afiadenyigba has enhanced their O&M effectiveness.

Although management and governance structures are in place in all the water systems studied, the structures have not developed their governance and managerial capabilities. Meetings are poorly organised and decisions are not communicated to stakeholders especially the community members. Generally, there is good collaboration between chiefs/political leaders and the WSDBs / WATSAN Committees

The commercial rate being charged by the Electricity Company of Ghana is putting financial strain on the water systems which are not being operated on profit bases. Logistic supports from the MDAs to their DWSTs have not been regular or negligible therefore affecting monitoring and operations of the facilities.

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List of abbreviations

COM	Community Ownership and Management
CSIR	Council for Science and Industrial Research
CWSA	Community Water and Sanitation Agency
DA	District Assembly
DfID	Department for International Development
DiMES	District Monitoring and Evaluation System
EPC	Evangelical Presbyterian Church
EVORAP	Eastern and Volta Region Assistance Project
GSB	Ghana Standard Board
GTZ	German Agency for Technical Co-operation

GWCL	Ghana Water Company Limited
HUPREF	Hunger and Poverty Reduction Foundation
IEC	Information, Education and Communication
KfW	Kreditanstalt für Wiederaufbau
Lpcd	Litres per capital per day
LSDGP	Local Service Delivery and Governance Program
M/DA	Municipal/District Assembly
M/DWST	Municipal /District Water and Sanitation Team
MMDA	Metropolitan, Municipal, District Assembly
MOM	Monitoring of Operation and Maintenance
MoU	Memorandum of Understanding
NCWSP	National Community Water and Sanitation Program
O&M	Operation and Maintenance
PIM	Project Implementation Manual
SBDU	Small Business Development Unit
SGS	Società Generale Semiconduttori
STWS	Small Town Water System
Triple S	Sustainable Service at Scale
UNICEF	United Nations International Children Education Fund
VIP	Ventilated Improved Pit Latrine
VORADEP	Volta Region Agricultural Development Project
VRCWSA	Volta Region Community Water and Sanitation Agency
VRWSSP	Volta Rural Water Supply and Sanitation Project
WATSAN	Water and Sanitation
WRI	Water Research Institute
WSDB	Water and Sanitation Development Board

1 Introduction

1.1 Background

The Government of Ghana and its development partners have executed a lot of interventions in potable water provision to rural communities and small towns in the Volta Region since 1982. In 2010, there were 156 community managed piped water systems and over 2,200 point sources (boreholes with hand pumps), culminating in a regional water coverage of 62%. There are rich experiences in the implementation of different models of donor interventions in the provision of water facilities, but unfortunately these have not been adequately documented to inform policy and project design.

Despite a high level of community commitment, there are challenges associated with operation, maintenance and management of facilities and this is affecting quality and reliability of water services. Non functionality of systems in the Volta Region is estimated at 33% for point sources and 1.5% for piped systems (VR-CWSA 2010b).

The Sustainable Service at Scale (Triple-S) study was undertaken in the Volta Region between September 2010 and February 2011. The Study sought to document processes and learning experiences from various projects and how these impact on sustainable water service delivery and arrangements put in place for operation and maintenance and other post construction activities, especially in the implementation of Monitoring Operation and Maintenance (MOM). This is to build a body of knowledge on past learning and innovations, so as to inform policy on current and future design, pre and post implementation issues.

1.2 Literature review

Rural water situation in the Volta Region before 1993

Before 1993, the rural water and sanitation sector in Volta Region was dominated by the utility provider, the Ghana Water Company Limited (GWCL), as the main actor responsible for implementation, and operation and maintenance of urban and rural water systems. Other implementers and donors were also active in the sector. These included Evangelical Presbyterian (E.P.) Church, World Vision International, United Nations Children's Fund (UNICEF), Volta Region Agricultural Development Project (VORADEP) and Roman Catholic Church among others.

The GWCL established the 3000 Wells Maintenance Unit in 1982 to maintain handpumps. The E.P. Church and the Roman Catholic Church provided maintenance services for the hand pumps they had provided. VORADEP at the time attempted introducing tariff payment by the communities on their systems, but this failed. (CWSA, 2006)

Many handpumps, about 50%, were not functioning as at 1993. Some of the factors contributing to this high non-functionality rate included non-payment of tariffs, ineffective management structures, lack of O&M planning, lack of training and capacity building. Similarly 30 small piped systems serving communities with populations between 2,000 and 10,000 people operated by GWCL, were not functioning regularly and needed rehabilitation.

Apart from a few isolated cases, the private sector was not involved in activities in the water and sanitation sector. The attitude of the rural population and the beneficiary community at the time was that provision of water and sanitation facilities was government's responsibility.

The provision of water in communities in the Volta Region at the time was mainly by unprotected hand-dug wells, spring sources and dug-outs among others as depicted in the photos below.



Figure 1: Children fetching harvested fresh water along the coast (left)



Figure 2: Fetching water from a dug out (right)

Rural water situation in the Volta Region after 1993

In 1991, a sector strategy was formulated with the following key elements:

- Community ownership and management supported by District Assemblies,
- Demand driven approach,
- Implementation and maintenance services provided by the private sectors,
- Special focus on women as users and managers of the facilities
- Integration of water and sanitation and promotion of hygiene education.

In 1993, the Volta Region Rural Water Supply and Sanitation Project (VRWSSP) started. VRWSSP was later brought under National Community Water and Sanitation Programme, which was launched in 1994. The National Community Water and Sanitation Programme objectives are:

- Provide basic water and improved sanitation services to communities that contribute toward capital cost and pay normal operations, maintenance and repair costs of their facilities
- Ensure sustainability of the facilities through community ownership and management

- Maximize health benefits by integrating water, sanitation and hygiene promotion interventions.

The Volta Region Rural Water and Sanitation Project was funded mainly by the Danish government through its international development agency, DANIDA. The government of Ghana provides counterpart funding. The programme has been implemented in phases.

- Phase 1: 1993 - 1997;
- Phase 1b 1997 – 2003;
- Phase II (District Based Water and Sanitation Component): 2004 - 2008.

Currently, water facilities are being implemented through the municipal/district assemblies under the Local Service Delivery and Governance Programme (LSDGP), which started in 2009 and will end in 2013.

The programme under DANIDA funding covered all the 12 Districts in the Region during phase I and all 15 Districts in phase II, when 3 more new Districts had been created. However, the on-going LSDGP is operating in only 13 out of the 17 Municipal/District Assemblies in the Region.

From 1993 to date, VRCWSA has facilitated the implementation of water and sanitation facilities, which has contributed significantly in improving the health and socio-economic condition of the people in the beneficiary communities. A relatively smaller percentage of the facilities have been provided by other donors through the District Assemblies. Other donors include the German Government through GTZ/KfW, DFID and NGOs e.g. HUPREF, Church of Christ, Rotary International and Relief International have also provided funding for the implementation of some facilities.

The table below shows a summary of installed water facilities since the inception of the programme in 1993 to 2009.

Table 1: Summary of Installed Water Facilities

Type of Facility	Number Provided
Hand Dug Wells fitted with Hand Pumps	37
Newly constructed Boreholes with Hand pumps	1,596
Rehabilitated Boreholes with hand Pumps	653
Pipe Schemes (Small Communities)	126
Pipe Schemes (Small Towns)	27
GWCL Piped Connections	12
Rain Harvesting systems	53

Source: CWSA-Volta Region

Interventions by donors and GoG since 1993 have improved the water coverage of rural and small town communities in the region to approximately 62% as at 2009.

1.3 Attempts at addressing Sustainability Challenges

The various donors introduced strategies to ensure sustainability of the installed facilities. The Eastern and Volta Region Assistance Project (EVORAP) (GTZ/KfW funded) for example introduced very effective Hygiene and Sanitation tools and tools for monitoring management and operation of the facilities.

The Volta Region Agricultural Development Project (VORADEP) and the Evangelical Presbyterian Church established a central maintenance workshop for boreholes and handpumps. (pers com Mr. E. F. Boateng Regional Director, VRCWSA 2010)

Strategies introduced by DANIDA funded VRCWSA include; (1) capacity building for the private sector, (2) establishment of the Small Business Development Unit (SBDU) (3) Community management structures (4) Establishment of the spare parts outlet at the District capitals and (5) establishment of the Monitoring of Operation and Maintenance (MOM) Unit. A closer look at these strategies follows below.

1.4 Capacity building for private sector

All private sector contractors working for the VRWSSP were given intensive training. This included pipe system contractors, who were trained in contract management and administration. Hand Dug Well contractors were given training in the actual construction of the hand dug well facility. The initial training programme lasted between two and four weeks. In addition, there were refresher workshops. Seminars were also organised for consultants and borehole drilling contractors.

Training programmes were also organised for latrine artisans, hand pump mechanics (Area Mechanics) and spare parts suppliers. Training programme for this group also lasted between two and four weeks. Latrine Artisans were taken through all the stages of constructing Ventilated Improved Pit latrine (VIP). Area Mechanics were given skills in installation, maintenance and repair of handpumps. The Area Mechanics were located in various zones in each district so that they would be close to the beneficiary communities.

The private sector was provided with equipment and working tools to facilitate their work under various conditions. Contractors acquired various equipment including Tipper Trucks, Dumpers, Concrete mixers, Water pumps, and Geophysical equipment under hire purchase agreement. Area Mechanics and Latrine Artisans were provided with their working tools free of charge.

1.5 Establishment of the Small Business Development Unit (SBDU)

In 1995, the VRWSSP established the SBDU as a private sector business organisation, mainly to support the private sector to develop businesses. The SBDU played two main roles. They stocked equipment which was made available to private operators on hiring bases, because the private sector did not have the equipment to operate. The unit also supported the private sector to acquire equipment under hire-

purchase arrangement. Unfortunately, the SBDU support was withdrawn after the first phase of the VRWSSP by the donor. (RWSSP, 2004)

It is important to note that the intensive training and the activities of the SBDU resulted in the growth of well-established contractors and consulting companies in the water and sanitation sector all over the country.

1.6 Community Management of water facility

For effective management of the water and sanitation facilities, the VRWSSP put in place community based organizations (CBOs) for the management of water and sanitation facilities. These CBOs, known as Water and Sanitation (WATSAN) Committees, are to be established for all water and sanitation facilities. Members of the committees are elected from the community, based on integrity and availability. A very important member of the committee is the caretaker, who is directly responsible for day-to-day operation and maintenance activities. Water and Sanitation Development Boards (WSDBs) are formed in cases where communities are supplied by piped systems. The members are trained in community mobilisation, hygiene issues, management and operation of the facility.

An assessment of the performance of the WATSAN committees carried out by the extension services of the VRCWSA in 2007, revealed the downward trend in the performance of the WATSAN committees, especially in the area of management. A number of WATSAN committee members lost interest in the work because they were not motivated. Environmental Health Assistants (EHAs), who were supposed to give back-up support to the WATSAN committees, were no longer frequently visiting the communities. Other major issues that came out included:

- Apathy and inactivity of the Committee created room for individuals and other community organisations, like Unit Committees, to take over the responsibilities of the WATSAN committees.
- Vacant positions were not filled, leading to few members entrenching themselves.
- Conflicts, misunderstanding among members and lack of support from the community have led to low performance of the WATSAN committees.
- Non-payment of remuneration to WATSAN committee members
- WATSAN committee members not rendering account to communities
- Difficulty in enforcing by-laws because the DAs were not able to gazette them

The report recommended that the DAs should be seen to be actively supporting the WATSAN and WSDBs for the full realisation of the COM strategy of the NCWSP.

1.7 Establishment of the spare parts outlet

In 1998 the VRCWSA selected commercial shop owners in all the District capitals and supplied these with spare parts for sale to beneficiary communities for repairs and maintenance of handpumps. This brought spare parts closer to the doorsteps of beneficiary communities. However, in 2003 the spare parts were withdrawn to the CWSA Regional Office due to complaints from the shop owners that the parts were

slow-moving and had taken up space in their shops. VRCWSA continued to sell the parts from the Regional Office until 2006, when a Regional Agent was identified to continue the sales.

1.8 Establishment of the Monitoring of Operation and Maintenance (MOM) Unit

The creation of the MOM Unit in 2002 was a direct response to the need for institutional support to Community Management of water and Sanitation facilities for an improved service delivery and to achieve long term sustainability (RWSSP, 2004).

The main activities of the Unit were;

- Designing, implementing and recording of monitoring and evaluation data in all districts and beneficiary communities.
- To provide backstopping to the Districts and Communities in the conduct of O&M Audit, assessing the functionality of facilities, preparation and implementation of O&M Action Plans.
- Identifying training needs and provide training and capacity building support for District Water and Sanitation Teams (DWSTs)/EHAs, communities and private sector service providers like Area Mechanics, Pump Electricians, Caretakers etc.

The implementation of these activities was successfully carried out from 2002 to 2008 with funding from DANIDA. The DWSTs were given quarterly allocation of about GHS480.00 to specifically undertaking MOM activities. Funds were also made available for regular training and refresher programmes for the DWSTs/EHAs and WATSANs/WSDBs. The resultant effect was incredible:

- Capacity of DWST and EHAs significantly improved in operation and maintenance of facilities through several training and refresher programmes.
- Understanding of O&M issues by communities improved through the provision of Information, Education and Communication (IEC) materials, facility user education and regular visit.
- Record Keeping and management practices of WATSANs/WSDBs significantly improved.
- Development of mechanism for feed-back to DWST and Community on monitoring findings and performance.
- Well performing communities supporting neighbouring communities to improve their management of the water supply system through experience sharing at quarterly zonal WSDBs and WATSANs meetings.
- Development and introduction of a comprehensive performance monitoring tool (MOM database), which has been used to monitor the performance of all installed facilities in tracking functionality and the performance of the WATSANs/WSDBs. The Volta MOM Database served as the foundation for the development of the Direct Monitoring and Evaluation System (DiMES) for CWSA.

During the period (2002-2008), there was regular monitoring of WATSANs/WSDBs and functionality data collection by the EHAs under the supervision of DWST. Logistics such as vehicles, motor-bikes and field trip allowance were made available from the CWSA Regional Office to the DWST/EHAs for quarterly data collection. The data collected by the EHAs was entered into the MOM database by the DWST after quality assurance of the data. A soft copy of the data was then submitted to the Regional CWSA Office. Reports from the database were used to track functionality and performance at district and community levels. The reports also help to prepare O&M action plan to assist non-performing Districts and Communities. (CWSA, 2002)

2 Methodology

This study focused on project interventions in a number of Point Source Communities and Small Towns in the Volta Region which had received support from DANIDA or EVORAP. The aim was to identify how different projects were formulated, implemented and the kind of post construction support that was provided and how it impacts on sustainable water delivery. The approach adopted and the procedure followed is outlined in this section.

It was necessary to select only a few communities or water systems for the study, in view of the large numbers of water facilities, the wide geographical spread of the study population and logistic constraints. Criteria were developed for selecting the study water systems based on two main factors, namely source of funding of the implementation and O&M performance rating. Purposive sampling was used in selecting the study communities. The main methods of data collection were desk study, questionnaire, interviews and direct observation.

The team decided to select two small town water systems from each of the two major implementation projects (DANIDA and EVORAP) and three point sources implemented under DANIDA's National Community Water and Sanitation Programme (NCWSP). The communities of the water systems selected are detailed in table below. The map on the next page shows the locations of the case study communities.

Table 2: The Case Study Communities

Community	Current Population	Municipality/ District	Type of system	Donor	O&M performance Rating
AnloAfiadenyigba	9,000	Keta	STWS	DANIDA	High
Kpetoe	8,000	AdakluAnyigbe	STWS	GTZ/KFW	Medium
Wegbe Kpalime	1,000	South Dayi	STWS	DANIDA	Poor
Bodada	5,000	Jasikan	STWS	GTZ/KFW	Poor
Agbagblakope	401	Akatsi	Hand pump	DANIDA	High
Kpale Xorse	1,000	Ho	Hand pump	DANIDA	Medium
Gbefi Hoeme	3,000	Kpando	Hand pump	DANIDA	Poor

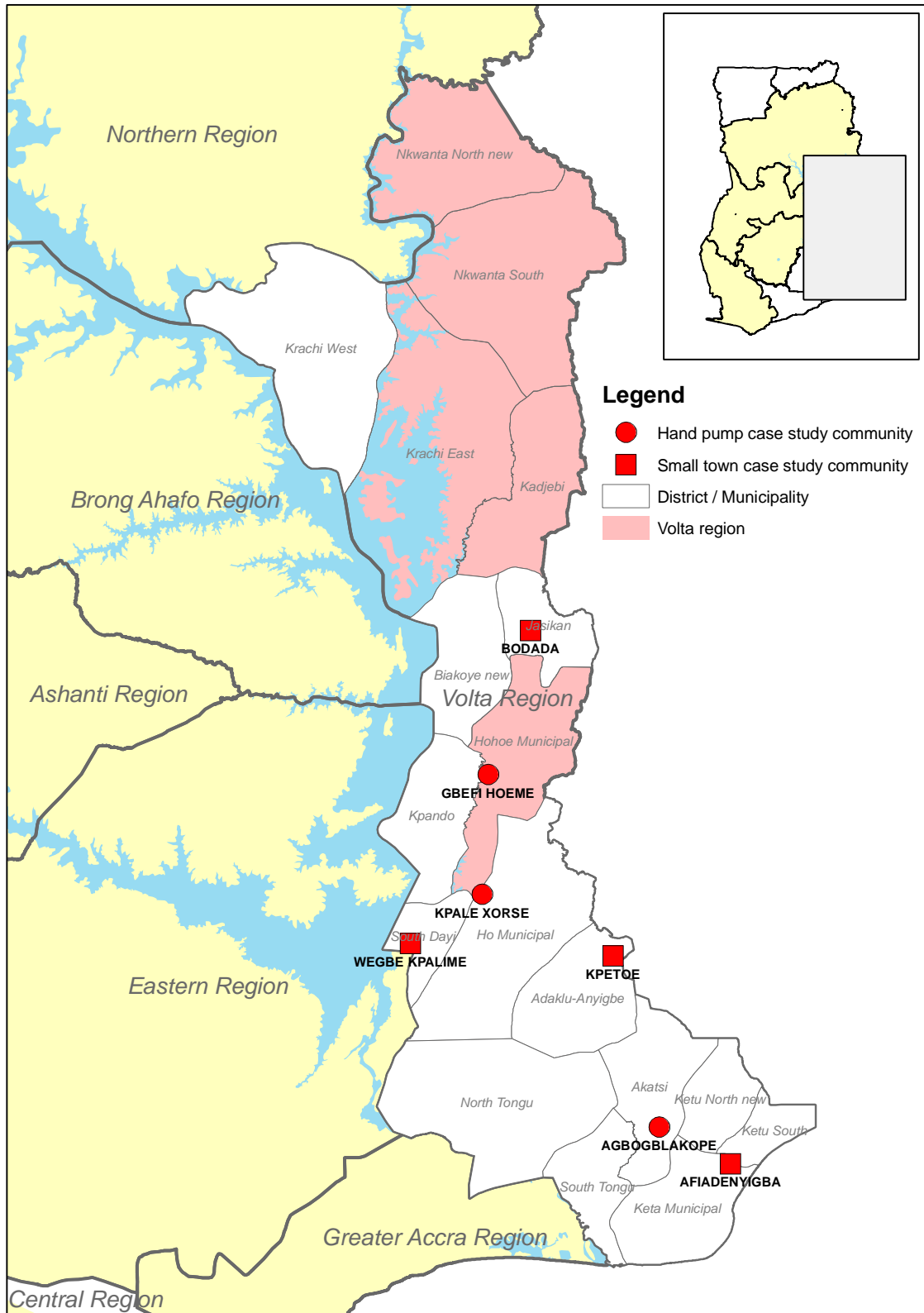


Figure 3: Map of the Volta Region showing the case study communities

2.1 Desk study

The team collected all available documents on the systems relating to the identification, planning, design, and pre- and post-implementation strategies. These documents provided the information for writing the community profile, historical development of provision of water facilities and other vital information on current operation and maintenance by the WSDBs and WATSAN Committees.

2.2 Interviews and observations

Based on the overall and specific objectives, the team designed the questionnaires to address the issues raised. The questionnaires were administered among stakeholders. Respondents include WSDBs and WATSAN Committee members Community members of the DWST, DA Staff and VRCWSA Staff.

The operation and maintenance of the facilities were physically observed and documents were examined to confirm answers obtained especially at the community level.

2.3 Data entry and analysis

The information gathered from the interviews and observations were cleaned and entered for each community into a format designed and based on the Service and Sustainability indicators developed by the National Technical Working Group. These indicators were grouped into the following groups:

- Service level indicators
- Community mobilization and planning indicator
- Service provider indicators:
 - Governance and management indicators
 - Financial management indicators
 - Operational indicators
- Enabling environment indicators

Each case was scored using the Service and Sustainability indicators, using the provided scoring tables (see Annex 1). All the scores were converted to graphs to clearly show the performance of each community.

2.4 One-day validation workshop

A one-day validation workshop was organized for representatives of stakeholders from the Regional, District Assemblies and WSDB/WATSAN Committees of study communities to discuss, confirm or otherwise the results. The workshop also provided opportunity for the stakeholders to make further inputs so as to enrich the results of the study.

3 Findings

This section presents the findings of the service delivery and sustainability assessment of the selected cases. The first section of this chapter presents findings from the piped systems case studies while the second section presents findings from the point source cases. The third section of this chapter discusses the factors affecting sustainable service delivery.

3.1 Pipe Systems

Service level

The table below gives an overview of the service characteristics of the systems in the case studies.

Table 3: General Data on Piped Water System Communities studied

	ANLO AFIADENYIGBA	KPETOE	WEGBE KPALIME	BODADA
Population	9000	8000	1000	5000
number of standpipes	44	27	13	12
number of household connections	20	52	0	0
Estimated % of population not using the improved service	5	20	30	20

Anlo Afiadenyigba is one of the successful community managed water systems in the Volta Region. The Anlo Afiadenyigba Board has improved water and sanitation infrastructure in the community. With the inception of Volta Rural Water and Sanitation Supply Project (VRWSSP) funded by DANIDA, the community applied for assistance to mechanise the existing borehole, originally implemented in the 1960s. This community initiative was championed by the Afiadenyigba Ladies Development Association (ALDA). A high yielding borehole was converted to a mechanized water supply system by year 2000. The system has 44 public stand posts (39 of which were in use at the time of the study) and 20 household connections.



Figure 4: Standpipe in the Volta Region of Ghana

About 95% of the population access at least 20 lpcd, with only 5% depending on unsafe (hand dug wells) sources of water. The WSDB extended the water facility to two sub-communities by constructing two small reservoirs and standpipes for these communities which are fed from the main reservoir.

Kpetoe was originally served by surface water treatment system constructed in 1952 by the then Rural Water Unit of the Public Works Department (PWD, taking raw water from the River Tordze. The system was later put under Ghana Water Company Ltd (GWCL) management. However, water supply was erratic, especially in the dry season, when the river source dries up.

In 2001, the system was selected by Community Water and Sanitation Agency (CWSA) as one of the Small Towns Water systems to be rehabilitated under the GTZ/KfW funded Eastern and Volta Region Assistance Project (EVORAP). The Community and District Assembly paid their share of the capital cost of \$13,695 each for the construction of the water supply system. The new water system is made up of a surface water treatment unit based on the Slow Sand Filtration (SSF) system and a mechanised borehole fitted with Iron Removal Unit. There are 27 Public Standpipes which are manned by vendors. There are also 52 private (domestic) connections.

The Study Team calculated that 80% of the population had access to at least 20 lpcd with reliability at 95% while 20% still depended on unsafe sources.

In **Wegbe Kpalime**, one of the two boreholes, originally implemented by World Vision on the 1980s, was re-developed and mechanized by the VRWSSP in 1997. The system has 13 public standpipes and private house connections. The second borehole is still functional and serves as a back-up to the mechanised system. The system is 95% reliable and 70% of the population access at least 20 lpcd with an estimated 30% depending on harvested rain water and other sources. The large percentage of the people using harvested rain water and other spring sources for a large part of the year, is probably due to the poverty level as stated by the Vice Chairman of the WSDB “*we have not increased the tariff since the inception of operation because if we did, more people would go back to the traditional sources*”.

The current water supply in **Bodada** is based on abstraction of water from one borehole equipped with a submersible pump through an intervention by EVORAP, funded by GTZ/KfW. This system had originally been managed by GWCL. The pump is powered from the national electricity grid. The water is pumped through a transmission pipeline into an 80 meter cube concrete elevated reservoir situated at the southern outskirts of the community. Water is distributed by gravity through a pipe network to 12 public standpipes and private house connections. In addition, three boreholes are available in the community, which provide the community’s water supply in time of emergencies such as break-downs and power interactions. At the time of the study 80% of the population could access at least 20 lpcd with only 20% still depending on the unsafe sources.

Table 4 and Figure 5 below give an overview of the score of the service level to be provided under the service delivery model, the potential service level that the system can deliver, and the actual use of the service for each of the four cases.

The CWSA guidelines prescribe that piped systems serving a population of less than 5,000 people shall at least serve 10% of the population with a high level service through

household connections. The rest of the population is to be served a basic service level of 20 lpcd through standpipes. This gives an average score of 55 for these kinds of systems, using the scoring table described in Annex 1. In towns with a population of 5,000 – 15,000, at least 15% of the population should be served at a high service level through household connections, while the rest is to be served a basic service level, giving an average score of 57.5.

The potential service level score of specific systems depends on the characteristics of the system, as presented above. The actual service level score depends on the actual use of the systems, as also discussed above.

Table 4: Piped system service level scores

	ANLO AFIADENYIGBA		KPETOE		WEGBE KPALIME		BODADA	
% of population with access to the following level of water services:	Potential	Actual	Potential	Actual	Potential	Actual	Potential	Actual
High level (score: 100)	2%	2%	7%	5%		0%		0%
Intermediate level (score: 75)		0%		0%		0%		0%
Basic level (score:50):	98%	93%	94%	75%	100%	70%	72%	58%
Sub-standard level (score: 25):		0%		0%		0%	28%	22%
no water service (score: 0):		5%		20%		30%		20%
Score:	51	49	53	43	50	35	43	34

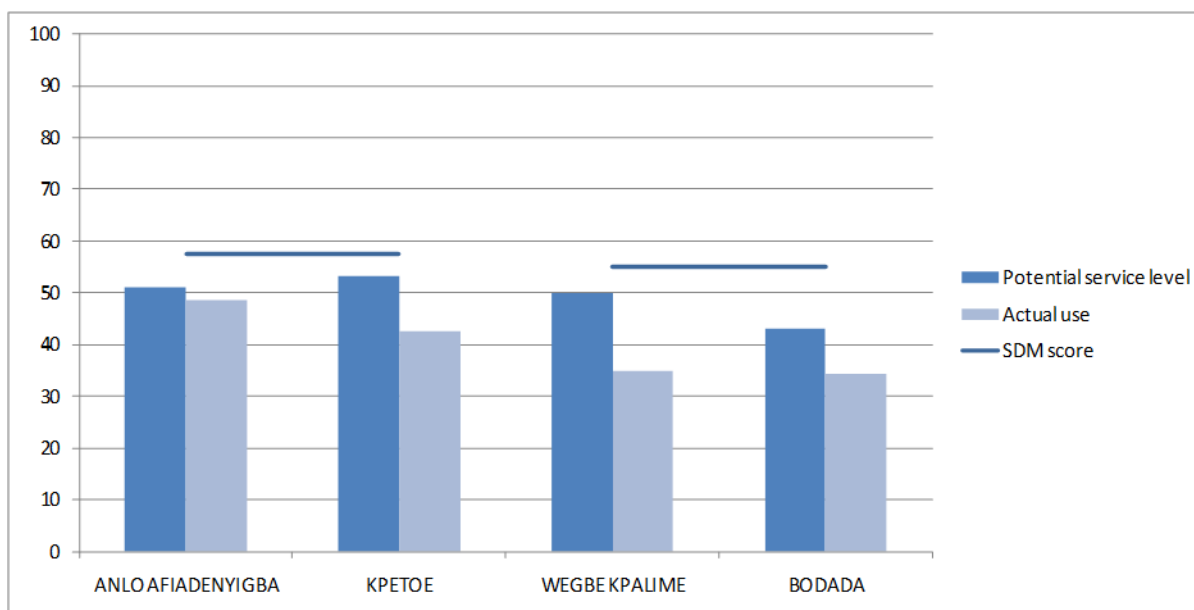


Figure 5: Piped systems service level scores

3.2 Community Mobilisation

Effective community mobilisation was carried out in all four case study communities. All the communities contributed to capital cost and were fully involved in selecting the option of water supply. Therefore all four communities scored 100 on the community mobilisation indicator.

3.3 Management and Governance

Figure 6 gives an overview of the scoring of the four case study communities on the governance and management related sustainability indicators.

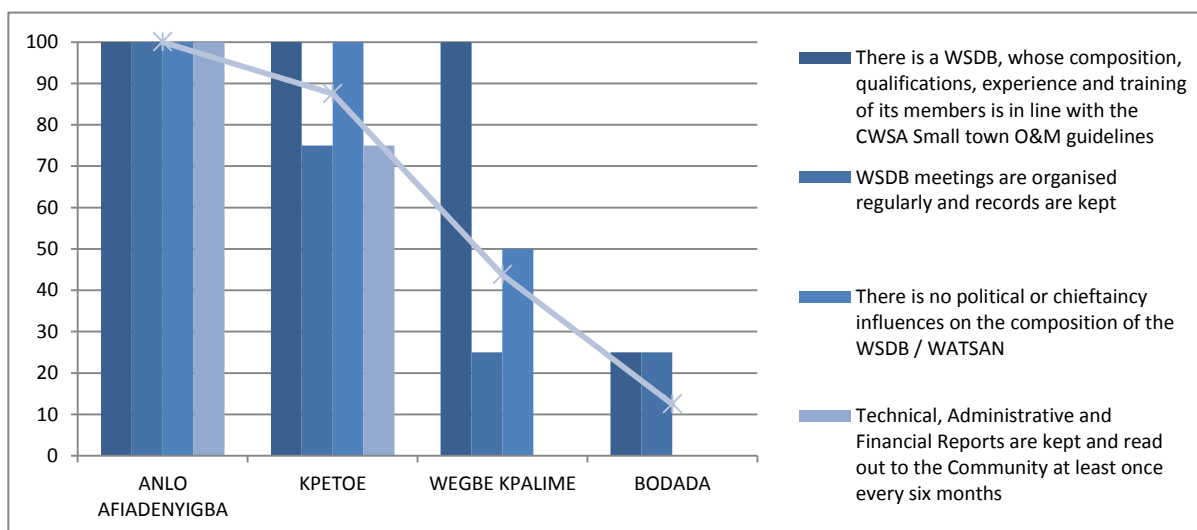


Figure 6: Scoring STPS cases on governance and management indicators

3.4 Formation of WSDB:

Anlo Afiadenyigba, Kpetoe and Wegbe Kpakime have sound WSDBs, whose composition were in line with the CWSA guidelines and which have received initial training. In **Bodada**, the WSDB was reconstituted around June 2010, when the WSDB was dissolved by the chiefs due to agitation by members of the community that the Board members had misappropriated monies for the water system. The reconstituted WSDB has not been given any training. This is affecting their performance, although the new members appear to be committed to their work.

Box 1: Leadership

The adage in the Ewe language; “*avu tor masemasefeavu melena la o*”; translated to mean “*a weak master’s dog does not catch game*” describes the success of the **AnloAfiadenyigba** WSDB. The woman board chairman is described as strong not because she bullies her colleagues but because she ensures that things are in place, and the right things are done at the right time. She is soft spoken and gentle in her approach to issues and communicates with people. Madam Edith Kunkpe has been the board chairman since the STPS was established 10years ago. Although she wishes another person takes over, the community keeps insisting that she remains there. Whether it is healthy for her to remain as the chairman is a different issue, but her leadership attributes have contributed greatly to the success of the O&M of the STPS.

Although, earlier theories state that leaders are born, as demonstrated by Madam Edith Kunkpe, it is also a proven fact that the art of leadership can be learned. This is where effective training is required to improve the leadership and personality capabilities of board members.

The administrator of the Anlo Afiadenyigba STPS is very diligent in his administrative duties. The retired civil servant Mr. Samuel Atsumana who has taken up this responsibility, keeps all the required records and produces them on request. His other colleagues, the operators and meter readers are always seen busy at their work and respond to problems urgently.

3.5 WSDB Meetings:

The **Anlo Afiadenyigba** WSDB meets regularly and satisfies all the CWSA guidelines. **Kpetoe** and **Bodada** Boards meet regularly, but do not convey meeting decisions to the community. At **Wegbe Kpalime**, although the Board stated that they meet often, the last record of their meeting was dated a year ago.

3.6 Political or Chieftaincy Influences:

At **Anlo Afiadenyigba** and **Kpetoe** the WSDBs have not experienced any political or chieftaincy influences on their composition. The Boards have remained stable. In fact the Chiefs have their representation on the Board.

Wegbe Kpalime experienced a minor change where a new Vice-chairman was appointed who is very active and seem to be controlling affairs of the WSDB. This change is not due to political or chieftaincy influence. The new Vice-chairman injected some dynamism into the management of the water system.

The story is completely different at **Bodada** where the Chiefs stepped in to dissolve the Board due to agitation from the community members about misappropriation of funds by the board. This change occurred in June 2010. The current Board has no previous knowledge about the management of the system and at the time of the study has no training. This has affected the performance of the Board.

3.7 Technical, Administrative and Financial Reports:

The **Anlo Afiadenyigba** WSDB kept records of all their maintenance activities. They also have minutes of their meetings showing decisions made and actions taken. The WSDB purchased a computer for their administrative work. The computer facilitates the capturing and storage of data on the water system. Information is therefore readily available on the AnloAfiadenyigba water system.

Kpetoe WSDB keeps financial records and presents it to the community twice a year. They however do not keep any technical and administrative records or reports. The Board has been trained in the use of management tools like. Daily and Monthly Summary Technical Records Form, Daily and Monthly Summary Water Consumption and Production Forms etc. These tools were provided under the EVORAP Project.

It is very likely that similar tools had been provided to and used by the WSDB in **Bodada** community. However, as the WSDB was dissolved and the new WSDB has not been trained for the management of the system as at the time Study Team's visit, no records were being kept at the time of the study. The team could not access the records kept by the old board because they have not been handed over to the new board.

In **Wegbe Kpalime**, records were kept up to 2008/2009 when MOM was operational at the District level. Since 2009, the inclusion of South Dayi District in the current LSDGP has affected MOM activities at the District and this has impacted on the performance of the community.

3.8 Financial Management

Figure 7 gives an overview of the scoring of the four piped system case studies on the financial management indicators.

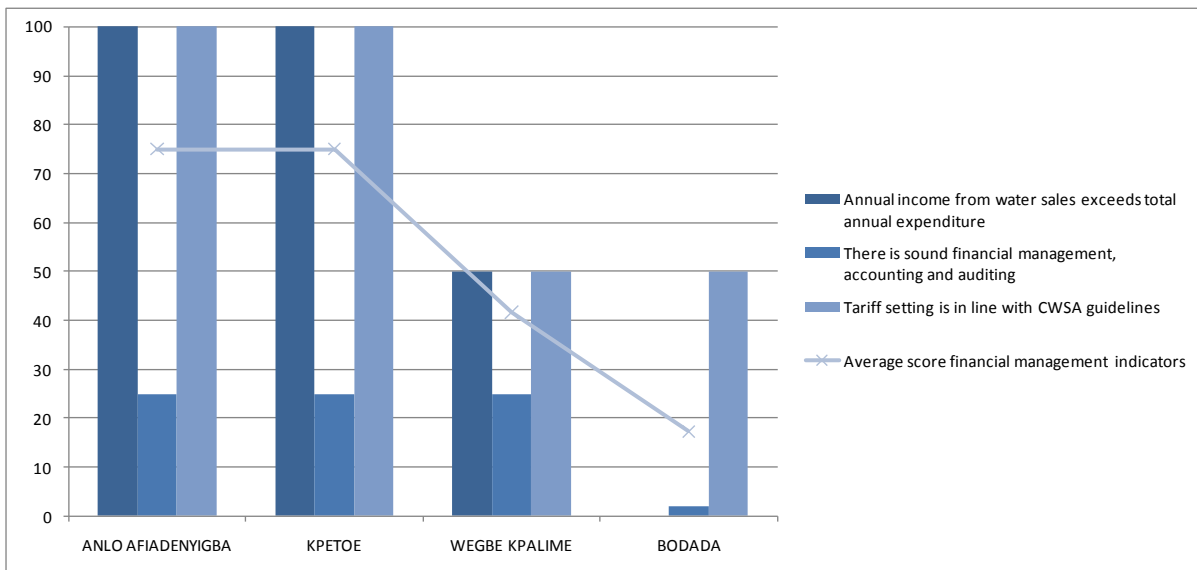


Figure 7: Scoring STPS cases on financial management indicators

3.9 Annual Income and Expenditure, and financial management:

Anlo Afiadenyigba has an annual income exceeding annual expenditures. Anlo Afiadenyigba also has a stock pile of spare parts and a cash balance GHS37,000 in its bank account as at November 2010. The Board has been using part of its net revenues for extending the water system and the construction of a two-seater WC toilet facility attached to the WSDB office. The board also wanted to construct an eight-seater WC toilet facility for the community. They have not yet achieved this because the community could not release land for the purpose.

In 2008 the account balance of **Kpetoe** was negative (income: GHS44, 265, expenditure: GHS50, 160.00). In 2009, the income was GHS380 higher than the expenditure. The bank statement inspected showed a positive balance of GHS11, 320 (Regular and Replacement Accounts). The biggest challenge facing the WSDB is the tall list of defaulters (domestic, public and institutional consumers). The District Assembly does not support the WSDB to prosecute defaulters to retrieve outstanding debt.

At **Wegbe Kpalime**, there were no records to show income and expenditure pattern but there is a cash balance of GHS672.92 in their bank account.



Figure 8: WC Toilet facility constructed by Anlo Afiadenyigba WSDB

Similarly, **Bodada** Board does not have any records. The new Board has not been able to access the WSDB Bank Account due to the conflict. The new Board however has a cash balance of GHS41.00 after six months of operation, having some outstanding debts left by the old Board e.g. electricity bill.

3.10 Tariff setting:

Anlo Afiadenyigba and **Kpetoe** have satisfied the guidelines set by CWSA for tariff setting. The tariff was set by the WSDB in consultation with the community and approved by their Assemblies. Cost of O&M activities informed the tariff set. At **Bodada** and **Wegbe Kpalime** the tariffs were not approved by the Assemblies and vital elements of O&M are left out of the tariff. The tariff in Wegbe Kpalime was set at GHS1.10/m³ or 2 pesewas for 18 litres by the staff of VRCWSA when the system was put in place in 1997. According to the chairman of the WSDB, the tariff is not revised upward out of a fear that people will not be able to pay a higher tariff and will go back to the polluted sources.

3.11 Operational Indicators

Figure 9 gives an overview of the scoring of the four Small Town Piped System case study communities on the operational indicators.

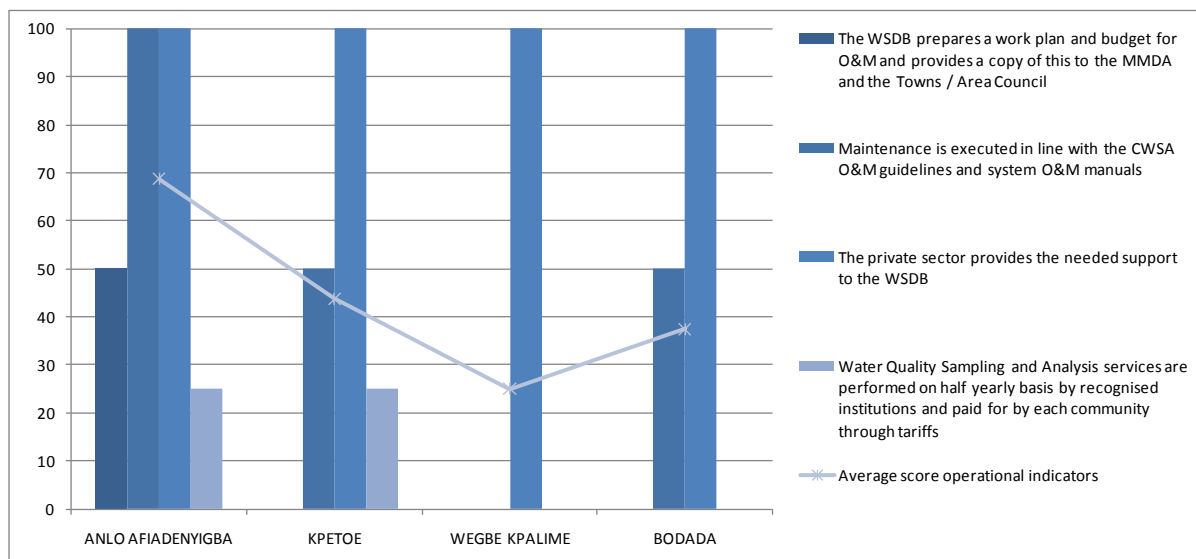


Figure 9: Scoring STPS cases on operational indicators

3.12 Work plan and Budgets:

Among the 4 communities studied, only **Anlo Afiadenyigba** had prepared work plan and budget for O&M activities. The Board however did not send a copy to the Assembly for approval. The other three communities did not prepare any work plan and budget.

3.13 Maintenance of Facility:

Anlo Afiadenyigba WSDB does not have any O&M Manuals; however they undertake routine and general maintenance and repairs. Routine maintenance is carried out every three months. The personnel depend on their experience and initial training received. At **Kpetoe** the O&M Manuals exist but the staff has not been trained. They depend largely on their experience from working on GWCL water supply schemes. **Wegbe Kpalime** Board does not have any manuals and use the services of a trained Area Mechanic (for Hand Pumps) to carry out ad hoc repairs (see Box 2). At **Bodada**, maintenance and repairs are done as and when necessary. The new Board is not aware of the existence any O&M Manuals

Box 2: Wegbe Kpalime operator

In **Wegbe Kpalime** there is an area mechanic who is constantly upgrading himself through participating in several training workshops. “*Even two months ago I attended a training workshop in Kumasi*”, stated the Area Mechanic. Although he was originally trained as an Area Mechanic to be responsible for carrying out maintenance on Handpumps, by upgrading himself, he is now doing plumbing works and minor repairs on valves and other things on the piped system. He resides in the community and is paid an allowance of GHS4.00 a month. During the study there was this exchange between the chairman and the Technical Operator/Area Mechanic:

Chairman: *The Operator doesn't do his work diligently so we do not get water at the right time on some days.*

Operator: *You don't pay me well how do you expect me to work diligently.*

Chairman: *Look, look we don't have to discuss this here [before the Study Team]. You're an Area Mechanic and when there is a major breakdown we have to bring in a Submersible pump mechanic to do the repairs. How can we pay you so much?*

Operator: *Ooh I see, you don't appreciate the work I do.*

3.14 Availability of Spare Parts and Private Sector Support:

The WSDBs of all the systems studied stated that spare parts and private sector personnel are available to carry out maintenance.

3.15 Water Quality Test:

Water quality sampling and analysis is not taken seriously in any of the systems. At **Anlo Afiadenyigba** and **Kpetoe** the last test was carried out in 2008. No water quality analysis was carried out at **Wegbe Kpalime** and **Bodada** since installation of the system.

3.16 Enabling Environment

Figure 10 gives an overview of the score of four cases on the enabling environment indicators.

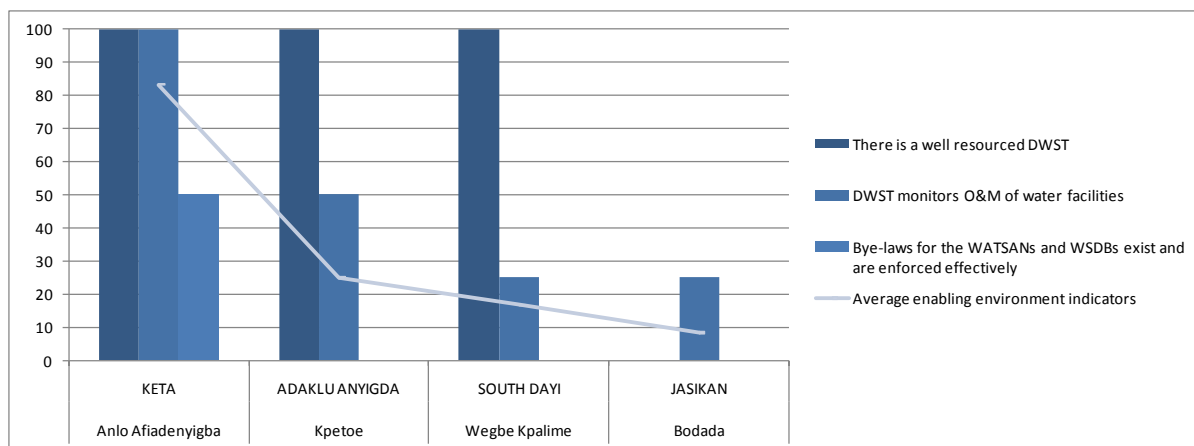


Figure 10: Overview of enabling environment scores

3.17 District Water and Sanitation Teams:

The Keta (**Anlo Afiadenyigba**) district has a DWST which insufficiently resourced by its Assembly to do its job. Two of the MDAs, South Dayi (**Wegbe Kpalima**) and Adaklu Anyigbe (**Kpetoe**) have the DWSTs consisting of three members but not resourced enough to be able to perform their functions. It should be noted that these 2 Districts are among the newly created in the country. The Jasikan (**Bodada**) District DWST has 2 members and not resourced to be able to work.

Monitoring:

In Keta Municipality (**Anlo Afiadenyigba**), the DWST monitors O&M effectively in terms of Financial Technical and Administrative performance. This include periodic audit and provision of direct support where needed. It is clear that this has contributed greatly to the good performance. At **Kpetoe** and **Bodada**, there is some level of monitoring by the DWST but not on regular basis. The DWSTs do not receive the desired funding from the DA to carry out this important assignment. At **Wegbe Kpalime**, there is no monitoring at all because the DWST has been dissolved. Until the dissolution monitoring was carried out although not on regular basis.

Water and Sanitation Development Boards Bye-Laws:

Anlo Afiadenyigba (Keta Municipality) and **Kpetoe** (Adaklu Anyigbe district) WSDBs have bye-laws but are not able to enforce them. **Wegbe Kpalime**(South Dayi district) and **Bodada** (Jasikan District) WSDBs have no bye-laws.

Enabling environment indicators not directly related to the water service

In addition to the indicators above, the indicators described below are important for sustainable service delivery in a district. However, these are not directly related to the service provided in the case studies, so they have not been taken into account in the scoring of the enabling environment indicators.

District Water and Sanitation plan

All the M/DAs have District Water and Sanitation Plan (DWSP) which were developed by the Assemblies and incorporated into their medium Term Development Plan (MTDP) of the Assembly.

Coordination with NGOs

All water facilities provided by NGOs in Jasikan Districts, where Bodada is located, have been implemented in coordination with the DAs. There are no NGOs or CBOs operating in South Dayi District and Keta Municipality, where Wegbe Kpalime and Anlo Afiadenyigbaare respectively located. At Adaklu Anyigbe Districts, where Kpetoe can be found, none of the systems implemented by NGOs were done in collaboration with the DA.

3.18 Point Sources (Handpumps)

Service Level

The table below gives an overview of the characteristics of the three point source case studies.

Table 5: Service characteristics of the point source case studies

	AGBAGBLAKOPE	KPALE XORSE	GBEEFI HOEME
number of handpumps	2	2	4
Maximum population served	600	600	1200
Population	401	1000	3000
% of population not using the service	4%	40%	70%

Source: Field Survey 2010

In **Gbefi Hoeme**, the free flowing River Dayi less than 300 meters from the community coupled with the perceived poor quality of the safe borehole water, are factors affecting the lack of use of the boreholes. Of the four boreholes in Gbefi Hoeme, which were

rehabilitation in 1998, only one was found to be functional at the time of the study. However, community members had concerns about the quality of the water. During the visit by the Study Team, one community member mentioned “*The borehole water tastes salty and does not lather well when washing or bathing.*” According to another Community member “*The borehole water corrodes our aluminium pans and utensils. Also a thin layer of whitish film forms on the water surface when left overnight*”.

In **Kpale Xorse**, the community opted for a piped water system to be hooked onto the major water system running from Kpeve Head Works to Ho, the regional capital. However, as the per capita cost was found to be high, VRWSSP settled for two boreholes with hand pumps. Only 60% of the population can be said to access 20 lpcd; the other 40% still depend on the unsafe source of water i.e. a dam in the community. A lot of visitors come to the community regularly for various reasons, including workshop activities and also to seek healing. This imposes strain on the already inadequate water and sanitation facilities in the community.

The situation is completely different in **Agbagblakope** where 2 reasonably well-maintained handpumps can be found, implemented under the VRWSSP. Here, only 4% of the population is estimated to use unsafe sources of water.

Based on the above, the service level can be scored against the service level ladder. The service delivery scores are presented in the table and figure below.

Table 6: Point source service level scores

	AGBAGBLAKOPE		KPALE XORSE		GBEEFI HOEME	
% of population with access to the following level of water services:	Potential	Actual	Potential	Actual	Potential	Actual
High level (score: 100)		0%		0%		0%
Intermediate level (score: 75)		0%		0%		0%
Basic level (score:50):	100%	96%	60%	36%	40%	12%
Sub-standard level (score: 25):	0%	0%	40%	24%	60%	18%
no water service (score: 0):		4%		40%		70%
Score:	50	48	40	24	35	10.5

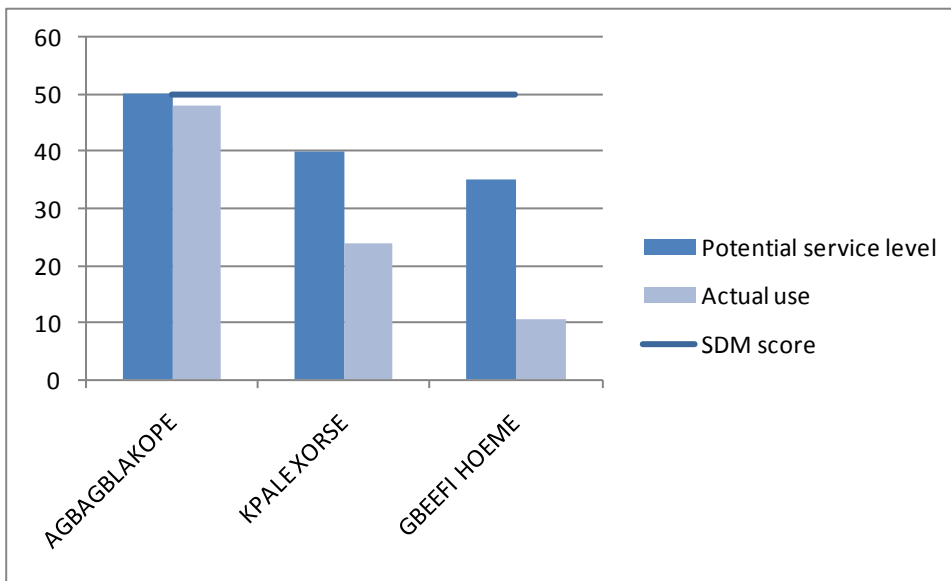


Figure 11: point sources service level scores

Community Mobilisation

Very good community mobilization and awareness creation was carried out in both **Kpale Xorse** and **Agbagblakope**. **Gbefi Hoeme** however did not benefit from community mobilisation before the four boreholes were first provided. Some mobilization was however done when the four boreholes were to be rehabilitated under the DANIDA-funded rural community water programme. These could have accounted for the community not adhering to the COM concept before and even after the rehabilitation.

Management and Governance

Figure 12 gives an overview of the scoring of the three point source case studies on the management and governance related indicators.

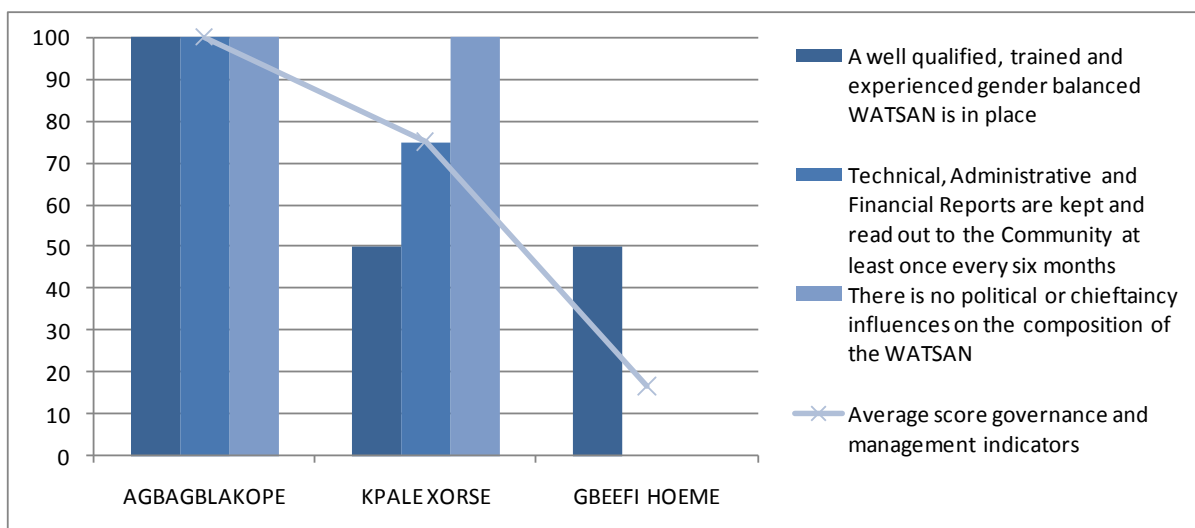


Figure 12: Scoring of point source cases on governance and management indicators

WATSAN Committee:

At **Agbagblakope** there is a gender-balanced WATSAN Committee that received initial training and other trainings depending on need. At both **Gbefi Hoeme** and **Kpale Xorse**, the WATSAN Committees were gender-balanced, but had received only initial training. At **Gbefi Hoeme** the formation of the committee (now defunct) came long after the boreholes were constructed. This could account for their poor performance in most of the indicators.

Technical, Administrative and Financial Reports:

Agbagblakope keeps records of all their O&M activities and read out these to the community on quarterly basis. **Kpale Xorse** also keeps records which are read out to the community annually. **Gbefi Hoeme** does not keep any records.

Political and Chieftaincy Influences:

Gbefi Hoeme suffered a severe setback when the Assembly member used his political influence to take over the operations of the WATSAN Committee leading to the breakdown of the WATSAN concept. The WATSAN Committees at **Agbagblakope** and **Kpale Xorse** had no such interference and actually enjoyed cordial relationship from the chiefs, the traditional leadership and the unit committee.

Financial Management

Figure 13 gives an overview of the scoring of the point source case studies on the financial management related indicators.

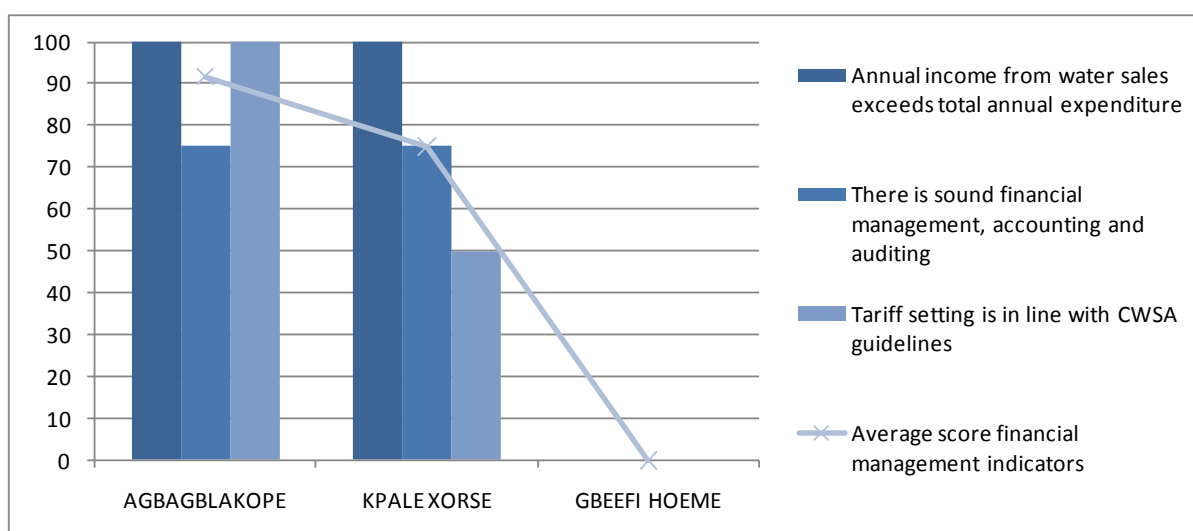


Figure 13: Scoring of point source cases on financial management indicators

Annual Income and Expenditure and Financial Administration:

Agbagblakope and **Kpale Xorse** have bank accounts and keep financial records. The annual income from water sales exceeds the total annual expenditure at both **Kpale Xorse** and **Agbagblakope**. The two communities have some amounts of money in their bank accounts. **Agbagblakope** in addition has a stock pile of vital spare parts. **Gbefi Hoeme** does not keep any financial records and does not have any Bank Account.

Tariff Setting:

Tariff setting at **Agbagblakope** and **Kpale Xorse** is based on projected O&M costs as well as capital expenditure and other support costs. While the tariff of **Agbagblakope** was approved by the Assembly, **Kpale Xorse** did not submit its tariff to the Assembly for approval. None of the communities included water quality tests as an item in the tariff setting. **Gbefi Hoeme** does not have any tariff, but has alternative arrangements to raise money for maintenance (see box). However, with 3 out of the 4 boreholes broken down, this does not seem to have been very successful.

Box 3: Raising money for maintenance in Gbefi Hoeme

Maintenance costs are financed from ad hoc levy, proceeds from sand winning from community sand pit and support from a commercial farmer based in the community. The Chief mentioned: *“The Management of the commercial farm in the community has decided to take on the maintenance of the hand pumps for us. The Management has also told us not to charge any tariff and report any breakdown to them for immediate attention.”*

Operational Indicators

An overview of the scores of the three point source cases on the operational indicators is given in Figure 14.

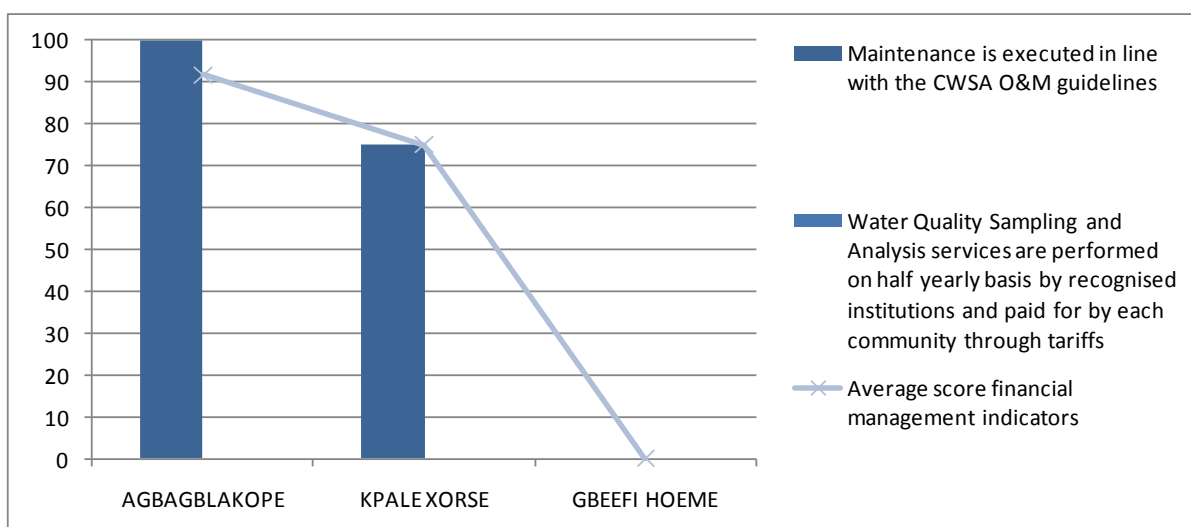


Figure 14: Scoring of point source cases on operational indicators

Maintenance:

Preventive (periodic regular) maintenance at **Agbagblakope** and **Kpale Xorse** is carried out in line with CWSA guidelines. Spare parts and Area Mechanics are available for major maintenance as and when needed. Both communities keep records of all maintenance work. Nevertheless, the WATSAN in **Agbagblakope** did mention that it was facing challenges with the minor maintenance and spare parts of the hand pump, especially with the replacement of the Leather Cups to Rubber Cups, which have to be replaced every 6 months (instead of every 2 – 3 years, which used to be common practise for the leather cups).

The **Gbefi Hoeme** WATSAN has only been doing ad hoc maintenance.

Water Quality Analysis:

None of the communities under discussion carry out water quality analysis. At **Gbefi Hoeme** an American Peace Corp Volunteer once carried out water quality tests in 1996. This finding shows that WATSAN Committees do not consider water quality test as important requirement of service delivery.

Enabling Environment

Below, an overview is given of the scoring of the districts in which the case studies can be found on the enabling environment indicators.

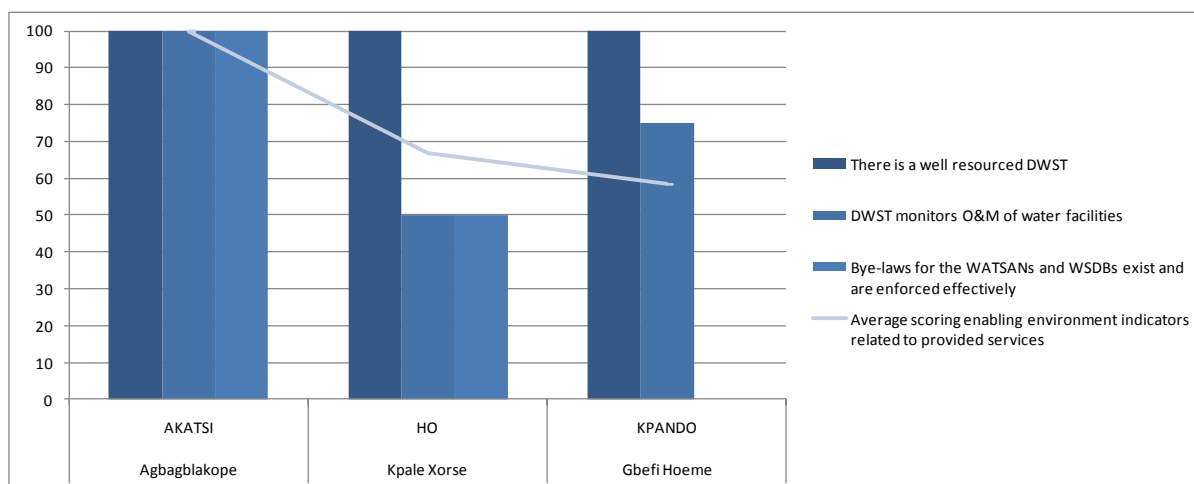


Figure 15: Scoring of Enabling Environment of the point source cases

3.19 District Water and Sanitation Teams:

In all three districts the DWSTs are sufficiently resourced by their respective Assemblies to be able to do their job.

Monitoring:

It is only at **Agbagblakope** that the DWST is actively monitoring the O&M of the water facilities in terms of financial, technical and administrative performance (see Box 4). This is because the Akatsi DA supports the DWST to perform this function. At **Gbefi Hoeme** the monitoring is done to some extent but the ready acceptance and implementation of the recommendation from the community has been poor. Monitoring at **Kpale Xorse** is not regular because there is no support from the Assembly.

Box 4: Support to the Agbagblakope WATSAN by the Environmental Health Assistant and DWST

The Akatsi District Assembly is very serious about monitoring the operations of the Water Boards and WATSAN committees. The monitoring of the Agbagblakope WATSAN by the DWST goes to the extent that the DWST is a signatory to the WATSAN Committee's bank account. This helps the DWST to control to some extent the use of the WATSAN money. There is no indication from the WATSAN or the community that this is considered as interference. The committee accepted the idea, which brings a lot of control in the disbursement of the funds. In this situation, there cannot be any interference from political or traditional authorities especially as money is concerned.

Also, the presence of the Environmental Health Assistant (EHA), who is a member of the DWST, is felt in the community. As commented by a community member, "*as for sister (referring to the EHA), she is always with us here*". Ms Georgina Lotsu, the EHA, is known very well by the community members and they could also state her activities to support and educate them.

By-Laws:

In **Agbagblakope**, in Akatsi District, the WSDBs and WATSAN Committees have by-laws which are enforced effectively. **Kpale Xorse** (Ho municipality) has the by-laws but does not enforce. **Gbefi Hoeme Committee** (Kpando) has no bye-laws.

Enabling environment indicators not directly related to the water service

The indicators described below are important for sustainable service delivery in a district. However, they are not directly related to the service provided in the case studies. They have therefore not been taken into account in the scoring of the enabling environment indicators.

Assistance by MMDAs

In all the three facilities studied, no situation occurred necessitating the assistance of the respective Assemblies. Although the hand pumps broke down at **Gbefi Hoeme**, the

community did not approach the Kpando District Assembly for support. Assistance was rather provided by a commercial farmer working in the community. In Ho Municipality and Akatsi District, where **Kpale Xaorse** and **Agbagblakope** are located respectively, there have been cases of the MDAs assisting communities in case of major repairs and borehole rehabilitation.

District Water and Sanitation Plan:

All the M/DAs have District Water and Sanitation Plan (DWSP) which were developed by the Assemblies and incorporated into their medium Term Development Plan (MTDP) of the Assembly.

Coordination with NGOs:

All water facilities provided by NGOs in Akatsi District have been implemented in coordination with the DA. In the Ho municipality, the Church of Jesus Christ of Latter Day Saints carried out some rehabilitation of handpumps without any collaboration with the Municipal Assembly. In Kpando Districts, none of the systems implemented by NGOs have been done in collaboration with the DAs.

3.20 Factors Affecting Sustainability in the Study Districts

Through this study, the following factors have been identified as having a high impact on the sustainability of water services:

- Leadership and personality attributes of the members of the Board;
- Capacity building for the board members;
- Support from the DA;
- Collaboration with traditional authorities.

These factors are discussed below.

Leadership and personality attributes of the board members

Leadership is very important in every business or social setting in order to achieve goals. The leadership of the **Anlo Afiadenyigba** STPS, specifically the WSDB is very strong. Also in **Agbagblakope**, where TogbeTrelor II, the chief of the community, doubles as the WATSAN Committee chairman, strong leadership has resulted in a strong WATSAN. The leadership and personality attributes of the leader is seen in the activities of the committee's performance. The committee is diligent in following the O&M guidelines and ensures that water is continuously available for the people.

In other systems where the community has problems with leadership due to their performance, the performance of the system is poor. All the systems study where there have been some disturbances with the leadership like **Bodada** and **Gbefi Hoeme**, have experienced poor performance. In the case of **Bodada**, the community agitated due to dissatisfaction with the Board's performance so the chiefs came in and dissolve

the board. The performances of the **Bodada** WSDB, both the old and new have been poor. In **Gbefi Hoeme**, where the Assembly member for the community hijacked the WATSAN Committee, O&M is very poor as well and all boreholes with handpumps have broken down.

Capacity building for Board members

From the study, it came out clearly that those WSDBs and WATSAN committees that have received adequate training, are performing far better than others that lack training.

The well-performing **Anlo Afiadenyigba** Board received initial training and regular re-training programs. Similarly **Kpetoe** Board and **Agbagblakope** WATSAN Committee received training and re-training anytime new members join the board. These training programs made their performance far above the other Boards in terms of adherence to the performance guidelines provided by CWSA.

Support from the MMDAs

The figure below shows there seems to be a correlation between the enabling environment, performance of the service provider (WATSAN / WSDB) and the service level.

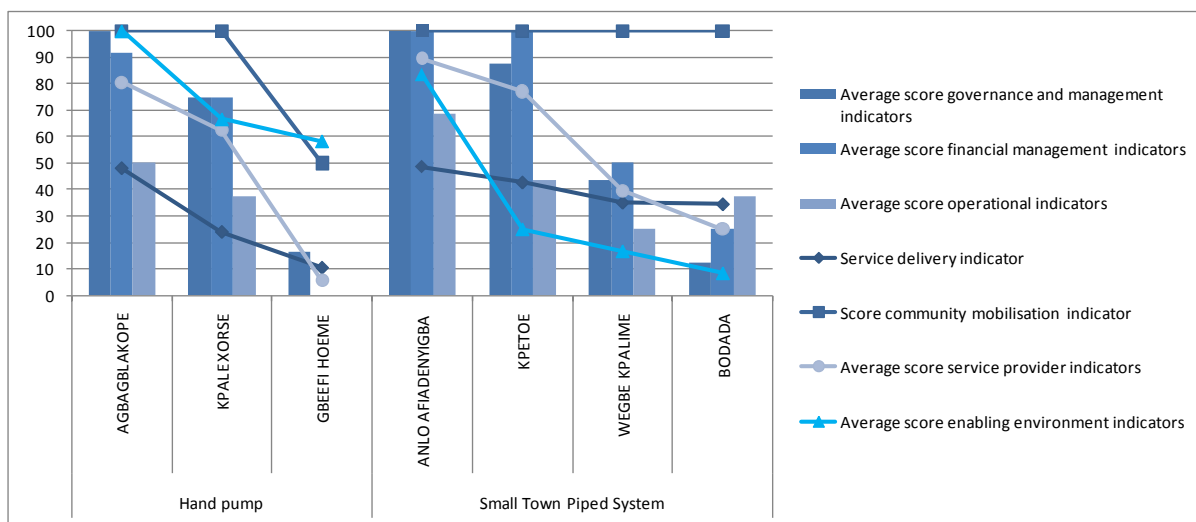


Figure 16: Overview of service and sustainability indicator scores

Those Water Boards that are receiving adequate support from the M/DAs (indicated in the graph above in the light blue line) are performing a higher level of service (indicated in the graph above with the grey line) than others that do not receive the needed support. Among the pipe systems studied, it was only **Anlo Afiadenyigba** that receives adequate support from the Keta Municipal Assembly. The support provided by the Adaklu Anyigbe DA to the **Kpetoe** WSDB is only partial, being limited to the DWST participating in WSDB meeting. The study showed that the performance of **Kpetoe** WSDB is on the decline.

For the point systems, the performance of the **Agbagblakope** system is far above the others and this can be attributed to the regular support they receive from the EHA and the DWST.

Collaboration with Traditional Authorities

From the study, it came out that interference from traditional and political authorities hinders the performance of Water Boards and WATSAN Committees. These interferences affect the performance of the **Gbefi Hoeme** WATSAN Committee and the **Bodada** Water Board. On the other hand, the **Kpale Xorse**, **Agbagblakope**, **Anlo Afiadenyigba** and **Kpetoe** WATSAN Committees / WSBDs have enjoyed collaboration and good working relation with their traditional authorities and political figures. This contributed greatly to their performance.

Kpale Xorse has a peculiar situation, being a religious community and one of the elders is the WATSAN Committee chairman and represents the community leadership. At **Agbagblakope** the chief is also the WATSAN Committee's chairman. The performance of these two systems is very high.

At **Anlo Afiadenyigba**, there is representation of the chiefs and also assembly members on the Board. Similarly, **Kpetoe** has representation of the chiefs on the Board. These are evidence of good collaboration and working relationships, and it is clear from the study that these Boards enjoy the needed peace which contributed to their good performance.

We can also conclude that the political and chieftaincy disturbance or interferences at **Gbefi Hoeme** and **Bodada** have contributed to their poor performance.

What Works and What Does Not Work

The study team identified the following as working well or not working well for the sampled beneficiary communities. This information is obtained from the interviews, discussions and the stakeholder workshops.

What is working well:

- All working groups in the stakeholder workshop have identified the pay-as-you-fetch system to be working well. This system makes funds readily available for O&M.
- In those districts that MDWSTs are supported by the MDAs, monitoring and supervision is effective. In those cases, there is also adequate technical support from the MDWSTs.
- Democratic election of the WSDB and WATSAN members as well as representation of different community groups including chiefs and elders, assembly members and area council.
- Signatory to the Agbagblakope WATSAN committee's bank account by DWST in Akatsi. The authors of this study consider this a good innovation which needs to be further developed so that it does not bring any conflict.

- WSDB using part of its net revenues for system expansion (as was the case in Anlo Afiadenyigba)
- The support of the commercial farm TROPIGHA to the WATSAN of Gbefi Hoeme community. However, there are a number of issues that could be raised with regard to the sustainability. Will the farm Organization continue their support? What if management of the farm changes? Support from the farm and any other corporate organisation should be welcomed but with proper procedures. There is the need for some form of agreement, e.g. MOU between the organization and the WATSAN committee or the community to address the issues of sustainability. The agreement should spell out the responsibilities of both parties. This should also include how the organization will monitor the use of the funds they provide.

What is not working well:

- Although one of the working groups identified Community Ownership and Management (COM) to be working well, the study team observed that the concept of COM and O&M are not well understood by the communities.
- Another important issue identified is the voluntary service being rendered by Boards and WATSAN Committees. This situation is affecting operations negatively. The issue of remuneration to the board /committee members need to be discussed in detailed and addressed in order to improve the O&M of the water systems.
- The issue of capacity building is not working well. Water boards and WATSAN committees do not invest in training on their own; they only undergo training when arranged and funded from external sources. It is important that Water Boards and committees identify their own training needs and organise the training in order to build their own capacity.
- High electricity tariff consumes greater part of the revenues generated by piped systems depending on electricity, which is affecting their operation.
- Most Boards and WATSAN committee are still asking for funds for expansion, rehabilitation and capacity building.
- Support from the M/DA is not working well except for Akatsi and Keta districts. Other districts do not provide funds for the operation of M/DWSTs. It has also been observed that most of the Boards and committees are having difficulties in budgeting, tariff setting and general O&M. They are not rendering account of their stewardship to the community.

4 Conclusions and recommendations

4.1 Conclusions

Based on the findings of the study, the following conclusions were drawn:

Service delivery:

- Despite the availability of potable water in the study communities, some people still use unsafe sources, even in well informed communities like Agbagblakope.

Community mobilisation:

- Effective community mobilisation enhances O&M delivery of Small Towns and rural community water supply. The problems at Gbefi Hoeme can be attributed largely to lack of community mobilisation at the initial stage of project implementation. The effective community mobilisation at places like Agbagblakope and Anlo Afiadenyigba has enhanced their O&M effectiveness.

Governance and management:

- Although management and governance structures are in place in all the water systems studied, the structures have not developed their governance and managerial capabilities. Meetings are poorly held and decisions are not communicated to stakeholders especially the community members. Generally, there is good collaboration between chiefs/political leaders and the WSDBs / WATSAN Committees. The problem at Bodada is not interference from the chiefs but rather their intervention based on agitation and demand from community members. The only unpleasant situation occurred at Gbefi Hoeme where the Assembly man was said to hijack the WATSAN Committee.
- WSDBs/WATSAN committees are having difficulty keeping records and making reports. All the WSDBs made some efforts to keep good records but it is clear that they lack the capacity to do this work effectively. Even Anlo Afiadenyigba which has made good stride has not been able to prepare all their reports especially technical report.

Financial management:

- The commercial rate being charged by the Electricity Company of Ghana is putting financial strain on the water systems which are not being operated on profit bases. This is a very serious problem for all the water systems and need to be addressed.

Operations:

- WSDBs / WATSAN Committees are not able to prepare work plans, Operational budget and O&M plans and use them for their operations. Even those who have some plans do not use them on regular basis for their operations.
- Spare parts are available and accessible for piped systems. However, for handpumps, Area Mechanics have to travel to Accra or Tema to purchase the spare parts. This increases the cost of the spare parts for handpumps. There are no

active distribution outlets in the region; shop owners complain that the spare parts don't sell fast, hence their lack of interest in the business.

- WSDBs / WATSAN Committees do not carry out water quality test. All the systems have defaulted in this; even Anlo Afiadenyigba whose performance appeared to be generally good has defaulted in water quality test. They carried out the last test about two years ago.

Enabling environment:

- Boards and committees are not working with by-laws; even those who have are not able to enforce them. A difficulty area is the inability of the Assembly to gazette these bye-laws to make them enforceable by the community.
- Most of the MDAs have not given support to the WSDBs and WATSAN Committees in their operations. The M/DWSTs don't have the needed funding to carry out the monitoring activities.

4.2 Recommendations

Governance and management

- The water facility management tools (O&M tools) developed for EVORAP schemes may be adopted for use by all small town water system operators.

Financial management:

- The Electricity Company of Ghana charges commercial tariff for all the systems. These water systems are however not operating on commercial bases. Some systems are even charging lower rate in order to fulfil their social responsibility to the poor. The CWSA should therefore take up the issue and advocate for the reduction of tariff to the level of domestic consumer.
- Most of the communities studied have not reviewed their tariff since installation. This has resulted in low income generation thereby affecting operation and maintenance of the systems. A centralised tariff setting be set up to be administered by the District Assemblies and should be community and scheme specific. Boards and WATSAN Committees should however be given training in the components and inputs into the tariff setting. The Assemblies should audit and review the tariff after every five years. This will enhance income generation and better O&M of the systems.
- Where a commercial entity, a benevolent society or a philanthropist decides to take responsibility for the maintenance of any water facility, the terms of partnership or collaboration should be clearly spelt out and documented. This will provide a guarantee against an eventual breakdown of the facility if and when the financier decides to pull out. The MDAs should facilitate this agreement.

Operations:

- The only Agent currently dealing in handpump spare parts in the region should be supported to expand and increase his stock, so that spare parts will be available for hand pumps. CWSA should look for funding for this support. Individual entrepreneurs are having difficulty locking their funds into these slow moving items.

Enabling environment:

- MDAs should give assistance to WSDBs/WATSANs to prepare work plans, operational budget and O&M plans and also how to use these plans.
- CWSA Regional Office should facilitate exchange of visits, and interaction (peer learning) between WSDBs and WATSAN Committees to enhance knowledge, experience sharing and leaning.
- CWSA as a matter of urgency expedite action on the establishment of the MOM Unit at the regional level to support beneficiary communities in post construction activities.
- Training and capacity building for WSDBs/WATSANs should not be seen as a one-off activity but should be made more regular, at least once every 3 years. Consequently, both CWSA and MDAs should budget for this and ensure that operatives are given training and refresher training on regular bases.
- The MDAs should support the WSDBs to prosecute the private subscribers who default in the payment of bills.

5 References

- CWSA (1994) National Community Water and Sanitation Programme (NCWSP)
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- CWSA (2002) Monitoring of Operation and Maintenance (MOM) Strategy Paper for Volta Region
- DANIDA (1993) Project Inception Report DANIDA Phase I
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- Rural Water Supply and Sanitation Project (RWSSP) (2004) Project Completion Report
- Volta Region Community Water and Sanitation Agency (2010a) Annual Report
- Volta Region Community Water and Sanitation Agency (2010b) Quarterly report, 4th quarter
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6 Annex 1: Service and sustainability indicator scoring tables

Service level: Water services provided are in line with the CWSA standards

Scoring:

Options	Score	% of population
No service: People access water from insecure or unimproved sources, or sources that are too distant (> 500m), too time consuming, or are of poor quality (less than GSB standard)	0	
Sub-standard service: People access service that is improvement on having no service at all, but that fails to meet the basic standards on one or more criteria (quantity, quality, reliability, distance, max number of people served)	25	
Basic service (Benchmark): People access a minimum of 20 lpcd of acceptable quality water (GSB) from an improved source, at a distance no more than 500 m. The number of people using the hand pump is 300 in the case of a bore hole and 150 in the case of a hand dug well and reliability is 95% (CWSA handpump and standpipe standard)	50	
Intermediate service: people access a min of 40 lpcd of acceptable quality water from an improved source, at a distance less than 500m. The number of people using the hand pump is 300 in the case of a bore hole and 150 in the case of a hand dug well and reliability is 95%	75	
High level service: People access a minimum of 60 lpcd of high quality water on demand. Reliability is 95% (CWSA handpump household connection standard).	100	

Community mobilisation and planning

Indicator*: Community mobilisation for O&M has taken place in line with the PIM

Scoring:

Options	Score
None of the critical issues in the PIM have been addressed	0
1 out of 4 critical issues in the PIM have been addressed	25
2 out of 4 critical issues in the PIM have been addressed	50
3 out of 4 critical issues in the PIM have been addressed	75

Community mobilisation for O&M has taken place in line with the PIM	100
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Management and Governance Indicators

Hand pump specific indicator: A well-qualified, trained and experienced gender balanced WATSAN is in place

Scoring

Options	Score
There is no WATSAN committee	0
There is a WATSAN, but it has not been constituted in line with the guidelines.	25
There is a WATSAN which has been constituted in line with the guidelines, but members have not received initial training	30
Benchmark: There is a gender balanced WATSAN, which has been constituted in line with the guidelines and members have received initial training.	50
There is a gender balanced WATSAN, which has been constituted in line with the guidelines, which has received initial training, and retaining regularly (CWSA standard)	75
Ideal: There is a gender balanced WATSAN, which has received initial training, and bi-annual retaining (or retaining every time a new member joins)	100

Piped water specific indicator: There is a WSDB, whose composition, qualifications, experience and training of its members is in line with the CWSA Small town O&M guidelines

Scoring

Options	Score
There is no WSDB	0
There is a WSDB, but its composition is not in line with the model bye-laws and CWSA guidelines	25
Benchmark: There is a WSDB. Its composition is in line with the model bye-laws and CWSA guidelines. WSDB members have received initial training.	50
There is a WSDB, which has received initial training, and retraining every 3- 5 years. Its composition is in line with the model bye-laws and the CWSA guidelines. (CWSA standard).	75
Ideal: There is a WSDB. Its composition is in line with the model bye-laws and CWSA guidelines. WSDB members have received initial training, and bi-annual retaining (or retaining every time a new member joins).	100

Indicator: Technical, Administrative and Financial Reports are kept and read out to the Community at least once every six months

Scoring:

Options	Score
No technical, administrative and financial reports are kept	0
Some technical, administrative and financial Reports are kept	25
Technical, administrative and financial reports are kept but not shared with the community	50
Technical, administrative and financial reports are kept and irregularly shared with the community	75
Technical, administrative and financial reports are kept and read out to the community at least once every 6 months (CWSA standard)	100

Indicator: There is no political or chieftaincy influences on the composition of the WSDB / WATSAN

Options	Score
There are major changes in WSDB / WATSAN members (more than 50% of members have been changed) as a result of political or chieftaincy influence	0
There are minor changes in WSDB / WATSAN members (less than 50% of members have been changed) as a result of political or chieftaincy influence, but these changes have not had a negative effect on the functioning of the WATSAN or WSDB	50
There are no changes in WSDB / WATSAN members as a result of political or chieftaincy influences	100

Piped water specific indicator: WSDB meetings are organised regularly and records are kept

Scoring:

Options	Score
The WSDB never meets.	0
The WSDB meets occasionally (less than once every 6 months) or it meets more often, but no records are kept and decisions are not communicated to the community.	25
The WSDB meets at least every 6 month. The Secretary of the WSDB keeps correct records of decisions made each meeting.	50
The WSDB meets at least every 3 month. The Secretary of the WSDB	75

keeps correct records of decisions made each meeting.	
The WSDB meets at least every 3 month. The Secretary of the WSDB keeps correct records of decisions made each meeting. These records are posted on the community notice board or communicated in another way to all communities covered by the system.	100

Financial Management

Indicator: Annual income from water sales exceeds total annual expenditure

Options	Score
Total annual expenditure exceeds annual income from water sales	0
Annual income from water sales exceeds total annual expenditure	100

Indicator: There is sound financial management, accounting and auditing

Hand pump scoring:

Options	Score
There is no bank account and there is no record keeping	0
There is a bank account, but records are not kept, or, records are kept, but there is no bank account.	25
There is a bank account and records are well kept.	50
There is a bank account and records are well kept. Auditing is carried out irregularly (less than once a year).	75
There is a bank account and records are well kept. Auditing is carried out at least once a year (CWSA standard).	100

Piped water scoring:

Options	Score
There is no bank account and there is no record keeping	0
There is at least one bank account, but records are not kept or deposits are not in line with the bye-laws	25
There are 3 bank accounts and records are well kept. Money is deposited into the accounts, but not 100% in accordance with bye-law requirements (so less than 20% into the capital account and less than 10% into the sanitation account)	50
There is a bank account and records are well kept. Money is deposited into the accounts in accordance with bye-law requirements (at least 20% into the capital account, at least 10% into the sanitation account).	75
There is a bank account and records are well kept. Auditing is carried out at least once a year (CWSA standard).	100

Indicator: Tariff setting is in line with CWSA guidelines

Hand pump scoring:

Options	Score
No tariff has been set	0
Tariff setting is done by WATSAN and approved by MMDA, but is not based on projected/ planned costs	25
Tariff setting is done by WATSAN and approved by MMDA and is based on projected/ planned costs of operation and maintenance (payment of vendor, payment of spare part and area mechanic)	50
Tariff setting is done by WATSAN and approved by MMDA and is based on projected/ planned costs of operation and maintenance (vendor, spare part for minor maintenance etc.) and some additional costs, like replacement costs of hand pump and water quality tests	75
Tariff setting is done by WATSAN and approved by MMDA. Tariff is based on projected/ planned costs of operation and maintenance (vendor, spare part for minor maintenance etc.), as well as capita maintenance expenditure costs (rehabilitation and replacement of the handpump) and support costs (water quality tests).	100

Piped water scoring:

Options	Score
No tariff has been set	0
Tariff setting is done by WSDB and approved by MMDA, but is not based on projected/ planned costs	25
Tariff setting is done by WSDB and approved by MMDA and is based on projected/ planned costs of operation and maintenance (item 1-4 and 6))	50
Tariff setting is done by WATSAN and approved by MMDA. Tariff is based on projected/ planned costs of operation and maintenance (item 1-4 and 6), as well as either capita maintenance expenditure costs (item 7-8), or water quality testing costs (item 5) or provision has been made for a sanitation fund (item 9).	75
Tariff setting is done by WATSAN and approved by MMDA. Tariff is based on projected/ planned costs of operation and maintenance (item 1-4 and 6), as well as capita maintenance expenditure costs (item 7-8), water quality testing costs (item 5) and provision has been made for a sanitation fund (item 9).	100

Piped water specific indicator: Interference of the MMDA in the setting of the tariff does not affect the revenues

Scoring:

Options	Score
The MMDA does not pay the difference in revenue into the WSDB account in case of a reduction in expected tariff revenue as a result of action by the MMDA	0
The MMDA pays part of the difference in revenue into the WSDB account in case of a reduction in expected tariff revenue as a result of action by the MMDA	50
The MMDA pays the difference in revenue into the WSDB account in case of a reduction in expected tariff revenue as a result of action by the MMDA	100

Operational Indicators

Indicator: Maintenance is executed in line with the CWSA O&M guidelines

Hand pump scoring:

Options	Score
Spare parts are not readily available, there is no area mechanic in the district and no record of maintenance is kept.	0
Spare parts for hand pump maintenance and repair are available at all levels at all times but there is no area mechanic is available in the district. Corrective maintenance is carried out, but not within 24 hours.	25
Benchmark: Spare parts for hand pump maintenance and repair are available at all levels at all times and there is an area mechanic is available in the district. Corrective maintenance is carried out within 48 hours.	50
Spare parts for hand pump maintenance and repair are available at all levels at all times and there is an area mechanic is available in the district. Corrective maintenance is carried out within 24 hours. Preventive maintenance is carried out by the Area Mechanic occasionally.	75
Ideal: Spare parts for hand pump maintenance and repair are available at all levels at all times and there is an area mechanic is available in the district. Corrective maintenance is carried out within 24 hours. Preventive maintenance is carried out by the Area Mechanic, at least once yearly. Records of all maintenance activities are kept(CWSA standard.)	100

Piped water Scoring:

Options	Score
O&M manuals are not available or are not being used. Maintenance does not take place.	0
O&M manual are available. Ad hoc maintenance takes place.	50
Relevant personnel have been trained in the effective use of O&M manuals and execute regular maintenance in accordance with these manuals which are available.	100

Indicator: Water Quality Sampling and Analysis services are performed on half yearly basis by recognised institutions (GWCL, WRI, SGS or KNUST laboratories) and paid for by each community through tariffs

Scoring:

Options	Score
No quality sampling has taken place since installation	0
Water Quality Sampling and Analysis services are performed irregularly (less than once a year) by recognised institutions (GWCL, WRI, SGS or KNUST laboratories) and paid for by each community through tariffs (CWSA small comm., O&M, p 8)	25
Water Quality Sampling and Analysis services are performed on yearly basis by recognised institutions (GWCL, WRI, SGS or KNUST laboratories)	50
Water Quality Sampling and Analysis services are performed on half yearly basis by recognised institutions (GWCL, WRI, SGS or KNUST laboratories)	75
Water Quality Sampling and Analysis services are performed on half yearly basis by recognised institutions (GWCL, WRI, SGS or KNUST laboratories) and paid for by each community through tariffs (CWSA standard: CWSA small comm., O&M, p 8)	100

Piped water specific indicator: The private sector provides the needed support to the WSDB

Scoring:

Options	Score
Spare parts are not readily available and there is no private sector available to carry out maintenance.	0
Spare parts and private sector to support repairs and maintenance are	50

available within a week	
Benchmark: Spare parts and private sector to support repairs and maintenance are available within 48 hours	100

Piped water specific indicator: The WSDB prepares a work plan and budget for O&M and provides a copy of this to the MMDA and the Towns / Area Council

Scoring:

Options	Score
The WSDB does not prepare a work plan and budget for O&M	0
The WSDB prepares a work plan and budget for O&M, but does not submit it to the MMDA and town / area council	50
The WSDB prepares a work plan and budget for O&M and provides a copy of this to the MMDA and the Towns / Area Council	100

Enabling Environment

Indicator: There is a well-resourced DWST, consisting of 3 well qualified and experienced staff members, receiving the needed support by CWSA and MMDA

Scoring:

Options	Score
The DWST consists of less than 3 members	0
There is a DWST, consisting of 3 members, but is not sufficiently resources in order to do their jobs	25
There is a DWST, which is sufficiently resourced in order to do their job	50
There is a DWST, which is sufficiently resourced in order to do their job and received irregular retaining	75
There is a DWST, which is sufficiently resources in order to do their job and is regularly retained	100

Indicator: There are efficient monitoring and data flows

Scoring:

Options	Score
No MOM data is collected and compiled into DiMES	0
Some data is collected by the DWST or the regional CWSA office on irregular basis	25
DWST submits MOM reports to the regional CWSA office on an irregular basis. CWSA regional office collects and compiles data and feeds it into DiMES and submits it to CWSA HQ.	50
DWST submits quarterly MOM reports to the regional CWSA office,	75

which collects and compiles data and feeds it into DiMES on quarterly basis and submits it to CWSA HQ. (CWSA standard)	
DWST submits quarterly MOM reports to the regional CWSA office, which collects and compiles data and feeds it into DiMES on quarterly basis and submits it to CWSA HQ. The data is used for regional and national level planning.	100

Indicator: MMDA District Water and Sanitation Plan is incorporated into medium term development plans and budget of the assembly, which is used to guide implementation

Scoring

Options	Score
There is no District water and sanitation plan	0
There is one (or multiple) District water and sanitation plan(s). However, these were developed with little to no participation of the MMDA and DWST and are not used.	25
There is one (or multiple) District water and sanitation plan(s). These were developed by external consultants, with little or no input from the MMDA and DWST but is the basis for annual planning and implementation	50
There is a District Water and Sanitation Plans, developed by the DWST, or by a consultant with intensive participation of the DWST. The plan is the basis for annual planning and implementation and incorporated into MTDP but not in the budget of the Assembly.	75
There is a District Water and Sanitation, developed by the MMDA and DWST, or by a consultant with intensive participation of the MMDA and DWST. The plan incorporated into MTDP and budget of the assembly (CWSA standard)	100

Indicator: DWST monitors O&M of water facilities in terms of financial, technical and administrative performance (general CWSA, p 9), including periodic audits, and provides support where needed.

Scoring:

Options	Score
DWST does not monitor O&M of water facilities in terms of financial, technical and administrative performance.	0
DWST sometimes (on ad hoc basis) monitors O&M of water facilities in terms of financial, technical and administrative performance.	25
DWST monitors O&M of water facilities in terms of financial, technical and administrative performance, but does not (immediately) provide the direct support when needed.	50

DWST monitors O&M of water facilities in terms of financial, technical and administrative performance, and provides direct support where needed when challenges are identified.	75
DWST monitors O&M of water facilities in terms of financial, technical and administrative performance, including periodic audits, and provides direct support where needed(CWSA standard).	100

Indicator: By-laws for the WATSANs and WSDBs exist and are enforced effectively

Scoring:

Options	Score
Bye-laws do not exist	0
Bye-laws exist for either WSDBs or WATSANs, or bye-laws exist for both but are not enforced	50
Bye-laws exist for WATSANs and WSDBs and are enforced effectively (CWSA standard).	100

Hand pump specific indicator: MMDA assists the community in case of major repairs and borehole rehabilitation

Scoring:

Options	Score
MMDA has never assisted a community in case of major repairs and borehole rehabilitation	0
MMDA occasionally assists communities in case of major repairs and borehole rehabilitation (CWSA standard)	50
MMDA always assists communities in case of major repairs and borehole rehabilitation and has done so in the past	100

Indicator: NGOs and CSOs providing water facilities do so in coordination with the MMDA

Scoring:

Options	Score
None of the systems implemented by NGOs and CSOs have been implemented in coordination with the MMDA	0
Less than half of the systems implemented by NGOs and CSOs have	25

been implemented in coordination with the MMDA	
About half of the systems implemented by NGOs and CSOs have been implemented in coordination with the MMDA	50
More than half of the systems implemented by NGOs and CSOs have been implemented in coordination with the MMDA	75
All systems implemented by NGOs and CSOs have been implemented in coordination with the MMDA	100

About Triple-S

Triple-S (Sustainable Services at Scale) is an IRC-led learning initiative to improve water supply to the rural poor. Triple-S is hosted in Ghana by the Community Water and Sanitation Agency (CWSA).

For more information, see www.waterservicesthatlast.org