TREND
TRAINING RESEARCH AND NETWORKING FOR DEVELOPMENT

COMMUNITY OWNERSHIP AND MANAGEMENT – OPERATED BY WATER AND SANITATION DEVELOPMENT BOARDS

(*DA AND WSDB WITH HIRED PROFESSIONAL STAFF)*

The case of Asesewa and Asiakwa - Small Town Water Supply in the Eastern Region

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LIST OF ACRONYMS

CSOs	-	Civil Society Oganisations
CWSA	-	Community Water and Sanitation Agency
DA	-	District Assembly
DANIDA	-	Danish International Development Agency
DCD	-	District Coordinating Director
DCE	-	District Chief Executive
DWST	-	District Water and Sanitation Team
EADA	-	East Akim District Assembly
EVORAP	-	Eastern and Volta Regions Assistance Project
GTZ	-	Gesselschaft fur Technische Zusammentarbeit
GWCL	-	Ghana Water Company Limited
GWSC	-	Ghana Water and Sewerage Corporation
KfW	-	Kreditanstalt fur Wiederafbau
MWRWH	-	Ministry of Water Resources Works and Housing
NGO	-	Non-Governmental Organisation
O&M	-	Operation and Maintenance
PURC	-	Public Utilities Regulatory Commission
SM	-	System Manager
SV	-	Sanitation Volunteers
TO	-	Technical Operator
TPP	-	Tripartite Partnership
TREND	-	Training Research and Networking for Development
UMDA	-	Upper Manya District Assembly
WSDB	-	Water and Sanitation Development Board
WASH	-	Water, Sanitation and Hygiene
WHO	-	World Health Organisation
WRC	-	Water Resources Commission
UNDP	-	United Nations Development Programme

1. INTRODUCTION AND METHODOLOGY

1.1 Introduction

The Tripartite Partnership Project is a joint collaborative project between the Netherlands Water Partners, TREND lead implementer and some national actors and stakeholders in the water and sanitation sector in Ghana which started in January 2008. The African Water Facility (AWF) of the African Development Bank (AfDB) would provide support with infrastructure development of pilot projects that would be undertaken under the project. The project seeks to identify and promote innovative management models for the delivery of water, sanitation and hygiene (WASH) services to the urban poor in Ghana. It had been designed as a response to the current lack of capacity for dealing with the challenges of pro-poor urban water and sanitation services.
The overall goal of the project is ensuring a "Strengthened sector capacity for planning and delivery of pro-poor water and sanitation services." The specific objectives of the project are:

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

Within the framework of the project, various management models, both locally and globally are reviewed and the most innovative ways of ensuring sustained delivery of WASH services to the urban poor are identified. The best practices gleaned from various studies are applied in the design of various tools and guidelines for replication within the Ghanaian WASH sector. Knowledge management, advocacy and promotion of networking are key strategies for ensuring improved services delivery at the decentralised level and strengthened policy at the sectoral level.

As part of project activities to achieve the above objectives, a scoping of existing Management Model and a GIS mapping exercise were carried out between April and November, 2008. At a Learning Alliance meeting on 12 November 2008, the outcomes of the studies were presented and a number of case areas were identified, covering a wide range of issues across the four main ecological zones of Ghana.

1.2 Objectives and Scope of this Assignment

Bearing in mind the central theme of the TPP (innovative management models for services delivery to the urban poor), this case study presents Community Ownership and Management (COM) Model in small towns towns communities of Asiakwa and Asesewa in the Eastern Region, as part of a series of 9 cases conducted under the TPP Project on promising management models in the water and sanitation sector in Ghana.
The case study highlights on the following issues:

- A comprehensive picture of the WASH situation within the community
- An analysis of the management model and the process of introducing the model
- An assessment of the management model
- An assessment of 'next steps' in terms of knowledge and application at scale.

1.3 Approach and Methodology

The methodology adopted for the study included a desk study of existing related/relevant documents, a review of sector policy objectives and extensive field work in the study area. The fieldwork involved:

- Desk study of existing related/relevant documents
- Visits to the project areas
- Interaction and discussion with related stakeholders – Water and Sanitation Development Board (WSDB), operating staff, District Water and Sanitation Teams (DWSTs), community members, etc., thus ensuring a participatory approach.
- Inspection and analysis of recorded operational data

Interaction with community-level stakeholders involved discussions on management of the facility, benefits derived and constraints or problems faced, possibilities for improvement, and suggestions for improvement.

2. OVERVIEW OF THE CASE STUDY AREA

Asesewa and Asiakwa communities are 2 old traditional communities located in Upper Manya District and East Akim District respectively in the Eastern Region of Ghana. Both communities are homogeneous, and highly dominated by their respective indigeneous tribes - Krobo and Akan.

Whilst Asesewa is now a district capital (Upper Manya District), and is growing in size and population with the influx of more civil servants, businesses, and new housing units, the progress of Asiakwa has been affected by the diversion of the Accra-Kumasi trunk road which hitherto passed through the town and made it a little more vibrant. It is feared that present and future developments in Asiakwa will concentrate at the junction of the Accra-Kumasi road, about 2 kilometres away, and this will further reduce the status of the community.

In terms of economy and commerce, Asesewa is a well-known market centre with vigorous weekly commercial activities. Asiakwa, on the other hand, is a small farming community of mostly cocoa (cash crop), plantain, cassava and maize (food crop) farmers.

2.1 Population & Demography

Asiakwa has a far lower population than Asesewa. As at 2008, the population of Asiakwa (3,500 in Year 2000) was estimated at about 5,040, whilst that of Asesewa (9,000 in Year 2000) was about 15,600 (*WSDB local household survey, 2008*).

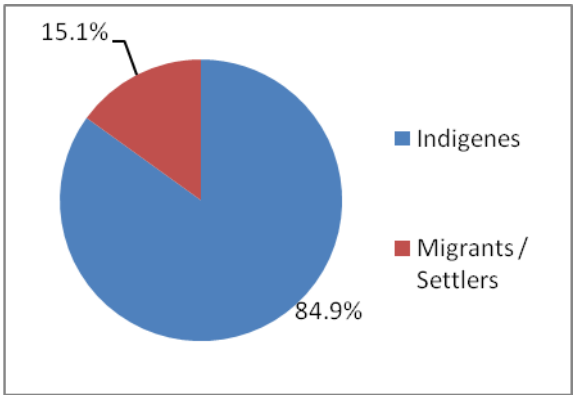

Figure 1- Indigene Migrant Ratio, Asesewa

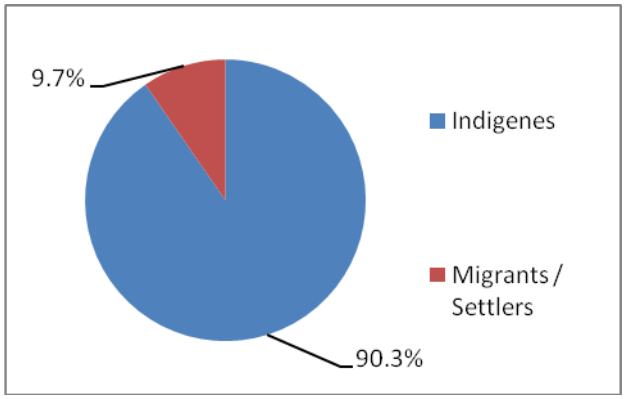

Figure 2 - Indignene/Migrant Ratio, Asiakwa

Dependency ratio (number of economically active persosns – age 18 – 55 years supporting the economically inactive population –age below 18 years and above 55 years including the unemployed) is high, particularly in Asiakwa where the population's age-sex distribution has significantly been affected by rural-urban migration, especially with its present demise, and the dependency ratio continues to rise. However, that of Asesewa seems to be lowering gradually.

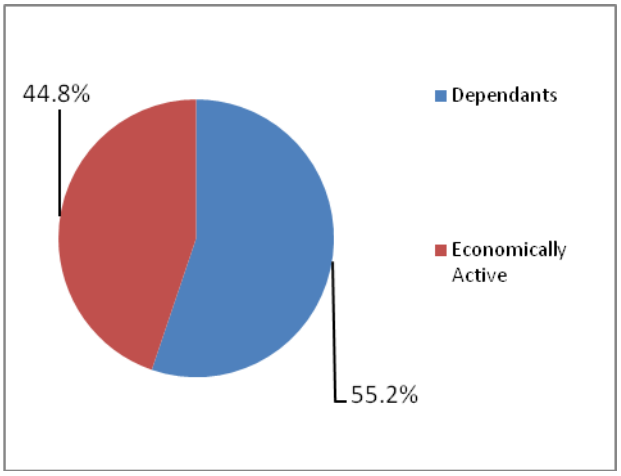

Figure 3 - Dependency Ratio, Asiakwa

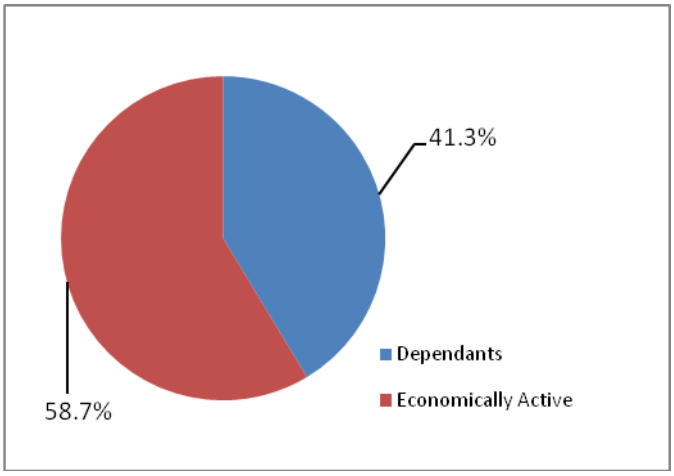

Figure 4 - Dependency Ratio, Asesewa

2.2 Socio-economic Characteristics

Farming of cash and food crops is the commonest source of livelihood for Asiakwa residents. Whilst the cash crops (cocoa and oil palm) bring substantial seasonal incomes, the cultivation of food crops such as plantain, cassava, cocoyam and fruits contribute to daily incomes in Asiakwa. Minor sources of income include petty trading, self-employed artisans, and nomadic trading.

Asesewa has been a brisk market centre for a long time. Traders from as far as Nkawkaw, Accra, Koforidua and Begoro patronize the market on weekly basis. However, the main source of livelihood is food crop (maize, cassava, plantain, etc) farming and this contributes enormously to seasonal incomes. The numerous farming communities surrounding Asesewa contribute to its highly commercial status. Asesewa is also the first point of call for the large fishing industry along the Afram Lake. Other sources of livelihood in Asesewa are crafts, and civil service employment – education, banking and health.

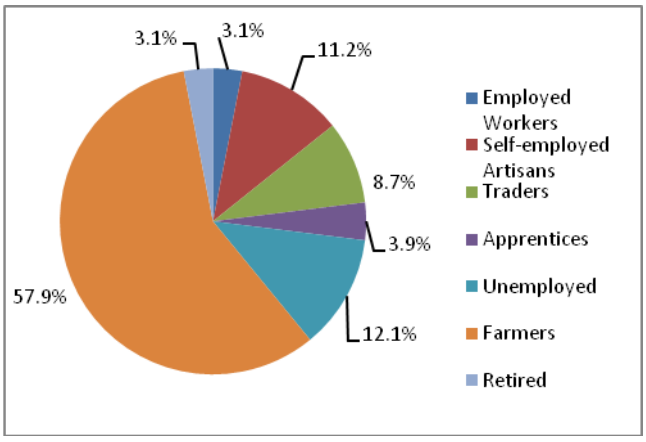

Figure 5 - Sources of Livelihood, Asiakwa

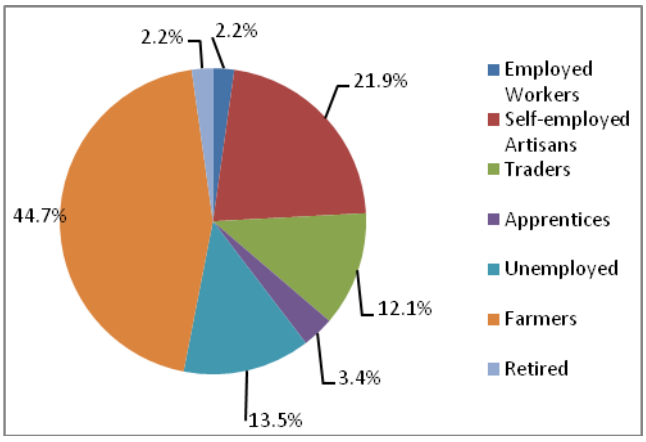

Figure 6 - Sources of Livelihood, Asesewa

Table 1 – Summary of Similarities and Differences - Asiakwa and Asesewa.

S/N	Characteristic	Asiakwa	Asesewa
1	Population (Estimated 2008)	Low; About 5,000	High, about 15,000
2	Population Growth	Slow rate of growth; possible emigration due to road diversion	Rapid growth; new residential areas developing; possible increase due to raised status as district capital
3	Demography	Skewed in favour of the old and young; high dependency ratio; About 90% Akan-dominated indigenes	Skewed in favour of the middle bracket; average dependency ratio; About 85% Krobo-dominated indigenes.
4	Livelihood activities	Cash and food crop farming; low commercial activities; few artisanal jobs, mostly self-employed; palm oil extraction	Mainly trading and business; moderate farming activity; artisanal, employed workers; self-employed
5	Status	Not a district or zonal capital; no second cycle institution; bank exists, police station exists; homogeneous; low social mix; small town community; no major health facility	District capital of newly created Upper Manya District; has a second cycle institution; banks (commercial and rural; police station, slaugther house; homogeneous; low social mix; semi-urban community; Asesewa Government Hospital; Asesewa Area Office of Plan International
6	Economy	Low economic activity; no market; daily transaction limited to domestic items. Propensity to make daily incomes low; cost of living is low; low poverty index	Vigorous commercial and market centre; community surrounded by many farming and fishing communities; possibility of making daily incomes high; low poverty index; low cost of living
7	Administration	Traditional, but assisted by elected assembly-members; not a paramountcy	Traditional and political (District administration); not a paramountcy; assisted by elected assembly members
8	WASH	DA-operated and managed pipe system existed before intervention but collapsed; rehabilitated under EVORAP. Piped water supply available; mechanized borehole; high iron content in water treated/removed through Iron Removal Plant facility; improved hygiene practice but poor waste water disposal; low household latrine coverage because of nucleated nature of housing units	Only 2No. boreholes with handpump existed before EVORAP intervention; Piped water supply available; mechanized borehole; water quality acceptable without any further treatment; poor sanitation because of market; poor refuse disposal, low household latrine coverage because of nucleated nature of housing units; poor artificial drainage.

Generally, potentials for employment are low, especially in Asiakwa. Similarly, incomes from self-employment are limited. Sale of food stuff is patronized by traders and market women from nearby Accra, Koforidua, Nkawkaw, etc. who buy them in bulk for resale. It has been observed that homogeneous communities normally face the problem of capital in-flow since trade amongst residents is low because they all produce the same items.

Because of the slow pace of physical development, artisans such as masons, carpenters, and also seamstresses make little income, and some of them have resorted to farming as either main, dependable, or alternative sources of livelihood.

2.3 Physical Features

The physical characteristics of the communities are considered here because of their effect on WASH activities and dynamics. Asiakwa lies in the deep forest belt of Ghana where rainfall is experience in at least 8 months of the year. Nearby streams are therefore perennial and available for domestic use whilst rain water is also harvested in small containers for instant use. Generally, patronage of the installed piped water system by residents reduces at the peak of the rainy season as rain harvesting becomes a 'free' alternative. Again, potentials for ground water are high and a few houses own wells. The high volume of rainfall also causes high runoff, erosion and contributes to poor waste-water disposal.

Asesewa has less water resource potential than Asiakwa. It lies on the fringes of the rain belt and the forest is not as luxirous because the rainy season is shorter (about 5 months). It is perched on the slopes of the Krobo mountains with undulating topography which does not support high water table groundwater storage. Nearby streams are seasonal and polluted. The undulating nature of the land encourages swift runoff, poor drainage and poor waste-water disposal.

2.4 Outline of Strategies for improvements in WASH situation in Ghana

2.4.1 The International Perspective

Nevertheless, Asesewa and Asiakwa were just two of many communities in Ghana (and many other developing countries) facing this water problem. The international declaration of 1991 – 2000 as the World Water Decade in which nations were tasked to improve rural access to potable water to at least 50% culminated in the Kokrobite Conference of 1991. This conference outlined strategies, policies and methodologies for meeting this international demand. Plan International's intervention in Asesewa before the current system was a direct response to this cause.

2.4.2 The National Action

The Government of Ghana, recognizing its role in meeting this international requirement, enacted a legislative instrument for the establishment of the Community Water and Sanitation Agency (CWSA). This, no doubt, has greatly enhanced the improvement of rural and small town WASH situation in many communities in Ghana.

2.4.3 Asesewa and Asiakwa Situation

The Asesewa and Asiakwa WASH situation looked hopeless because the only public water service provider at that time, the GWCL, had no plans for the community. The rural water division of the GWCL which dealt more with point sources (handpumps) also had no immediate plans (perhaps for lack of funds) to improve the critical water situation. The broken down handpumps were never rehabilitated.

2.4.4 How German Government Came In

In response to appeals and demands made by the Government of Ghana, the Government of the Federal Republic of Germany entered into a bi-lateral agreement with the Government of Ghana, through GTZ to fund the rehabilitation and improvement of a number of GWCL transferred piped water schemes to district assemblies and the respective communities in the Eastern and Volta Regions, under the project name Eastern and Volta Regions Assistance Project (EVORAP). An earlier inventory undertaken of such old schemes culminated in the selection of 37 broken down or weak GWCL-transferred piped water schemes. Asiakwa and Asesewa (considered because of their sizes) were beneficiaries of this project. Funding was made available by KfW.

2.5 Description of the Present Interventions in the Case Study area

Asiakwa and Asesewa each has a completely rehabilitated small town water supply facilities constructted with assistance from the Government of the Federal Republic of Germany and funded by KfW. It was implemented by GTZ. The interventions were implemented under the EVORAP/GTZ Project (1999 – 2006). The systems have the following components:

Asesewa

- GTZ-facilitated KfW-funded intervention
- 1No. mechanized borehole powered from the National Electricity Grid
- Elevated tank of capacity 120m^3 with a distribution bulk meter
- About 7kms of distribution network using uPVC pipes
- A sani-kit facility mounted on top of the reservoir
- 16No public standpipes, each with 2 taps
- About 120 private subscribers
- Tariff of GH 0.025 per 18-litre bucket
- Gender-sensitive WSDB
- Direct management model by WSDB. No WATSAN Committee
- Shared responsibilities of WSDB in place
- O&M staff made up of Accounts Officer, Revenue Collector, Technical Operators, Stgandpipe Attendants & Sanitation Volunteers
- No System Manager
- Hygiene and sanitation promotion undertaken by full-time employed Sanitation Volunteers

Asiakwa

- A mechanized borehole powered from the National Electricity Grid
- Elevated tank of capacity 120m^3 with a distribution bulk meter
- About 5.8kms of distribution network using uPVC pipe
- A sani-kit facility mounted on top of the reservoir
- An Iron Removal Plant to reduce the content of iron
- 12No standpipes
- About 90 private subscribers
- Tariff of GH 0.02 per 18-litre bucket
- Gender-sensitive WSDB

- Direct management model by WSDB. No WATSAN Committee
- Shared responsibilities of WSDB in place
- O&M staff made up of Accounts Officer, Revenue Collector, Technical Operators, Stgandpipe Attendants & Sanitation Volunteers
- No System Manager
- Hygiene and sanitation promotion undertaken by full-time employed Sanitation Volunteers

3. DESCRIPTION OF THE INITIAL WASH CHALLENGE

3.1 Water Supply

Asesewa

Asesewa had four boreholes fitted with handpumps prior to the present intervention. They were provided by Plan International, handed over to the District Assembly (DA) and the community, and managed by the various WATSAN Committees. User fees were collected but transparency and accountability were poor or non-existent, which were a common occurrence with point sources. The number was considered inadequate and the facilities were seriously over-stretched, especially during market days. The pressure on the handpumps caused frequent breakdowns. The frequent breakdown and money spent on repairs aggravated the inadequate water supply situation and this brought great inconveniences to residents of the community. Moreover, the distribution of the facilities was poor as they were concentrated in one area. Another phenomenon was the bagging of the water by residents for sale on market days. These put more pressure on the facility, and deprived the poor of having easy access to it.

Insanitary alternative sources in Asesewa included few open hand-dug wells privately owned, seasonal stream water, and then rainwater storage in barrels. These were only available mostly in the rainy season. The dry seasons were periods many residents dreaded, especially the second cycle institution and civil servants.

Asiakwa

Asiakwa had an inadequate piped water supply facility transferred to the East Akim District Assembly by the Ghana Water Company Ltd (GWCL) around 1995. It was a diesel-powered mechanized hand-dug well. The water was pumped into an elevated galvanized tank, distributed through asbestos cement pipes and fetched at 6 public standpipes. There were a few private connections. The facility was managed directly by the East Akim Distrtict Assembly through a Pump Caretaker. Operation, maintenance and management were considered to be poor with frequent bursts, shortages of diesel and lubricants at odd times, and machine failure, etc.

No tariff existed. Community members were rather levied at the end of the month but collection was poor and payments were also erratic. Community residents bitterly complained of poor and unreliable service. The little revenue generated was expected to be submitted to the District Assembly as part of its internally-generated funds.

Many residents depended on the nearby streams as a dependable source of water supply, even though these were considered unwholesome. Residents used the water mostly for washing, bathing and cooking! Harvested rain water was used for drinking purposes. Thus, in Asiakwa, the presence of a potable source was not a strongly felt need. However, with the constructioin of modern houses with plumbing facilities (Water Closets, showers, kitchen sinks, etc), a growing number of residents began to see the need for a piped water source.

3.2 Hygiene & Sanitation

Asesewa

Sanitation and environmental hygiene practices were poor. There was little promotion and monitoring of practices. The presence of the market contributed enormously to the filth in the community. Refuse collection and disposal was poor. Heaps of rubbish remained uncleared for years, and the smell from this was a serious inconvenience to resiedents and visitors to the market. Waste water stagnated in drains and behind bath-houses and some formed algae during the rainy season. The slaughter house was a poor sight. Promotion of proper hygiene and sanitation practices was low because of the large influx of people to the market.

There were two public Ventilated Improved Pit (VIP) latrines also provided by Plan International for the community. This was also considered grossly inadequate. The facilities were handed over to the DA who in turn entered into a management conteract with a Private Contractor to manage the facility for and on behalf of the DA. This has ensured efficient management, operation and proper maintenance of the facility. A user fee is charged and operated on pay-as-you-use method. This has proved quite efficient. Even though Plan International assisted the Asesewa area in the provision of household latrines through subsidies, the undulating nature of the topography coupled with the nucleated nature of houses did not encourage the construction of many household latrines. However, many households in favourable locations took advantage of this opportunity. There is a Government Hospital at Asesewa that takes care of the health needs of people in and around the community.

Generally, the hygiene and sanitation situation in pre-intervention period in Asesewa was greatly improved with the presence of Plan International, even though there still remained urgent interventions to improve the situation.

Asiakwa

There were 2 VIP latrines constructed for the community by the District Assembly. These were managed by the Unit Committees on behalf of the DA. User-fees were collected. The sanitation facilities were properly maintained and kept in good conditions until they became full. Occasionally, a cesspit emptier was sent from the DA to de-sludge the pit. The failure to get the emptier to de-sludge caused the abandonment of one of the facilities.

Environmental hygiene practices were satisfactory in Asiakwa. The community was cleaned, rubbish cleared regularly, and gutters and drains de-silted through communal labour initiated, organized and supervised by the Assembly-member and Unit Committee members. Places were properly identified for disposal of refuse.

The nearest health facility is the Kibi Government Hospital, which is about 10 km away.

The challenge that faced the DA therefore, was how to get a donor to intervene for sustainable improvement.

4. THE CURRENT MANAGEMENT MODEL

Asesewa and Asiakwa small towns water supply systems operate the Direct Management Model. It is not WATSAN based. Contrary to the general approach, EVORAP/GTZ supported communities do not have WATSAN Committees as part of their implementation plan. WSDBs members are direct representatives of different interest groups in the community.

The model recognizes the management of the WASH activities under the direct control of the WSDB. In this case, the WSDB is not only taking decisions and making certain proposals to the DA for approval, it also acts as Manager of the system. The WSDB thus:

a. directly employs, pays, supervises, monitors and fires its staff;
b. handles its finances and are signatories to the WSDB bank account;
c. prepares and presents its monthly, quarterly and annual reports to the DA
d. sets and proposes tariffs to the DA for approval
e. proposes annual budgets to DA for approval
f. approves and undertakes private connections
g. contracts Maintenance Service personnel to undertake major maintenance works
h. promotes hygiene education by employing Sanitation Workers

4.1 The Development of the Management Model

EVORAP/GTZ sponsored the provision of management support by the RODECO, the software consultant. Project staff developed and evolved a management model with viability and sustainability as the key words. The critical activity in the model was Monitoring. The model has this monitoring scale:

1. WSDB over its operating staff
2. Community Leaders over WSDB/Staff
3. DA/DWST over WSDB/Community
4. CWSA (Eastern Regoinal Office) over WSDB through DA/DWST

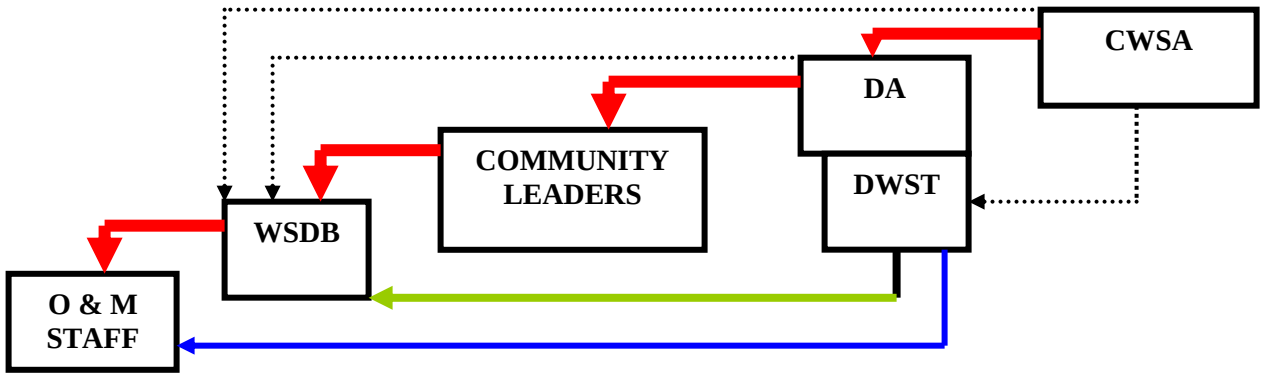

Figure 7: Levels of Monitoring in the EVORAP/GTZ management model

Effective monitoring involves:

a) Paying frequent/regular visits to facilities and WSDB office
b) Identifying/Drawing attention to operational problems

c) Improving capacities through training and refresher
d) Offering advice to or motivating staff
e) Holding meetings/frequent inter-action
f) Submitting Reports regularly
g) Monitoring to identify operational problems and assist to improve on management performance.

4.2 EVORAP/GTZ WASH Implementation Strategies

The EVORAP/GTZ project was initially not a CWSA-facilitated intervention. The project, which was considered under Urban Water Supply, commenced with the GWCL facilitating on behalf of the Ghana Government. It was designed and fully financed, facilitated and implemented by the private sector with very little Government-related agency input both on the Ghana of Government side, and that of the Government of the Federal Republic of Germany. The project was implemented in three phases. In the first phase of the implementation, the GWCL represented the Government of Ghana as a Regulator/Facilitator and implementing agency whilst GTZ represented the German Government. In the 2nd and final phase, CWSA took over from GWCL, and the entire project came under the ambit of CWSA's Small Towns Water Supply.

Because of the free-hand given to the private sector to operate and implement, the project came out with a number of novelty strategies.

1. It was the first major donor intervention in small towns water supply in Ghana
2. CWSA as at the time of the implementation of the intervention had not finalized its Small Town Water Supply Design, Construction and Operation & Management Guidelines.
3. It was a cooperation agreement which involved the active participation of international private sector
4. The intervention included a component of management support and capacity building of WSDBs
5. It was considered a novelty for the innovation of models that would enhance the institution of an effective and sustainable small town water supply management

The innovations were that:

a) Communities should be fully involved in project planning and implementation at all stages
b) Unlike existing GWCL water systems, the water systems provided under the EVORAP/GTZ intervention should be managed by beneficiary communities and on behalf of their respective District Assemblies
c) The facilities were the property of the District Assemblies and not the communities
d) Hygiene and sanitation would be vigorously promoted through education to yield behavioural change; no sanitation facilities would be provided
e) The WSDB should be the central and pivotal organization to manage the system
f) The systems should be managed on a full cost-recovery basis
g) Strong legal and institutional frameworks should be instituted as a way of ensuring sustainability
h) Water systems should be seen to be managed in a viable and sustainable manner
i) There should be strong management support provided by the donor to ensure the strict adherence to laid down procedures and guidelines.

j) Gender issues should be key in the implementation strategy
k) Efficient and effective management models should be put in place

However, pro-poor considerations were not a major issue during design and implementation.

4.3 Key Actors of the EVORAP/GTZ Intervention

The following were the Key Actors in the project's palnning and implementation:

a) The Donor and Employer's representative - GTZ
b) The financing entity – KfW (Germany)
c) The Technical Consultant – Hydroplan GmbH (Germany) in joint venture with FOSAT(Ghana)
d) The Software/Management Support Consultant – Rodeco (Germany)
e) The Contractors –
   i. Top International Engineering (China), for Volta Region communities
   ii. Geomechanik GmbH (Germany) in joint venture with Kaddacon Ltd (Ghana) for Eastern Region communities
f) The Beneficiary District Assemblies and their Water and Sanitation Teams (DWSTs)
g) The Beneficiary Communities and their Water & Sanitation Development Boards
h) The Provider's representative –
   i. GWCL in Phase 1, and
   ii. National CWSA (later on, the Regional CWSA) in Phase 2 and final phase

Table 2 – Summary of Actors, Roles and Activities Undertaken

S/N	Actor	Role	Activity Undertaken
	Communities 1. WSDB, Asesewa 2. WSDB, Asiakwa	• Beneficiary • User • Trustee	• Applied for intervention (improved facility) from GEMA • Formation and inauguration of WATSAN Committees/WSDBs • mobilization of community to raise 5% contribution • Promotes Hygiene, sanitation and environmental issues • Manages, Operates and Maintains WASH facilities • Patronizes WASH facilities
	District Assemblies 1. EADA/DWST 2. UMDA/DWST	• Legal Owner/ • Provider • Lease Holder • Monitor • Auditor	• Transferred management of facility to Community • Monitored the Formation and training of WSDBs • Assisted communities in paying 5% contribution • Participated in identificatin, selection and establishment of management model for operation and maintenance • Monitors management, operation and maintenance of WASH
	Government Agencies 1. Regional GWCL 2. National CWSA 3. Regional CWSA	• Regulator • Monitor • Moderator	• Monitored the formation and training of WSDB • Served as link between private sector and Government of Ghana
	Collaboration 1. GTZ (for FRG) 2. KfW 3. EADA 4. UMDA & 5. Communities	• Donor/ • Financier • Cost-sharing	• Agreed to fund intervention, and transferred funds to project accounts
	Private Sector • Hydroplan GmbH /FOSAT • Rodeco GmbH	• Implementer	• Mobilized each communities to form WSDBs • Trained WSDB • Developed legal andn institutional framework • Undertook awareness creation, sensitization and mobilization

	• Top International Co. • Geomechanik /Kaddacon		of community to raise 5% contribution • Carrying out of feasibility studies, preliminary and detail design, tendering, construction, and construction supervision by private sector – Consultants • Development of (FMP), drafting of Constitution/Bye Laws • Trained SVs and WSDBs in hygiene and sanitation promotion • Designed, tendered & supervised the construction facilities • Constructed facilities

Sequence of Activities

The project actors were tasked with the responsibility of:

1. Instituting the necessary legal and institutional framework – Rodeco GmbH
2. Forming and training WSDBs to mobilize their communities to participate in the project (and later DWSTs) – Rodeco GmbH
3. Mobilizing the community and District Assembly to raise funds towards payment of capital costs – Rodeco GmbH
4. Carrying out detailed design, tendering, and construction supervision of the 37 small town water supplies in the Volta and Eastern Regions, - Hydroplan/FOSAT
5. Constructing the facilities –
    a. Top International Engineering for Volta Region, and
    b. Geomechanik GmbH/Kaddacon Ltd (Ghana) for Eastern Region
6. Builidng the capacities of, and supporting WSDBs in management and operation & maintenance – Rodeco GmbH
7. Managing the facility after construction – WSDB of each community

The start of the process up to the time where physical facilities were installed and handed over spanned a 4-year period. A two-year management support for each water system was part of the project implementation. The project started from 2000 and ended in 2006. Implementation progressed according to plan. This was made possible because:

a. There were always adequate logistics and funds to support implementation
b. Project-employed staff undertook all forms of funds mobilization
c. District Assemblies committed themselves to payment of their contribution through the Administrator of District Assemblies Common Fund (DACF)

4.4 Introduction of the Model in the Study Area

Project staff identified and introduced three different management models from which the community, WSDB and the DA had to make a choice

The merits and demerits of each model were introduced and explained to stakeholders during various workshops. They then discussed the models among themselves and made their choice. Merits and de-merits of each model are summarized in Annex 1 below. The model selected was documented and signed by the community, the WSDB and the District Assembly. The WSDB and other stakeholders were then trained to use the model.

Both communities opted for the Direct Management Model. This model thrives on a very strong District Assembly and CWSA support to the WSDB. During project implementation, the management support was provided by EVORAP/GTZ staff on behalf of the DA and CWSA. Management support activities included:

1) institution and provision of formatted books for the recording of operational data
2) Development of computer-aided software to input operational data
3) Institution of monthly meeting between WSDB and DA
4) Regular visits by DWSTs and Project Staff to WSDB for effective monitoring and strengthening
5) Intensive training and capacity building for WSDB members and staff by Project Staff.

The management support ensured that:

1) Guidelines are strictly adhered to
2) Operational data are correctly recorded in approved books
3) Revenue are properly collected and deposited into approved banks
4) Special bank accounts have been opened for future replacements and hygiene promotion
5) Reports are prepared and submitted on monthly and quarterly basis
6) Regular meetings are held by WSDB and with community leaders.
7) Annual plans and annual budgets are prepared and submitted to the DA for approval
8) Staff are properly recruited, trained and monitored.

4.4.1 Strengths of the Model

The Direct Management Model (with initial EVORAP/GTZ support) ensures:

- Periodic knowledge of the management of the system by the community through regular meetings
- Sense of ownership on the part of the ommunity
- Creation of employment in the community
- Quick and prompt attention given to faults, repairs and maintenance
- Close supervision and monitoring of O&M staff by WSDB Unit heads
- Viable and sustainable management of systems
- Community-led hygiene and sanitation promotion through the Sanitation Volunteers
- Regular presentation of operational data to community and DA
- Generally low and socially-acceptable tariffs are set – pro-poor focus

These strengths were built upon and strengthened through constant monitoring by project staff to ensure they yield efficient results. The two communities have shown these through the effective handling of their systems as shown in their operational records.

4.4.2 Weakness of the Model

The model has these inherent weaknesses:

- Vulnerability of the WSDB; they had little or no legal status to operate; however this has now been taken care of by the new Ministry of Local Government and Rural Development (MLGRD) Bye Laws
- It is too dependent on the WSDB and it will fail with a weak Board
- The presence of the project staff reduced the role of the DWST and CWSA
- Propensity for conflicting role of WSDB – decision-maker and manager
- Efficiency of management is strongly tired to cohesion and strength of WSDB
- Possiblity of nepotism and favouritism in selecting or recruiting staff
- Difficulty in maintaining discipline among staff because of family or local ties
- Difficulty in enforcing laws because of certain powerful elements in community – traditional leaders, politicians, rich business men, etc.
- Socially acceptable tariffs may not recover increasing costs
- Difficulty in retrieving unpaid water bills
- Threat of dissolution from DA or community leaders.
- Absence of a System Manager to coordinate O&M staff on behalf of WSDB
- Some level of interference from the DA

It is important to mention that these inherent weaknesses are generic and can be overcomed through continuous training and capacity building for respective stakeholders to avoid or minimize impact on the operations of the water system. The more specific weaknesses of the systems have been discussed in the last section of this report.

4.5 Institutional arrangements under the Model

To ensure that the model is operated to yield the desired results, the roles and responsibilities of different actors were identified. It was agreed that the role of each player was key to the success of O & M of the system.

The Actors in this management model are:

1. The WSDB
2. The O&M Staff
3. Standpipe Vendors
4. Sanitation Volunteers (for hygiene promotion)
5. The East Akim and Upper Manya District Assemblies
6. The District Water and Sanitation Teams (DWSTs)
7. EVORAP/GTZ project staff
8. Community Residents/Water Users

Figure 8 below explains the relationships among actors.

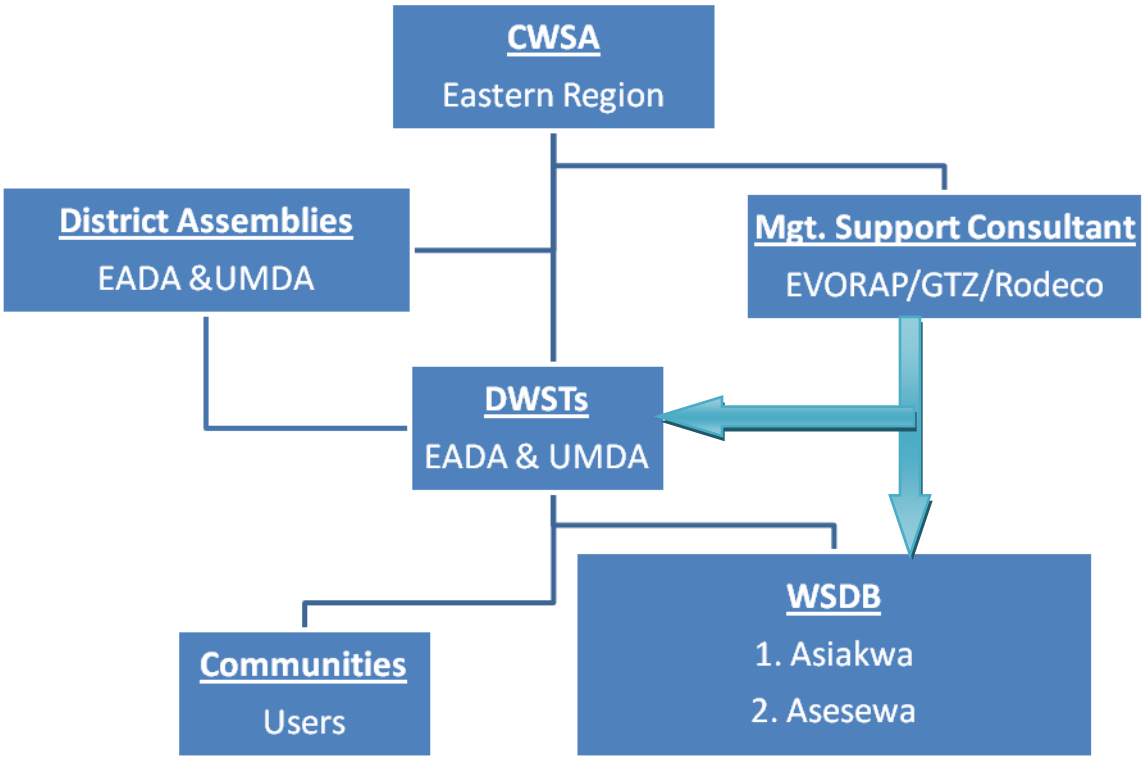

Figure 8 - Organogram of the EVORAP/GTZ Management Model in the Study Area

4.6 Tariff Setting & Cost Recovery

A major implementation policy of EVORAP/GTZ-facilitated water systems is the strong enforcement of payment of user-fees. This is to ensure that adequate income is generated to cover:

a. Payment of operational costs (electricity, chemicals, etc.)
b. Minor maintenance of the facility
c. The purchase of spare parts for major maintenance/replacement of the facility
d. Payment of remuneration of operating staff (in piped water systems)
e. Office running and Administrative costs
f. Cost of capacity-building and training of WATSAN Committee/WSDB, and staff
g. Hygiene and sanitation promotion
h. Future replacement costs

4.6.1 Considerations in Tariff Setting (Level of User-fee)

The level of user-fee is determined by a combination of considerations or parameters contained in guidelines set by the CWSA. The EVORAP/GTZ supported management model emphasized on funds for future replacement and expansion, and factored this in the setting of tariffs. In addition, the management model also placed emphasis on adequate remuneration of staff and payment of WSDB allowances which self as motivation for the people. These are clear deviations from CWSA

tariff guidelines which consider staff and WSDB inputs as voluntary or community service. Other considerations similar to CWSA are:

1. compliance with its tariff setting guidelines
2. Cost-recovery tariffs which will cover the items listed above
3. Social acceptability (approached from community sensitization and interaction)

Different containers are used to collect water at public fetching points, including gallons of different sizes, basins or pans of different sizes, buckets of different sizes and Barrels.

Like in most typical CWSA-facilitated systems, the unit of tariff in the study communities is the 18-litre bucket, commonly called the *34-bucket*. The 34-bucket is used to determine the price to pay for any other water collecting container and all other tariffs, mostly private subscriptions. The management model (just as the CWSA guidelines) allows a maximum of 10% waste or losses at public fetching points. The model sets tariff payable per 34-bucket using either:

1. Annual Cost of Expenditure, or
2. Annual Cost of Production

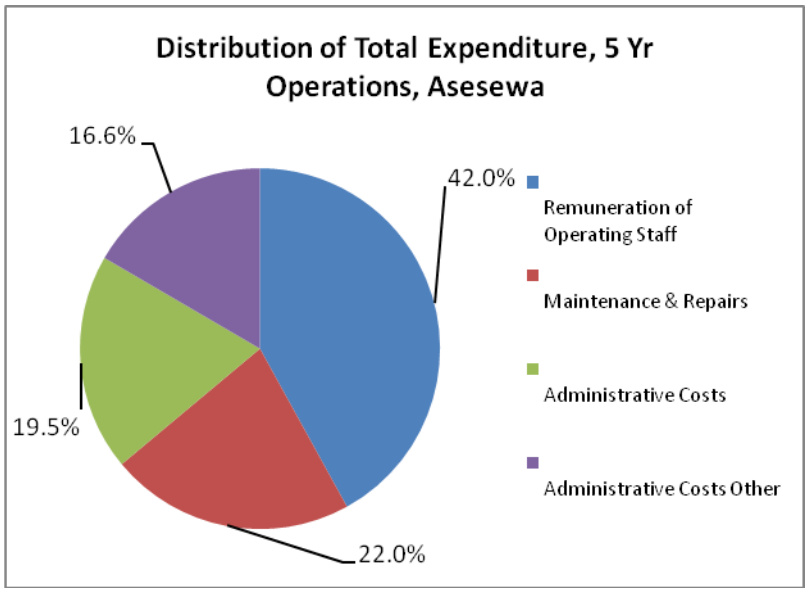

Figure 9: Total Operation Expenditure Distribution

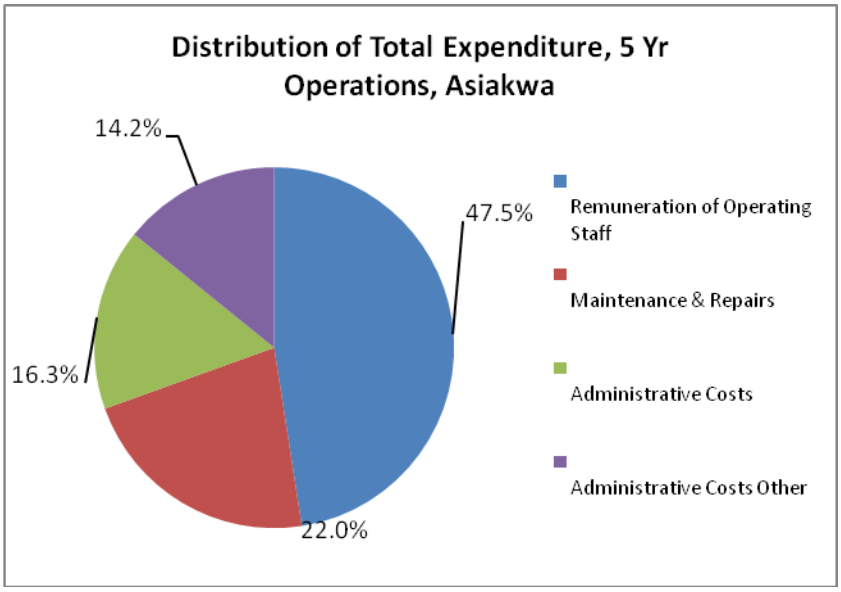

Figure 10: Total Operation Expenditure Distribution

4.6.2 Tariff Procedures & Administration

After the level of tariff is determined, the WSDB is expected to go through the following procedure:

1. WSDB discusses the level of user-fee proposed with the community and its leaders. Here , the WSDB has to justify the reason for the upward review (increase) in tariff, if any;
2. The DWST should normally facilitate the meeting that discusses the proposed tariff with the community
3. The agreement reached at the end of this meeting is documented (usually signed by representatives of both community and the WSDB) and forwarded to the District Assembly for approval by completing the document
4. The DA, upon approval, gazettes the tariff to become lawful for implementation in the community
5. Community leaders are informed of the approval of the tariff by the DA through the DWST.

EVORAP/GTZ water systems have scarcely made any upward adjustment in tariffs since operations commenced. This is because cost recovery tarrifs were set for a three-year span. It was argued that too frequent tariff adjustments would not be a welcome experience to the WSDB, considering the procedures it has to go through and its vulnerability.

Presently, Asesewa charges GH¢0.05 for two 34-buckets or GH¢1.38/m^3 (US$0.96/ m^3)[1], whilst Asiakwa charges GH¢0.02 per 18-litre bucket or GH¢1.11(US$0.77/ m^3), and this has operated since 2004. The WSDBs' efforts and agitations for upward adjustments have not been approved by both CWSA and the DAs. Given the present tariff levels, should the remuneration of staff and allowances be adjusted, operational costs recovery cannot be achieved and will therefore, call for immediate upward adjustment in the tariffs which would come with affordability difficulties to the poor.

[1] US$1 to GH 1.435, Interbank Exchange Rate (buying) on 24th August 2009

4.6.3 Strengths of the Tariff Administration

The present tariff administration in the case area has the following advantages:

a. It is sustainability focused, but indirectly pro-poor (assured availability of service)
b. It allows for community participation, community input, and social acceptability
c. It eliminates imposition of tariff
d. It factors in staff-motivated remunerations
e. It adequately prepares the community's mind before implementation
f. It allows for smooth implementation
g. It serves as a form of accountability on the part of WSDB as community members may ask questions about the previous accounts during meeting to discuss the tariff.

4.6.4 Weakness of the Tariff Administration

a. Resistance from some or majority of community members
b. Socially accepted user-fee may not recover costs of operations
c. WSDBs looked vulnerable because they initially lacked legal status
d. The activity may be politicized by persons who have strong opposition to WSDB membership
e. The DA may, for political reasons, not accept an upward adjustment, even when justified
f. Frequent upward adjustments may lead to social disaffection and poor patronage

4.6.5 Tariff Collection Methods

There are two major methods of collecting user-fees in CWSA-facilitated communities. These are:

a. The Pay-As-You Fetch (PAYF) method at public fetching points
b. Monthly billing and payment by private subscribers

The two study (and all EVORAP/GTZ supported project communities) practise the PAYF method of collecting tariffs at public fetching points. This method ensures that users pay the tariff to the Vendor before their containers are filled. This means that any time a consumer wants to fetch water, he/she should have money on him/her. Credit buying is not allowed. The Vendor is paid a commission of 20% of sales (a Guideline approved by CWSA). Deficits are deducted from the commission. The monthly billing system is used for private subscribers.

4.6.6 Pro-poor considerations in tariff administration

Despite it effectiveness, the PAYF method of collecting tariffs has come under strong criticism from pro-poor advocates who argue that many poor residents find it difficult getting money everytime to make payments before they collect water. They contend that incomes in many rural communities and small towns are made only at the end of the season or year, and that the strict enforcement of the PAYF method would force the poor to resort to unwholesome sources of water supply which defeats the objective of the WASH intervention.

This school of thought suggests the alternative method, which is the montly, seasonal or annual levying of users. They consider this as pro-poor since residents or users pay the levy after harvest

time, usually at the end of the year. However, this method too is fraught with problems. It is difficult to collect the levy. Its accountability is poor, and many residents do not pay.

Again, since it is difficulty to track quantities fetched by consumers, it tends to charge flat rate. It is however, argued that since the volume of water collected by individual persons or households may not be the same, it is rather cheating to make every body pay the same tariff. Some even bag the water for sale to the same poor residents who, it is claimed, find it difficult to adopt the PAYF method. Furthermore, it has the problem of generating funds to meet routine operation cost. There is difficulty in determining cost recovery tariffs. The adoption of this method definitely has negative implications for sustainability as well as the plight of the poor.

The Pay-As-You-Fetch method has proven efficient and effective in the case study area and has led to an excellent Revenue Collection Efficiency at standpipes as depicted in the graphs below. Both communities have Revenue Collection Efficiencies above the CWSA approved limit of 90% (Asesewa has it above 95%).

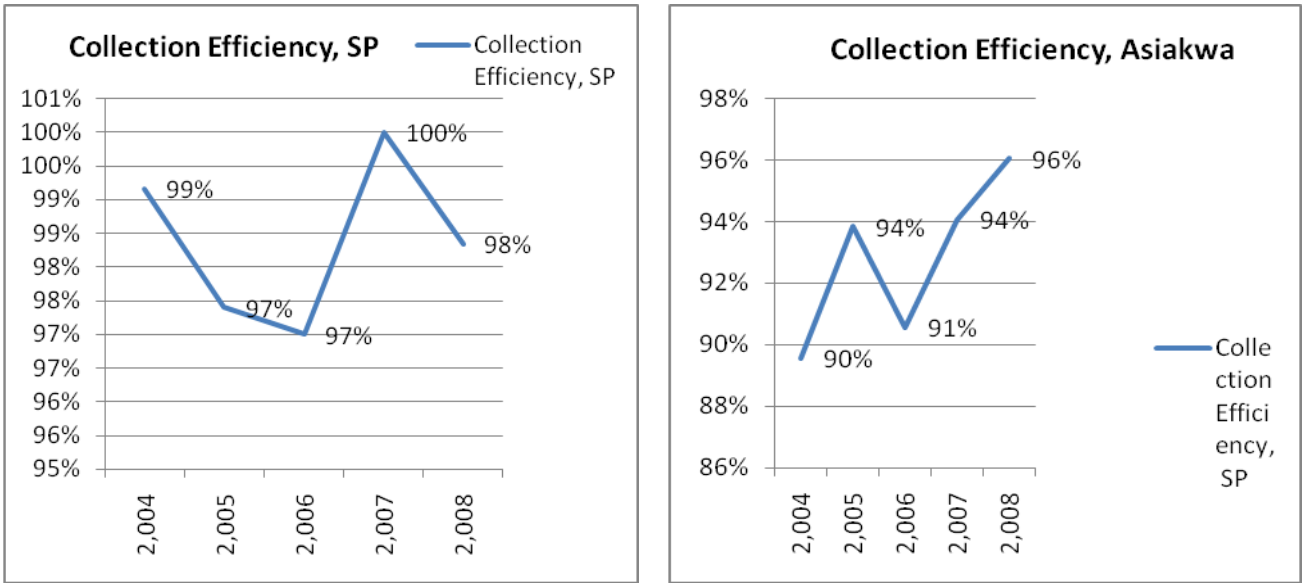

Figure 11: Revenue Collection Efficiency Level (2004-2008) - Asiakwa and Asesewa

5. ASSESSMENT OF THE MODEL

The management model of WASH activities in the study area is strictly geared towards viability and sustainability but still encompasses pro-poor considerations. Pro-poor considerations are focused on based on the ability of the system to avoid breakdowns. It is believed that a system that fully recovers costs and ensures sustainability is rather more pro-poor than a non-viable system. That is how the model has been viewed and this has been seen to be yielding the expected results. Community members are continually sensitized on this perception.

The Direct management model is expected to reduce the cost of management and to ensure closer interaction between the WSDB and the community. The model has objectives that ensure:

1. Transparency and accountability of operations
2. Cost-Recovery (of approved expenditures)
3. The protection of the system from frequent breakdown and collapse
4. Positive behavioural changes in hygiene practices
5. Viable and sustainable management

5.1 Transparency & Accountability

A hallmark that makes the EVORAP/GTZ supported Direct Management Model outstanding is its ability to ensure transparency and accountability. Effective Monitoring is key. To ensure that systems are managed in a transparent and acountable manner, well crafted formatted books are made available for the recording of operations. In the Asesewa and Asiakwa EVORAP/GTZ water systems under study:

a. Vendors submit, on a daily basis, incomes generated at each standpipe to the Revenue Collector (RC). The amount of water consumed and income collected is recorded in the appropriate book. The RC counter-signs after collection.
b. Vendors are paid a commission of 20% of sales made at the end of each month. Deficits are deducted from commission
c. RCs records all incomes collected in the appropriate book and submits the total revenue same day to the Accounts Officer (AO) who also counter-signs.
d. The AO records the income received in the appropriate book and deposits the money in the WSDB account same day.
e. Pumping records (time of pumping, water pumped and electricity energy used) are recorded and kept in the designated book
f. Water Bills are prepared and submitted to private subscribers on a monthly basis.
g. Monthly operational reports are prepared and submitted by WSDB to DA/DWST
h. DA carries out auditting of WSDB accounts annually.

A measure of the transparency and accountability is exemplified in the strict adherence to the recording procedures which culminates in proper summary of monthly results necessary for performance monitoring. Annexes 2 and 3 below show the summarized annual results of the performances of both communities for Years 2004 to 2008 as recorded in their various approved operational books.

5.2 Cost Recovery

The management model has so far been operated with cost-recovery in mind. However, the concept of cost depends on its magnitude. EVORAP/GTZ supported management model considers costs in the environment of prevailing economy. There is no consideration for the WSDBs providing voluntary community service or the O&M staff being paid salaries based on ability of the system to pay. WSDBs are paid motivating quarterly allowances, whilst O&M staff are paid economically-sustainable salaries. Costs are based on real and prevailing economic costs and these are what are expected to be recovered. EVORAP/GTZ pushed these ideas even with great resistance from some stakeholders and the ability to push sustainable ideas through ensured the effective implementation of the model.

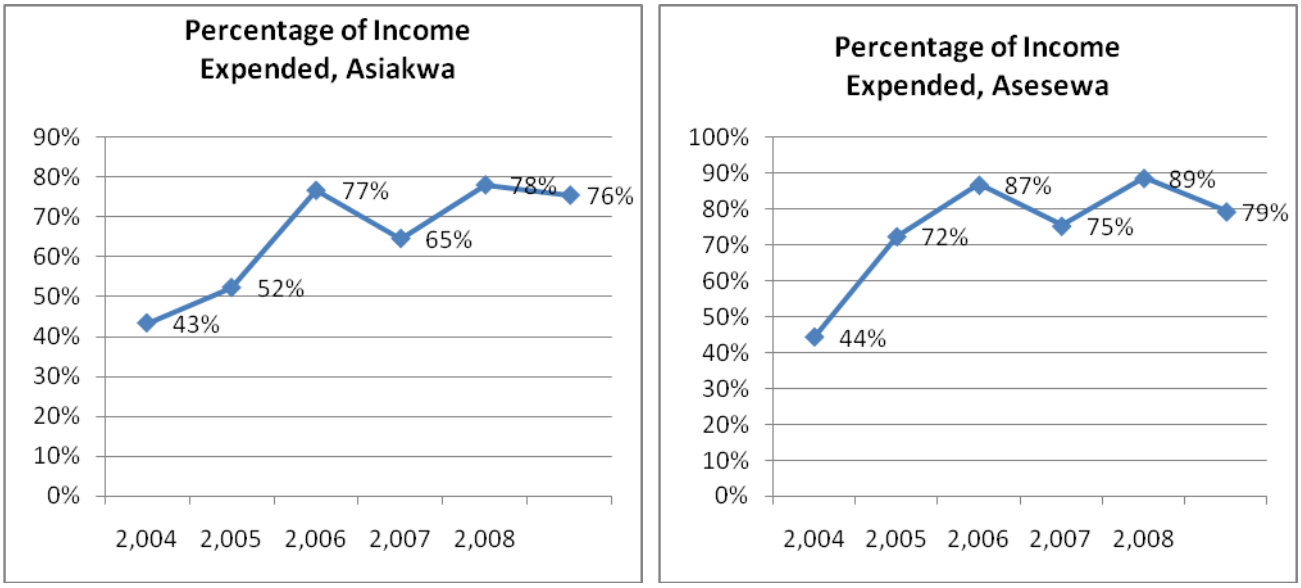

Figure 12: Percentage Pattern of Expenditure – Asiakwa and Asesewa

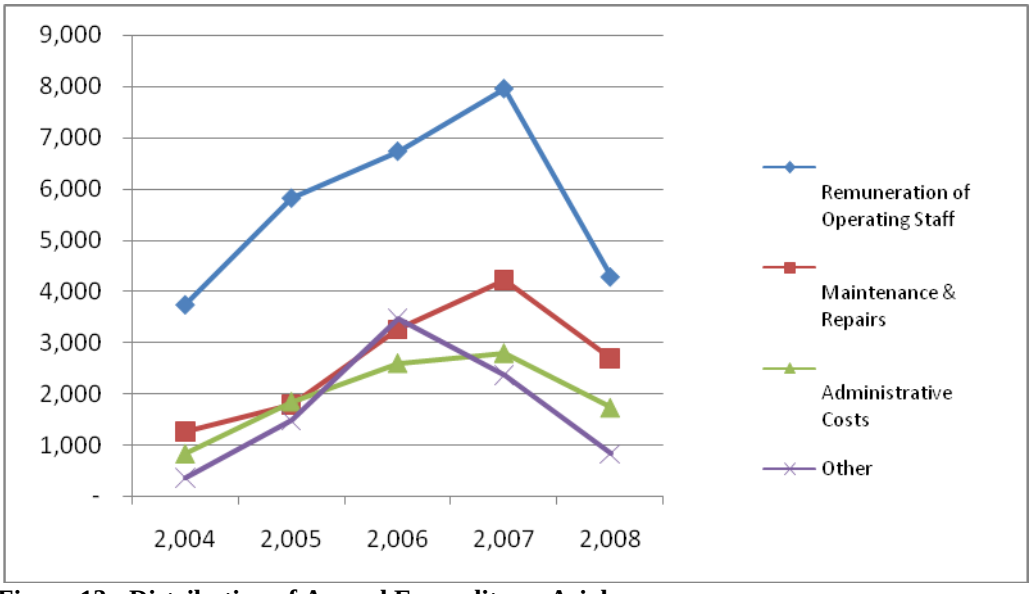

Figure 13 - Distribution of Annual Expenditure, Asiakwa

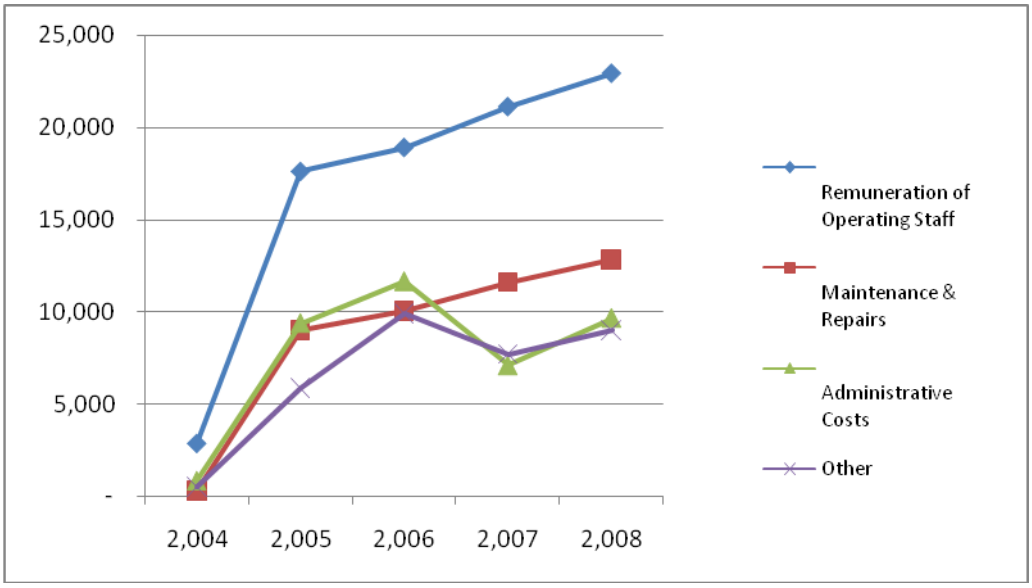

Figure 14: Distribution of Annual Expenditure, Asesewa

The present tariff (after 5 years of operation) seems to be redundant and is failing to recover costs. DAs have not had the courage to approve upward adjustments proposed by WSDBs either for political reasons or pro-poor considrations. However, the concept of pro-poor considerations and cost recovery seem to be in serious conflict with each other. Presently, there are serious agitations on the part of O&M staff for substantial upward adjustment of salaries which have remained static for the past 2 years. The repercursions of negative response to their request could be disastrous to the efficient operation of the system. The DAs will have to muster the political will to approve sustainable and cost-recovery tariffs.

5.3 Special Measure to Ensure Pro-poor Focus

The EVORAP/GTZ-funded management model is not directly pro-poor focused in terms of level of tariffs or its method of collection. However, it emphasizes on behaviours and approaches that promote efficient performance and reduce the overall cost of producing unit amount of water. The benefit is passed on to the final consumer including the poor. Some of these measures include reduction in water losses, wastes and leakages whose costs would otherwise be passed on to the poor. The model is pinned on the principle of making service delivery available to the majority of small town dwellers. Emphasis in implementation of programmes is also placed on women participation. Pro-poor concepts are enshrined in the following sense:

a) Reducing the economic time women spend on collecting water. It is the view of gender and pro-poor advocates that when time spent on collecting water is reduced, the time saved can be used profitably to generate income, thus reducing the poverty level of the women. This is a positive pro-poor concept. Given the WASH problem that existed in the case study area, the project is pro-poor focused.

b) The reduction in water-related diseases (through the provision of potable water and promotion of improved hygiene practices) would lead to less money spent on treatment of ailments. Again the healthier the person, the better his/her potential for making incomes.
c) The management model which uses the WSDB as the centre of management is pro-poor since the reduced cost of management ensures relatively lower cost-recovery tariffs
d) Finally, the involvement of the community and district assemblies in accepting and approving tariffs is in itself a check on the propensity to place further burden on the poor.

However, as indicated above under Cost Recovery, there needs to be a clear line drawn between efforts to recover costs and those meant to protect the poor. There is always the temptation to compromise cost-recovery for pro-poor protection. Unfortunately this has led in so many instances to the breakdown of public water supply and sanitaton systems and deviation from sustainable management. The EVORAP/GTZ model is very mindful of this by the strict adherence of monthly deposits into the Replacement Account.

5.4 Health and Hygiene Promotion, Health & Environmental Considerations

The model makes adequate provision for the promotion of hygiene and sanitation. The provided for at least one full-time Sanitation Worker who is employed as one of the O&M staff. In Asesewa and Asiakwa, Sanitation Volunteers (SVs) undertake daily promotion of hygiene and sanitation. EVORAP/GTZ has provided adequate tools and logistics for the promotion of hygiene and sanitation that would lead to a positive behavioural change. SVs were given intensive training to undertake this task. The issue of hygiene and sanitation promotion has been so imbibed by the WSDBs such that SVs continue to perform their roles even after project phased-out in 2006.

EVORAP/GTZ activities in hygiene and sanitation have been encouraging. In Asesewa, the WSDB is collaborating with the DA to improve sanitation through the provision of collecting bins placed at vantage locations in the community. It has also constructed an arbattoir for the butchers. This has greatly improved the quality of meat sold and the environmental conditions around the slaughter house. Again, the Asesewa WSDB has constructed a 12-seater WC for use in the market area. This has improved the sanitation situation in the market area. This is being efficiently operated by the WSDB on behalf of the DA.

EVORAP/GTZ reporting format has a section for reporting on hygiene and sanitation activities undertaken within the period. The WSDB and SVs periodically collect information on the health situation in each community as a form of survellance on the health situation. DWSTs have ensured that SVs and their respective WSDBs submit this report monthly.

5.5 Sustainability

The EVORAP/GTZ small town water supply project was designed and strictly implemented with the single objective of ensuring the viability and sustainability of both facilities, attitudes and behaviours that ensure longevity of use and promotion of good health. Viability and Sustainability were uncomprising key issues to the implementation. Viable water systems are inputs to sustainable management of the systems.

Presently, the water systems in the case areas seem to be viable and could still be more viable. The measures below were adopted to ensure satisfactory and viable operations:

a) Institution of effective cost-recovery tariff, even though this seems to be overtaken by present economic trends
b) Efficient recording of operations through effective monitoring by WSDB
c) Cordial relationship between WSDB, community and DA because of communities' acceptance of the ownership of the facility
d) Improved/increased patronage through hygiene education, good customer care, etc
e) Retrieval of avoidable losses from Vendors
f) Avoiding water loss (through efficient maintenance practice and prompt repair of faults)
g) Elimination of illegal connections
h) Strictly applying the rule of depositing all incomes into the bank and making all expenditures through the bank system
i) Adequately remunerated and motivated O&M staff
j) Annual general community meetings to present accounts of operations

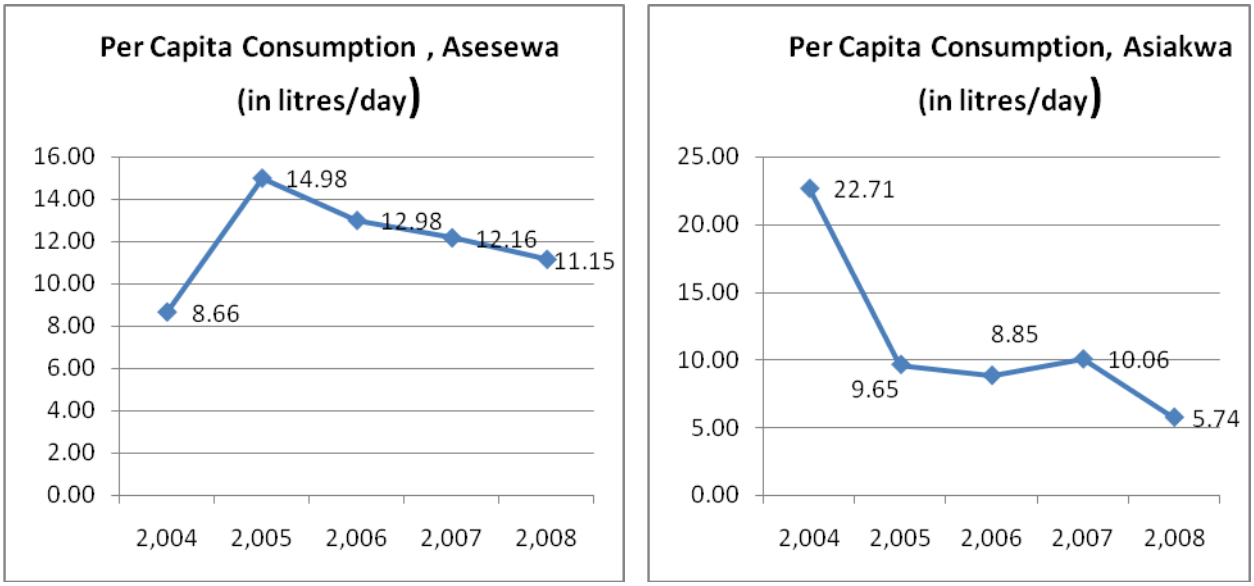

Figure 15: Per Capita Consumption per Day – Aseswa and Asiakwa

The capita consumption to some extent helps to measure the level of patronage and of the system. The figure for Asesewa shows that patronage is above the UNDP approved mark of about 10litres per person in such small town water supplies. Asiakwa, as can be seen, falls far short of this. This has been explained earlier (dwindling economy)

However, it is believed the systems could still be managed in a more viable manner if most of the parameters are improved upon. The sustainability will also be ensured through:

a) Good maintenance culture; there is need to stock enough spare parts so that down-time is reduced
b) Strict compliance with O&M procedures and guidelines, including maintaining replacement fund
c) Protection of and non-tampering with the facility
d) Periodic capacity-building of WSDB members and O & M staff

e) Upward adjustment of the tariff to meet the increasing cost of maintenance as the system gets older and weaker

Some of these are lacking in the case area, and this has no doubt impacted negatively on the present level of the sustainability of the system. Another area of concern is the re-location of some very effective WSDB members to other communities, deaths and old age.

6. CONCLUSION

5.6 Achievements of the Model

The EVORAP/GTZ supported management model has been acclaimed to be very effective so far. This can be attested to by the incorporation of its management tools as part of the newly-developed O & M tools nation-wide. The implementation of the model in Asesewa and Asiakwa have made satisfactory achievements. These include the fact that:

- WSDBs regularly meet the community to discuss about the water scheme;
- WSDBs pay regular visits to WSDB office to acquaint themselves with the day-to-day operation and management of WASH activities. This ensures close collaboration and checks on staff
- Faults and problems are quickly addressed with the involvement of WSDBs
- Hygiene and sanitation promotion undertaken by SVs have improved hygiene and sanitation situation
- Properly recorded operational data make analysis for sustainabilty easier
- The operation of the replacement fund has yielded substantial income available for extensions and repacements. Asesewa has put up a 12-seater WC for use by the community from the replacement fund. The figure below shows the trend of deposits (amounts are in Ghana Cedis).

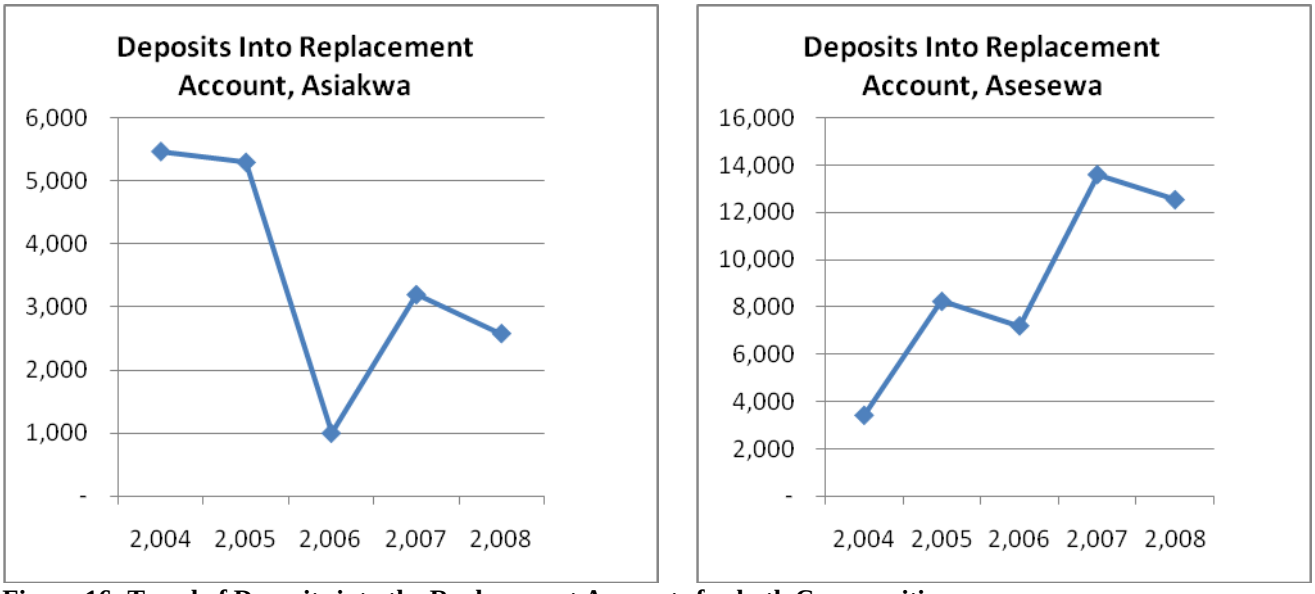

Figure 16: Trend of Deposits into the Replacement Accounts for both Communities

5.7 Weaknesses (What Needs Improvement?)

Despite its relative achievements, there have been lapses in the model. Glaring weaknesses exist or have been identified and it is argued that things could have been better but for the following weaknesses:

- The O&M staff had no coordinator; they report directly to the WSDB who sometimes may not be available during very urgent situations
- The WSDB had too much day-to-day role to play;
- Only WSDB executives are signatories to the operating account; this allows for connivance
- The model is too much project-based; the absence of the project support after project-phased out is somehow affecting monitoring
- The absence of a System Manager is a huge burden to WSDBs (leads to inadequate close project staff supervision)
- There is inadequate management support from the DA after project phased out. Interaction between DA/DWST and WSDB/O&M staff is getting weaker after project phased out. The trend therefore is that results have started falling after project phase-out (Year 2007)

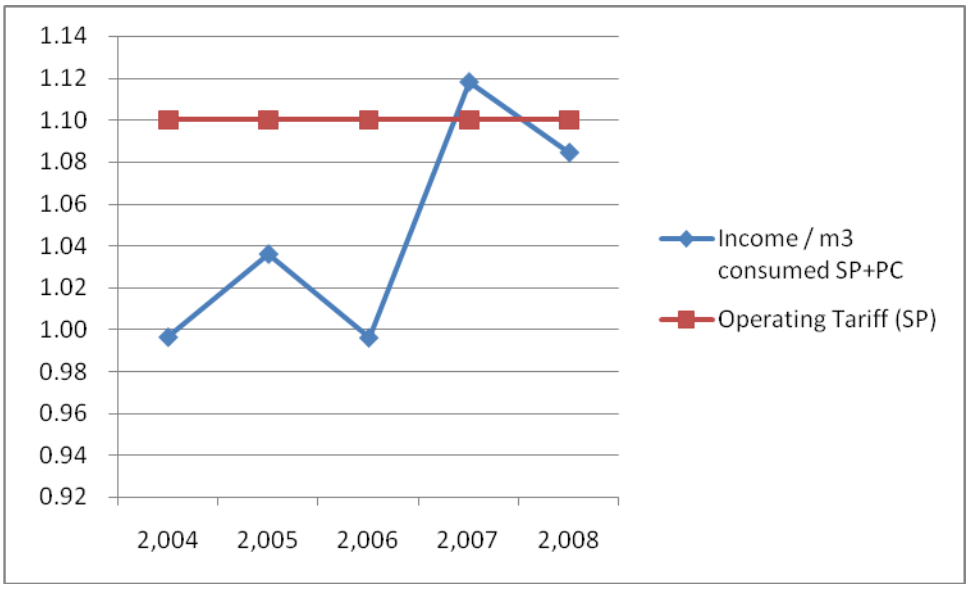

Figure 17 - Revenue Loss, Asiakwa

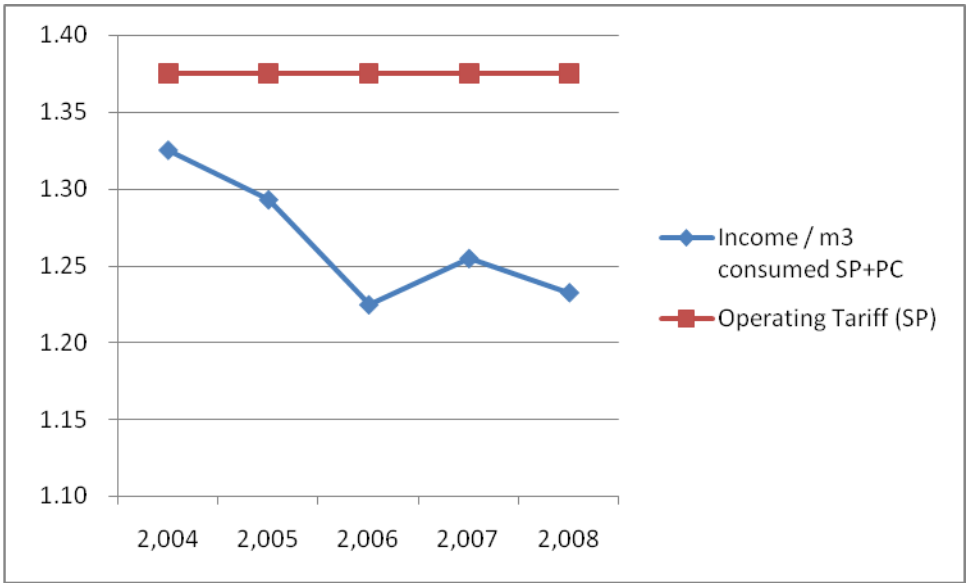

Figure 1 - Revenue Loss, Asesewa

6.3 Proposals for modifications in Present Management Model in the Case Study Area

In view of the weaknesses identified in the implementation of the management model in the case area after project phased out, the following are proposed modifications that would enhance the effectiveness of the model:

6. Strong management support should be provided by the DWST/DA
7. Sustained and periodic monitoring of operations by DWST/DA would ensure efficiency and sustainability
8. Regular and prompt preparation and submission of monthly operational reports to DA
9. A System Manager should be employed to manage system on behalf of WSDB
10. The day-to-day involvement of the WSDB should be reduced.
11. The signatory to the operational account should include the System Manager, and/or the cheque book should be kept by the Accounts Officer.

6.4 Lessons Learnt

Lessons learnt in the implementation of the Management Model in the study are:

1. Management support to WSDBs is neceessary in ensuring effective management model
2. The full involvement of the community/beneficiary right from the start of project implementation ensures sustainable management
3. Sustained and effective monitoring is a catalyst for sustainable management of WASH facilities
4. Strict enforcement of or adherence to set guidelines and procedures ensures efficient management
5. The institution of a management at the beneficiary community level makes O&M of the facility easier

6. When adequate capacity-building and support is given to the management personel, some level of efficiency and effectiveness is assured
7. Regular and sustained monitoring by the District Assembly compels the WSDB to comply with set guidelines.
8. The operation of a bank account where funds for future replacements are deposited is an innovation that has saved WASH systems from pre-mature collapse.
9. Management models should be selected with strong consideration of the socio-economic and socio-cultural characteristics of the project area
10. Pro-poor considerations should not over-shadow the need to set full cost-recovery tariffs
11. Sanitation practices are best improved when special hygiene and sanitation educators are selected and trained to undertake the promotion in the community.

ANNEXES

ANNEX 1: The Merits and Demerits of the three management models proposed for the systems:

SYSTEM	MERIT	DEMERIT
DIRECT MANAGEMENT	a. Ensures sense of ownership b. Management is resident in the community c. Cost of operating, maintaining and managing the facility is relatively low d. Relatively low tariff e. Tariff adjustment is seldom made f. Creates job opportunities for community members; g. Payment of community-employed staff contributes to re-investment of capital in the community	a) Potential for inter-ference from political, traditional, power brokers; b) Potential of being hi-jacked; c) WSDB may not be independent and autonomous d) Technical efficiency may be lacking in community e) Internal social friction may affect management f) Favouritism, nepotism and ethnic tensions may abound g) Difficulty in implementing bye-laws, usage rules, etc. h) Lack of serious and effective supervision and monitoring i) Infighting within WSDB and between WSDB and community j) Powerful individuals in community may bully the WSDB
DELEGATED MANAGEMENT	a) Ensures efficiency in revenue generation and financial management b) Improves viability and sustainability c) Strict enforcement of rules concerning operation, private subscriptions, etc d) Improved revenue collection efficiency e) Reduction in water loss and money loss f) Prompt submission of reports g) No interference h) Efficient staffing and effective staff supervision i) Technical efficiency of operations and maintenance assured j) Proper recording of data, filing and record-keeping	a) May reduce sense of ownership on the part of community b) General management costs of system may be high c) Tariff may be relatively higher d) PO may want to employ efficient staff from outside community; e) Less retention of capital in the community f) PO may not be as efficient as envisaged g) PO may disregard advice and views of community h) Delay in addressing pressing production needs when PO is not residing in community. i) Community may develop apathy j) PO may be frustrated by community's indifferent attitude
PARTIAL DELEGATED MANAGEMENT	a) putting together different resources ensures of efficiency b) relieves WSDB of areas not efficient c) improves operation, maintenance and management of the system d) ensures co-operation between WSDB and PO	a) roles may not be clearly defined b) the inefficiency of one part may affect the other c) disagreements may affect management d) it may take time to address thorny operational issues e) there could be either overlaps or gaps

Annex 2: ANNUAL SUMMARY OF OPERATING RECORDS, ASIAKWA

OPERATING YEAR	2,004	2,005	2,006	2,007	2,008	TOTAL
Population	3,811	4,500	4,960	5,120	5,100	5,100
Months of Operation	12	24	36	48	60	60
No. Of Standpipes	18	19	19	19	19	19
Average No. Of Standpipes Operating Daily	13	18	19	19	5	12
No. Of Private Connections	28	37	48	63	67	67
m^3 pumped	13,914	21,054	21,056	23,936	13,205	93,165
m^3 distributed	13,273	19,610	20,142	21,729	11,370	86,124
m^3 consumed SP	8,810	13,054	12,548	14,488	8,116	57,016
m^3 consumed PC	1,575	2,585	3,253	4,062	2,431	13,906
m^3 consumed SP+PC	**10,385**	**15,639**	**15,801**	**18,550**	**10,547**	**70,922**
Hours functioning	443	732	706	778	433	3,092
Total KWH	2,848	7,668	5,994	6,794	3,822	27,126
INCOME						
Income at Standpipes	8,680.55	13,473.51	12,500.03	14,991.47	8,574.46	58,220.01
Income at Private Con	1,669.35	2,731.20	3,242.60	5,747.60	2,863.40	16,254.15
Sub TOTAL SP+PC	**10,349.90**	**16,204.71**	**15,742.63**	**20,739.07**	**11,437.86**	**74,474.16**
Other Income	1,735.72	687.53	1,117.29	726.67	753.84	5,021.04
TOTAL	**14,260.64**	**20,904.98**	**20,927.18**	**26,830.94**	**12,191.70**	**79,495.21**
EXPENDITURE						
Remuneration of Operating Staff	3,737.52	5,822.94	6,738.31	7,961.20	4,282.12	28,542.09
Maintenance & Repairs	1,258.35	1,785.20	3,252.60	4,218.00	2,683.50	13,197.65
Administrative Costs	829.87	1,843.93	2,595.76	2,790.25	1,726.40	9,786.21
Other	363.12	1,480.73	3,472.90	2,372.84	830.72	8,520.30
TOTAL	**6,188.86**	**10,932.80**	**16,059.57**	**17,342.28**	**9,522.74**	**60,046.25**
TOTAL (Inc-Exp)	8,071.78	9,972.18	4,867.61	9,488.66	2,668.96	19,448.96
EXPENDITURE BOOK / BANK ACCOUNTS						
Balance in Expenditure Book at Beginning of Yr	-	0	0	0	**0**	
Balance in Regular Account at Beginning of Yr	936.04	2,143.54	1,362.50	1,289.25	**2,080.84**	
Balance in Replacement Account at Beginning of Yr	13,688.04	30,833.32	39,533.32	42,833.32	**51,480.19**	
Deposits Regular Account	12,085.62	16,892.23	16,859.92	21,465.74	**12,191.70**	79,495.21
Withdrawals Regular Account	6,188.86	10,932.80	16,059.57	17,342.28	**9,522.74**	60,046.25
Deposits Replacement Account	5,471.77	5,300	1,000	3,200	**2,582**	17,554
Balance in Expenditure Book End of Yr	-	0	0	0	**0**	
Balance in Regular Account End of Yr						
Balance in Replacement Account End of Yr	-	0	0	0	**0**	
Balances at End of Yr	901.45	1,270	**1,071**	**1,994**	**2,081**	
TOTAL Balances (Inc-Exp+Acc)	5,941.50	12,378	**13,378**	**14,578**	**17,160**	

Annex 3: ANNUAL SUMMARY OF OPERATING RECORDS, Asesewa							
OPERATING YEAR		2,004	**2,005**	**2,006**	**2,007**	**2,008**	**TOTAL**
Population		7,314	**8,050**	**9,800**	**11,400**	**12,300**	**12,300**
Months of Operation		4	**16**	**28**	**40**	**52**	**52**
No. Of Standpipe		20	**20**	**20**	**20**	**20**	**20**
Average No. Of Standpipes Operating Daily		3	**19**	**17**	**19**	**19**	**19**
No. Of Private Connecti		8	**37**	**45**	**50**	**57**	**57**
m^3 pumped		8,298	51,573	54,268	58,667	57,552	230,358
m^3 distributed		7,867	50,857	53,498	58,261	57,045	227,528
m^3 consumed SP		7,367	37,680	36,373	40,448	40,128	161,996
m^3 consumed PC		236	5,718	9,426	9,456	9,227	34,063
m^3 consumed SP+PC		**7,602**	**43,398**	**45,799**	**49,904**	**49,355**	**196,059**
Hours functioning		344	1,933	2,112	2,574	2,423	9,386
Total KWH		4,816	30,586	33,422	38,952	35,877	143,653
INCOME							0
Income at Standpipes		10,044.59	50,459.88	48,510.67	55,615.65	54,256.35	218,887
Income at Private Con		31.03	5,656.70	7,578.56	7,004.69	6,578.28	26,849
Sub TOTAL SP+PC		**10,075.62**	**56,116.58**	**56,089.22**	**62,620.33**	**60,834.63**	**245,736**
Other Income		155.74	1,777.54	2,166.75	520.13	543.26	5,163
TOTAL		**10,231.35**	**57,894.12**	**58,255.97**	**63,140.46**	**61,377.89**	**250,900**
EXPENDITURE							
Remuneration of Operating Staff		2,889.02	17,625.83	18,925.98	21,140.19	22,948.00	83,529.02
Maintenance & Repairs		276.00	8,997.38	10,026.46	11,592.50	12,824.00	43,716.34
Administrative Costs		843.25	9,405.60	11,677.54	7,106.81	9,678.00	38,711.19
Other		528.90	5,880.96	9,924.80	7,717.28	8,992.00	33,043.94
TOTAL		**4,537.17**	**41,909.78**	**50,554.78**	**47,556.77**	**54,442.00**	**199,000**
TOTAL (Inc-Exp)		5,694.18	15,984.34	7,701.18	15,583.69	6,935.89	51,899.28
EXPENDITURE BOOK / BANK ACCOUNTS							
Balance in Expenditure Book at Beginning of Yr		-	0	0	0	**0**	0
Balance in Regular Account at Beginning of Yr		1,221.00	9,621.94	10,519.45	12,493.75		
Balance in Replacement Account at Beginning of Yr		1,831.76	30,199.61	48,679.66	73,758.69		
Deposits Regular Account		10,231.35	57,894.12	58,255.97	63,140.46	**61,377.89**	250,899.78
Withdrawals Regular Account		4,537.17	41,909.78	50,554.78	47,556.77	**54,442.00**	199,000.49
Deposits Replacement Account		3,413.61	8,240	7,202	13,609	**12,548**	
Balance in Expenditure Book End of Yr		-	0	0	0		0
Balance in Regular Account End of Yr		2,280.57	10,020	10,519	12,494		
Balance in Replacement Account End of Yr		3,413.61	11,654	18,855	32,506		
Balances at End of Month		5,694.18	21,674	**29,375**	**44,999**		**0**
TOTAL Balances (Inc-Exp+Acc)		20,888.56	52,682	**53,095**	**78,041**		