



## Behenase community report

Cost of water and sanitation services in Behenase in the Bosomtwe District of Ashanti Region, Ghana.

*Behenase community has been relying on two formal water systems (PS1 and PS2) which have been reliable (working 95% of the expected time), implying that, the entire population of 433 persons is relying on two facilities designed for 600 persons. The water system delivers basic service to only 43% of the respondents. Only 13% of the respondents has access to basic sanitation service.*

October, 2012.

## Acknowledgement

This report acknowledges the effort of the following groups and persons in contributing to the research work both on and off the field:

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The following people contributed to the field work and are gratefully acknowledged below:

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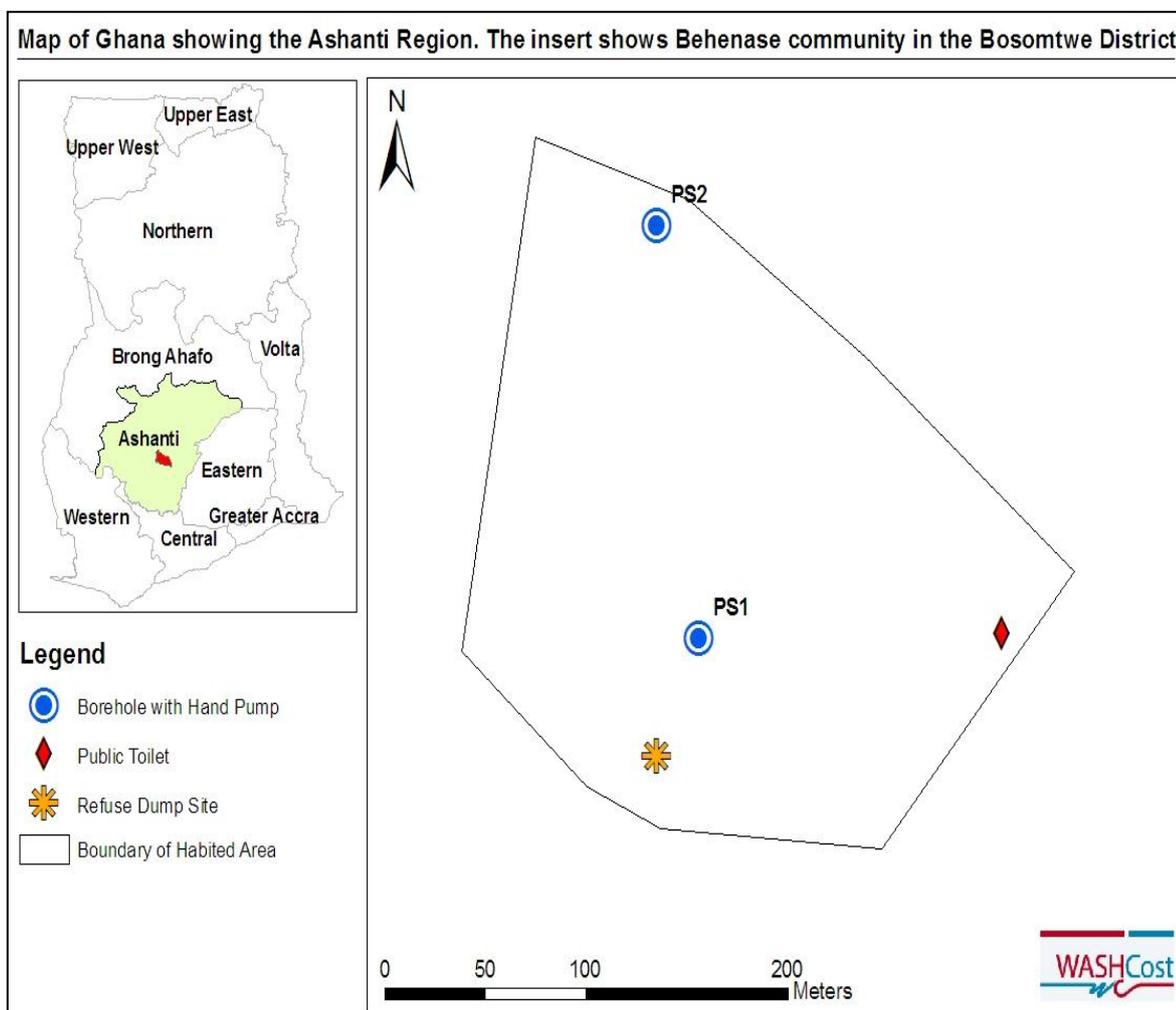
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Peter McIntyre/Victor Narteh Otum/WASHCost Ghana

WASHCost has been undertaking an action research focusing on quantifying the cost of providing sustainable water, sanitation and hygiene (WASH) services in rural and peri-urban areas in Ghana. This community report present findings of research carried out in the community of Behenase in Bosomtwe District of Ashanti region.

The WASHCost team visited the Behenase community in March 2011 to collect data on the WASH services received by the inhabitants and the cost of providing the services. The community has a population of 433 according to the regional Community Water and Sanitation Agency (CWSA) records. The inhabitants are mostly of Ashanti ethnic group and their main occupation is farming (cash and food crop farming).



**Figure 1: Map of community with water and sanitation facilities**

## WATER SUPPLY

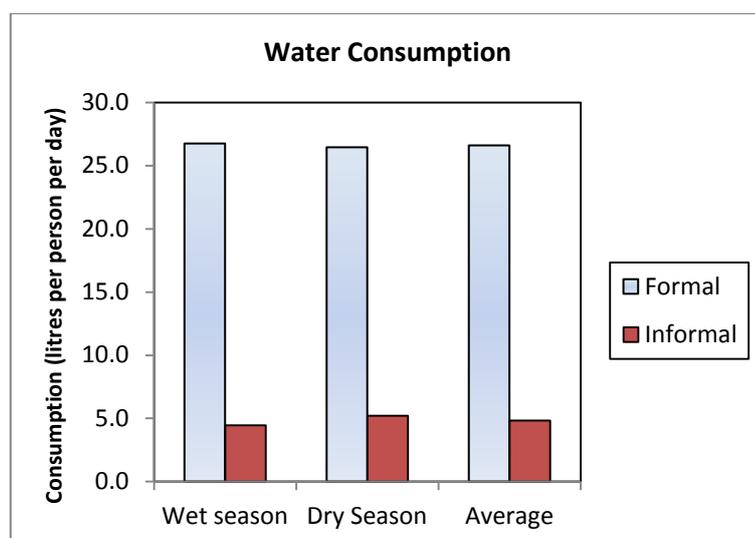
Before the year 1998 the inhabitants of Behenase relied on a river and a stream as their main sources of water for all purposes including drinking. Due to the unreliable nature of the river and the stream especially in the dry seasons, the community requested for the provision of a formal water source from the District Assembly. At the time of the visit, there were two (2) boreholes with handpumps but only one was working. The subsequent history of the development of Behenase water supply is summarised in Table 1 below

**Table 1: The history of the construction and replacement of formal water supplies**

Pre-1998	1998	2009
A river and a stream for domestic, non domestic and productive uses.	District assembly in conjunction with the community provided a borehole with handpump, PS1.	A non – governmental organisation (NGO) called RODEP provided the community with a borehole with a handpump, PS2. Community made capital contribution towards the provision of the facility.

### Water consumption from formal and informal source

Average water consumption for the two formal sources did not show any seasonal variation; consumption per person per day was the same for formal sources in both wet and dry seasons (see Figure 2). However, some of the informal water (harvested rain water) used in the wet season, particularly for productive purposes, was not captured in this data as people found it difficult to estimate how much they used.



**Figure 2: Average water consumption per person**

### Water service levels

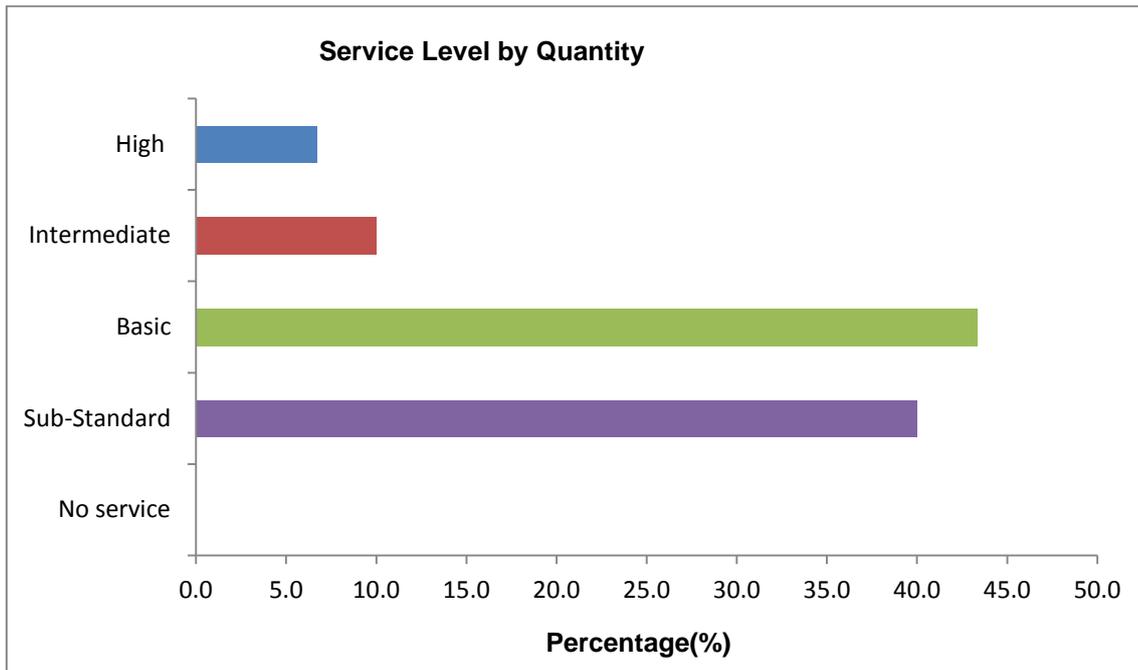
What matters to people is how much water they get, how far they have to travel to get it, the quality of the water and how often the service is available. These indicators of service levels can be expressed as high, intermediate, basic, sub-standard or 'no service'. A basic service is one that meets the guidelines set by the Community Water and Sanitation Agency (CWSA). According to CWSA guidelines, a basic level of service entails receiving at least 20 litres of water a day and having a water point within 500 metres, which is shared with not more than 300 people. The service level is the service actually received by users, not what is supposed to be delivered to users.

**Table 2: WASHCost Ghana service levels based on national norms**

Service Levels	Indicators		
	Litres per person per day	Distance to water source	Crowding with reliability
High	More than 60	500 meters or less	300 people or less per reliable water point system
Intermediate	40 to 60		
Basic	20 to 40		
Sub-standard	5 to 20	More than 500 meters	more than 300 people per reliable water point system
No service	0 to 5		

The results of the survey with respect to water quantity revealed that,

- 60% of the respondents in Behenase actually use sufficient water per the requirements of the national guidelines.
- The two reliable water point systems are shared by 433 people, which is less than the prescribed standard of at most 300 people per water point.



**Figure 3: Percentage of respondents receiving a particular service**

This means that a majority of the respondents receives at least the basic level of service of 20 litres of water per person per day throughout the year as stipulated in the CWSA guidelines.

### Crowding with reliability

The community had been relying on the two formal water systems (PS1 and PS2) which have been reliable (working 95% of the expected time), implying that, the entire population of 433 persons is relying on two facilities designed for 600 persons. Due to this, everyone in Behenase can currently be said to fully meet the basic standard for rural water service delivery.

### Accessibility

All the respondents meet the accessibility by distance criteria. This is because respondents' maximum walking distance to the formal water facilities falls within the norm of 500 metres prescribed by the CWSA guidelines.

## Quality and Use

Almost all the respondents (97%) perceived the quality of water accessed from the water point system, PS2 to be **poor** in both the dry and wet seasons. However, no water quality test was carried out to confirm their perception. Water from the formal source is used for all domestic purposes including drinking and also for productive uses.

Based on the WASHCost water service level matrix (Table 2), the overall water service level, putting all indicators together as equally important, gives 43% of respondents receiving **basic service** , **10% intermediate** and **7% high service levels**. This is because, about 40% are receiving sub-standard service in terms of quantity accessed; otherwise all respondents would have satisfied the standard water service level.

## SANITATION

The community has two public toilet facilities (traditional pit latrines) provided by the community through the WATSAN committee. Members of the community are not charged any user fee for accessing these public toilet facilities. About 13% of the respondents had household toilet facilities. About 10% of these household toilets are of Ventilated Improved Pit (VIP) technology while about 3% are traditional pit latrine. Almost all community members that do not have useable household toilet facilities access the public toilet. Only about 3% of the respondents practice open defecation. Sanitation service level in the community based on WASHCost sanitation service level revealed that only 13% have access to basic sanitation service.

## Costs and finances

Cost data was collected where available to cover capital investment, operational expenditure and capital maintenance expenditure (that is larger repairs and rehabilitation), and were adjusted for inflation to a base year of 2009.

### Capital investment costs

Capital investment costs, calculated using a regional average, as actual costs was not available for boreholes that were surveyed. The average regional cost of developing a borehole and handpump is US\$ 7,121. This implies that the total investment that has been made in Behenase is

US\$ 14,242. Using the design population of 300 people, this suggests a cost of US\$ 24 per person but US\$ 33 per person for the actual population of 433.

#### **Operational and minor maintenance costs**

Operation and maintenance costs were reported for the water facility, PS1 over the period of its existence during which it suffered at least four breakdowns. Using the designed population of 300 people gives a cost of US\$ 0.34 per person per year and US\$ 0.24 per person per year for the actual population of 433.

#### **Capital maintenance expenditure**

Capital maintenance expenditure had never been incurred. The reason is that, there had never been any major rehabilitation and/or replacement of handpump. This means that capital maintenance expenditure is US\$ 0 (see Table 3).

**Table 3: Cost of providing WASH services**

Cost Components	Current Cost (2009) in US\$	
	Observed pop	Design pop
Capital investment (US\$/person)	33	24
Operational and minor maintenance expenditures (US\$/person/year)	0.24	0.34
Capital Maintenance Expenditure (US\$/person/year)	0	0

#### **Tariffs**

At the time of the visit, the community members were not charged any tariff for accessing water from the formal water systems. This was as a result of poor water quality. However, the WATSAN Committee had prior to our visit put in a request at the District Assembly to help resolve the condition.

#### **Conclusion**

Capital investments had been made in two (2) water facilities which should be adequate for a population of 600. However, the reality is that, almost all the respondents (97%) perceived the quality of water accessed from the water point system, PS2 to be poor in both the dry and wet

seasons. However, no water quality test was carried out to confirm their perception. Due to this, about 40% of the people were using a quantity of water below the national norm of 20 litres per person per day.

The overall water service in terms of quantity accessed, accessibility by distance, and crowding-with-reliability gives 40% of the respondents receiving sub-standard service, 7% of the respondents receiving high service, 10% receiving intermediate service and 43% receiving basic service.

The data on operation and maintenance and major rehabilitation showed that the community practice break-down (responsive) maintenance. This means that they only repair any of the parts when there are breakdowns and there was no systematic or regular preventive maintenance schedule for the systems. Communities should therefore be encouraged to have a systematic approach to preventive maintenance where parts of the water facility are changed or replaced periodically to ensure sustainability.

On sanitation, the community had two public toilet facilities (traditional pit latrines) provided by the WATSAN committee. About 13% of the respondents had household toilet facilities. About 10% of these household toilets are Ventilated Improved Pit (VIP) technology while about 3% are traditional pit latrine. Almost all community members that do not have useable household toilet facilities, access the public toilet. Only about 3% of the respondents resort to open defecation. Sanitation coverage in the community is 13%.