



Adamupe community report

Cost of water and sanitation services in Adamupe, East Gonja District in Northern Region of Ghana

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The community has five public, one institutional and one household toilet facilities but some community members still practice 'dig-and-bury' and open defecation.

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Front page photo

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WASHCost is undertaking 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 presents findings of research carried out in the community of Adamupe in the East Gonja District in the Northern Region of Ghana.

The WASHCost team visited the Adamupe community in October 2009 to collect data on the WASH services received by the inhabitants and the cost of providing the services. The community has a population of 530 people (CWSA, 2009) and 50 households. The inhabitants are mostly of the Kokomba tribe.

Map of Ghana showing the Northern Region. The insert shows Adamupe community in the East Gonja District

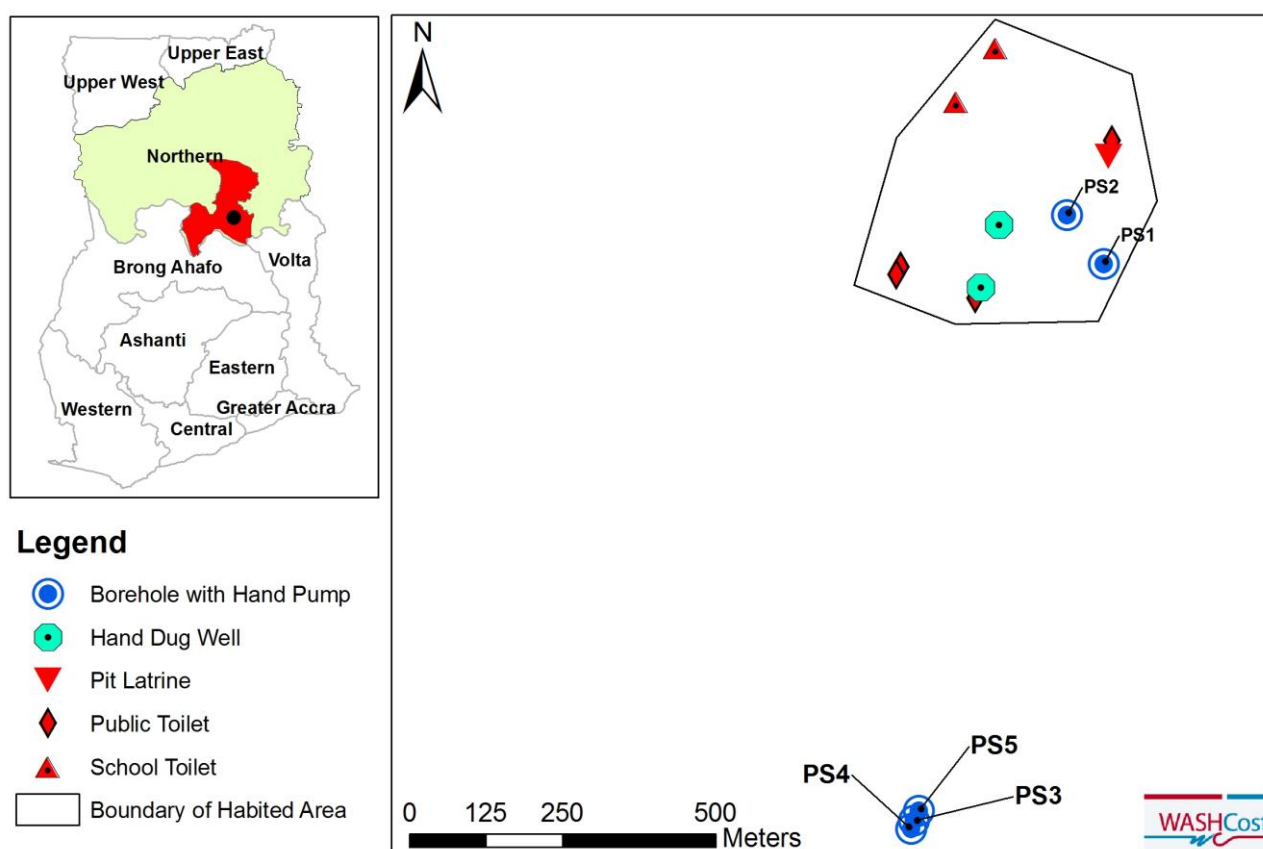


Figure 1: Map of Adamupe with water and sanitation facilities

*The boundary lines indicate only inhabited areas of the community and not the political boundaries of the community

WATER SUPPLY

Before 1998, the inhabitants of Adamupe relied primarily on rainwater as their main source of water for all domestic purposes including drinking. However, rainwater harvested by households could not sustain them throughout the year. The subsequent history of the development of Adamupe water supply is summarised in Table 1 below.

Currently, Adamupe community has a total of five (5) formal water sources. As at the time the WASHCost research team visited the community, all five formal point sources were operational.

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

Pre- 1998	1998	2002	2004
Rainwater harvesting	One borehole with handpump provided by the District Assembly in conjunction with CWSA. No community contribution to capital cost.	Two boreholes with handpumps provided by Adventist Relief Agency. Amount of Gh¢ 200 was contributed by community towards capital cost.	Two boreholes with handpumps provided by European Union in conjunction with CWSA. No community contribution to capital cost.

Water consumption from formal and informal sources

Average water consumption from formal water sources shows a strong seasonal pattern, rising sharply in the dry season (≈ 46 l/c/d) and falling in the wet season (≈ 24 l/c/d) when other sources are available. However, information on rainwater consumption could not be captured because households were not able to provide the amount harvested during rainy sessions.

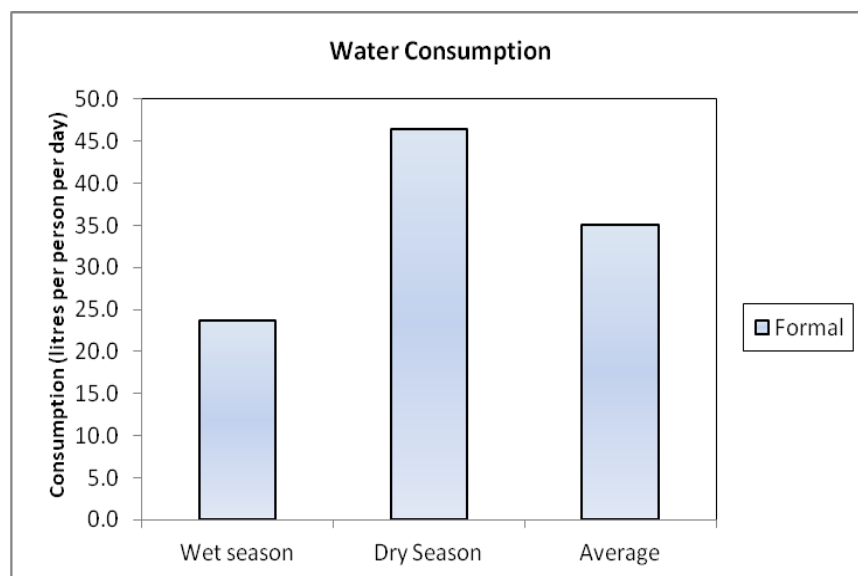


Figure 1: Average water consumption (l/c/d) per season

Water service levels in Adamupe

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 can be expressed as service levels – high, intermediate, basic, sub-standard and ‘no service’. A basic service meets the guidelines set by the Community Water and Sanitation Agency (CWSA). The service level is the service actually received by users, not what is supposed to be delivered to them.

Table 2: WASHCost Ghana service levels according to national norms.

Service Levels	Indicators		
	Litres per person per day	Distance to water source	Crowding with reliability
High	More than 60	500 metres 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 metres	more than 300 people per reliable water point system
No service	0 to 5		

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 no more than 300 people.

In Adamupe,

- A majority of the people (90%) actually use sufficient water according to the CWSA guidelines.
- The five water points are shared by 530 people, which is far less than the standard maximum of 300 people per water point.
- All the respondents travel beyond 500 metres to the water point systems.

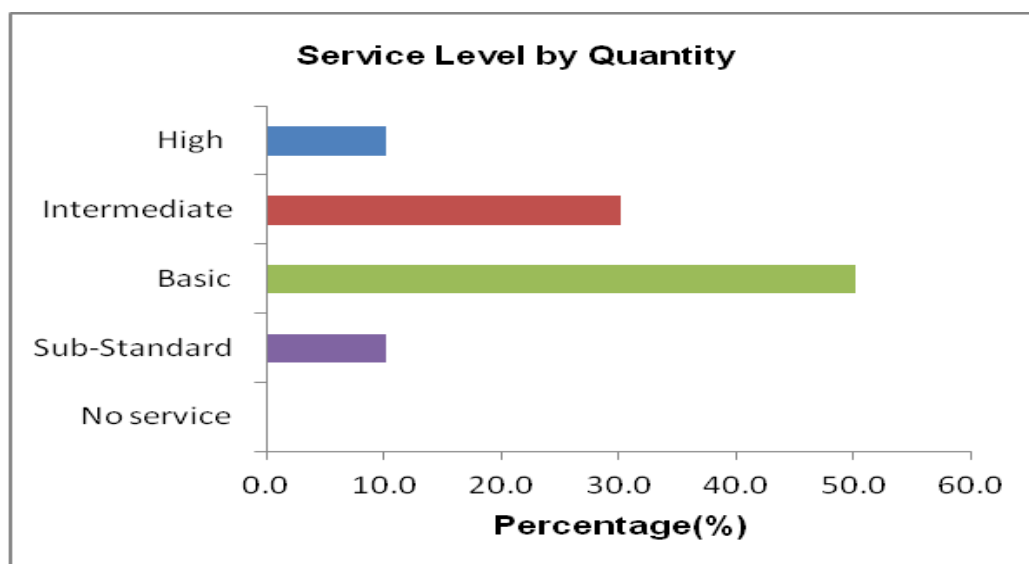


Figure 2: Percentage of respondents receiving a particular service

A majority of the respondents, about 90% are enjoying acceptable service level by quantity (basic service level or better). This means that a majority of the people are receiving the basic level of at least 20 litres of water per person per day as stipulated in CWSA guidelines.

Accessibility

All the respondents are receiving sub-standard service in terms of access. This is because their maximum walking distance to the water facilities was beyond the 500 metres required by the CWSA norm.

Crowding with Reliability

The entire population of 530 persons had been relying on all the five water point sources available. These facilities were all reliable at the time of visit (working 95% of the expected time) for the entire population. Clearly, the community can be considered to be over-served with water facilities which should be serving about 1,500 people.

Quality and Use

All the respondents perceived the quality of water from the formal facilities to be satisfactory. However, no water quality test was carried out to confirm their perception. Water from the formal systems is used for all domestic purposes including drinking. Although the informal source (non-standardized household harvested rainwater) is not acceptable by CWSA norm for domestic use especially drinking, the community members use it for domestic as well as productive activities. Also, about 60% of the respondents purchase sachet water from vendors for drinking purposes only and this is mostly during the dry seasons to supplement sources available.

Based on the WASHCost Ghana water service level matrix (Table 2), the overall water service in terms of quantity accessed access by distance and crowding-with-reliability is **sub-standard** for households in Adamupe. This is because 100% of respondents are receiving sub-standard service by walking at distances that exceed 500 metres to the water facilities.

SANITATION

The community has five public traditional pit latrines, one Kumasi Ventilated Improved Pit (KVIP) institutional latrine and one Ventilated Improved Pit (VIP) household toilet facility. The KVIP institutional latrine was provided by the District Assembly and the public toilets were constructed by the community members through communal labour and contributions by the community members. While a majority (80%) of the community members use these facilities, 20% still resort to dig-and-bury' and open defecation practices.

Costs and finances

Cost figures were collected, where these were 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 (Table 3).

Capital investment costs

Capital investment costs were calculated using a regional average as actual costs were not available for all boreholes surveyed. The average regional cost of developing a borehole and handpump is US\$ 7,795. This implies that the total investment that has been made in Adamupe is US\$ 38,975. Using the design population of 300 people, this suggests a cost of US\$ 26 per person or US\$ 74 per person considering the actual population of 530.

Operation and maintenance costs

Operation and maintenance cost for three boreholes with handpumps were reported. There had not been any expenditure incurred on the other two boreholes with handpumps. Using the designed population of 300 people gives a cost of US\$ 0.04 per person per year and US\$ 0.02 per person per year for the actual population of 530.

Capital maintenance expenditure

These are occasional larger scale repairs for which money has to be found- sometimes unexpectedly but in the long term these costs will always be needed. There has not yet been any expenditure on capital maintenance (CapManEx) as there have been no handpump replacements.

Table 3: Cost of providing WASH services

Cost Components	Current Cost (2009) in US\$	
	Actual population	Designed population
Capital investment (US\$/person)	74	26
Operational and minor maintenance expenditures (US\$/person/year)	0.02	0.04
Capital Maintenance Expenditure (US\$/person/year)	0	0

Tariffs

According to the WATSAN committee, the water tariff is set by all members in an open forum at any time deemed appropriate. Water tariff is collected by the WATSAN committee.

There were no records available on revenue collected although tariff was set at ¹GHp 20 (approximately US\$ 0.14) annually per married women. The WATSAN committee reported an average annual income of GH¢40 (US\$ 29) as against an annual expenditure of GH¢32 (US\$ 23). However, the WATSAN committee could not come up with the exact or even an estimated number of married women in the community to make analysis of the expected revenue to be generated.

A majority of the respondents, about 90% perceived the water tariff of GHp 20 (US\$ 0.14) annually per every married woman was acceptable.

¹ GHp is Ghana pesewa

Sustainability

Data on the functionality and useful life of boreholes with handpumps was gathered from area mechanic survey. The breakdown of the water point source was mostly associated with the handpumps but these handpumps had never been replaced since their installation. With the exception of the third (PS3) and fifth (PS5) handpumps which were constructed in 2002 and 2004 respectively, the other three boreholes had suffered minor faults leading to the replacement of some parts. For instance, in 2005, there was repair work on PS2 to replace the U-seal and a broken rod. Also in 2007 there was another repair work on PS4 to replace a broken rod and in 2007; there was repair work on PS1 to replace the U-seals, O-rings, bearings and rod centralisers. With the history of repair works carried on the facilities, sustainability of the water facilities cannot be ensured as far as maintenance is concerned.

Conclusion

The Adamupe community has a 100% water coverage based on the facility provider approach of number of facilities per user population. The community with its population of 530 instead of 1,500 under normal circumstance is over-served; however, overall water service in terms of quantity accessed, access by distance and crowding-with-reliability is sub-standard. This is because respondents (100%) are receiving sub-standard service as their walking distance to the water facilities exceeds 500 metres.

There are five public unimproved sanitation facilities in the community. A majority (80%) of the respondents access the public toilets while others resort to open defecation, and dig and bury practices. Due to this, sanitation coverage in the community is zero.

The WATSAN committee is able to generate some revenue through water tariffs and have a surplus of about US\$ 6 based on discussions with the WATSANs. With the history of repair works carried on the facilities, if the water tariff is not reviewed, sustainability of the water facilities cannot be ensured as far as maintenance is concerned.