



Dodorkope community report

Cost of water and sanitation services in Dodorkope in the Ketu South District, Ghana

Dodorkope community with a population of 1,240 has only two reliable formal water point systems resulting in limited water service delivered to the community. The community has no public toilet facility but has institutional (school) latrines and almost half of the community members have household latrines contributing to sanitation coverage of 27%.

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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 presents findings of research carried out in the community of Dodorkope in the Ketu South District in the Volta Region of Ghana.

The WASHCost team visited the Dodorkope community in April 2010 to collect data on the WASH services received by the inhabitants and the cost of providing the services. The community has a population of 1,240 people according to 2010 records from the Regional Community Water and Sanitation Agency. The inhabitants are mostly of the Ewe ethnic group. The main economic activity is farming. The Figure 1 below shows identified water and sanitation facilities in the community.

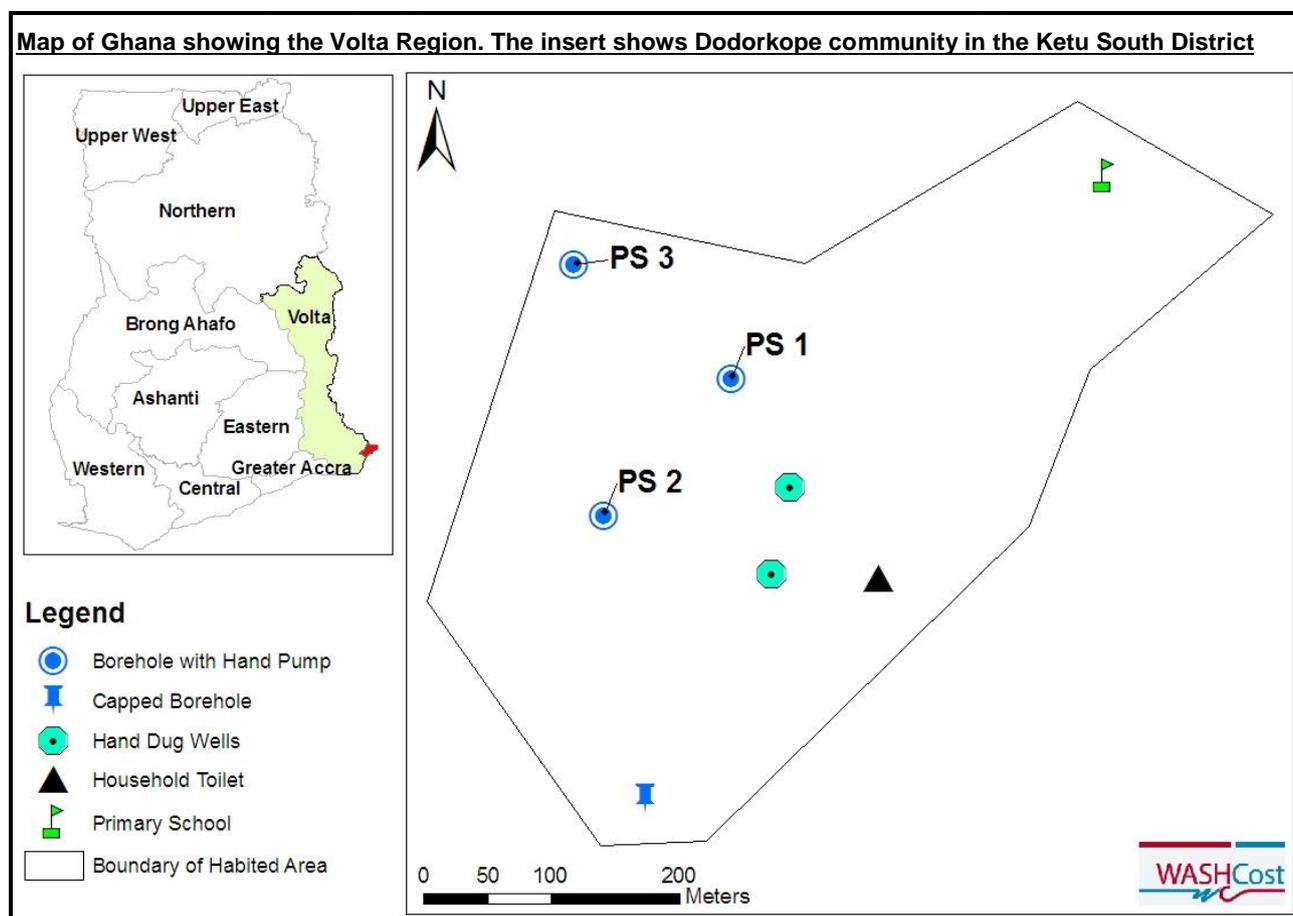


Figure 1: Map of Dodorkope community with water and sanitation facilities

WATER SUPPLY

Before the year 2001, the inhabitants of Dodorkope community relied on one hand-dug well and rainwater as their main sources of water which was used for all purposes including drinking. This informal water source (hand-dug well) was provided by the community members themselves in the early years of their settling in the community. However, the quantity of water obtained from the hand-dug well was not adequate to meet the water needs of the community.

At the time of the field visit, there were four formal water point systems which included three boreholes with handpumps and one borehole with a pedalflo that should have been available to the community but only three of the boreholes were working. The pedalflo system had broken down over a year and one of the boreholes was yet to be fitted with a handpump. The subsequent history of the development of Dodorkope water supply is summarised in Table 1 below.

Table 1: The history of the provision of formal water supplies

Pre-2001	2001	2004	2006	2009
Hand-dug well and rainwater harvesting.	One borehole fitted with handpump (PS1) provided by the GoG through Ministry of Local Government and Rural Development (MLGRD). The community made no capital cost contribution towards the provision of the facilities.	One borehole fitted with handpump (PS2) provided by the GoG through Highly Indebted Poor Country initiative (HIPC). The community made no capital cost contribution towards the provision of the facilities.	One pedalflo system provided by Lifetime Well Drilling, an NGO. The community made capital cost contribution of Gh¢ 150 towards the installation of the solar panel for the pedalflo.	One borehole (capped) provided by Lifetime Well Drilling, an NGO. The community made no capital cost contribution towards the provision of the facility.

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 (40 l/c/d) and falling in the wet season (24 l/c/d) when other sources are available (see Figure 2 below). However, information on rainwater could not be captured because households were not able to provide the amount harvested during rainy seasons. Thus, quantity of water is captured for only the hand-dug well as informal water source.

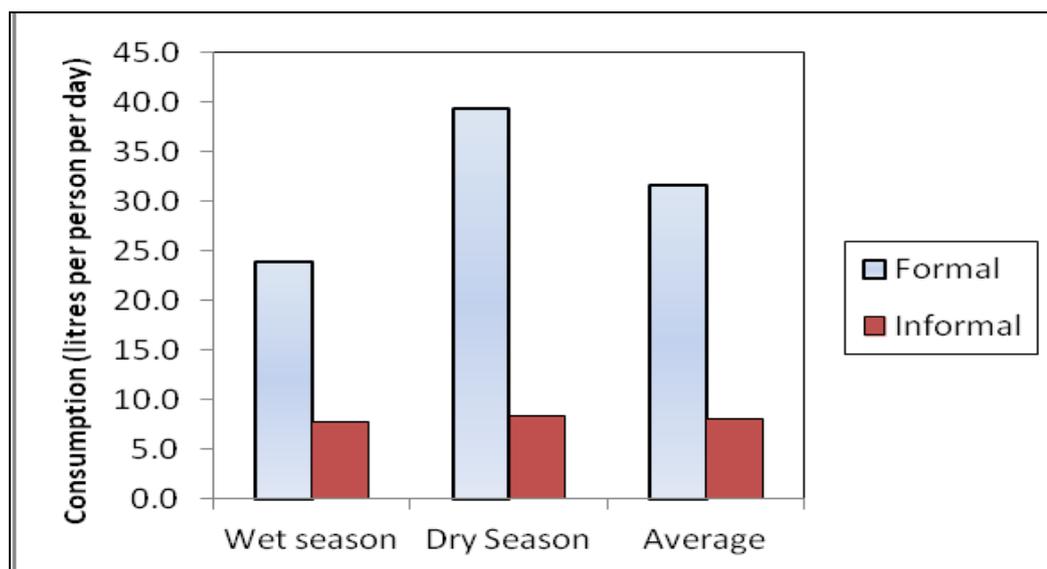


Figure 2: Average water consumption per season (litres per capita per day)

Water service levels in Dodorkope

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 and ‘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 according to 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 result of the survey with respect to water quality revealed that,

- A majority of the respondents (62%) in Dodorkope actually use sufficient water per requirements of the national guidelines.
- The three available water point systems were shared by 1,240 people, which means more users than the prescribed standard of 300 people per water point.

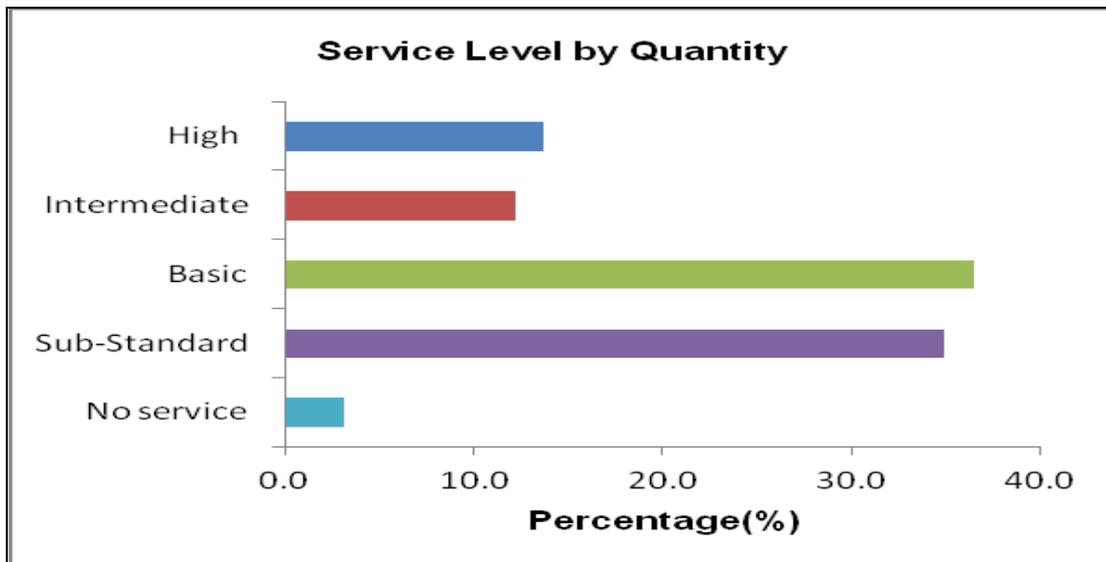


Figure 3: Percentage of respondents receiving a particular service

The result also indicates that about 38% of the respondents are not receiving acceptable service by quantity (sub-standard level of service). This means a majority of the respondents are receiving the basic level of at least 20 litres of water per person per day as stipulated in the CWSA guidelines.

Accessibility

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

Crowding with reliability

Two out of the four formal water systems that were available to the community were found to be reliable (working at least 95% of the time within the past 12 months). Due to this, everyone in Dodorkope is receiving a sub-standard (“limited”) service. In other words, no one in Dodorkope can currently be considered to be fully served even with the basic water service (for all criteria by the norm) at the time of the visit.

Quality and Use

A majority of the respondents, about 97% perceived the quality water accessed from the formal water sources to be satisfactory. However, no water quality test was carried out to confirm their perception.

Water from the formal sources is used for domestic purposes (including drinking, cooking, washing, bathing, etc) and also for productive activities (gari processing). Although the informal water sources such as open wells and non standardised household harvested rainwater are not considered improved for domestic use, especially drinking, the community members use them for domestic as well as productive activities/purposes. Also, 8% of the respondents purchase sachet water from vendors for drinking purposes only and this is mostly during the dry seasons.

Based on the WASHCost Ghana service level matrix (see Table 2), the overall water service level, putting all indicators together as equally important gives; 98% of respondents receiving sub-standard and 2% receiving no service although all the respondents met the accessibility criteria and a good number of households (62%) were accessing basic and higher water service level in terms of quantity.

SANITATION

The community has no public toilet facility but has institutional (school) toilet facilities. The school toilet is a Kumasi ventilated improved pit (KVIP) that was provided by DANIDA in 2000.

About 47% of the respondents have household toilets. Out of these respondents, about 1% of the respondents have water closet (WC), 6% of them have ventilated improved pit (VIP), 13% of them have KVIP, 19% have traditional pit latrine (TPL) whiles 8% have other household toilets facilities like sandplat. Out of the remaining respondents who are without household toilet facilities, some practice open defecation, others dig and bury and others use neighbours' toilet facilities.

The results revealed that, a majority of the respondents (57%) had no service whiles 16% and 27% of the respondents had sub-standard and improved services respectively. Thus, access to household toilets does not necessarily provide sanitation services because of the other important indicators: use, accessibility and environmental impact.

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 were not available for all boreholes surveyed. The average regional cost of developing a borehole with a typical handpump is US\$ 9,970. This implies that a total investment of US\$ 39,880 has been made in Dodorkope. Using the design population of 300 people per water point system, suggests a cost of US\$ 33 per person or US\$ 32 per person for the actual population of 1,240 people.

Operational and minor maintenance costs

The operation and minor maintenance expenditure revealed that one of the facilities has been repaired since it started operation. Operation and maintenance cost incurred was in the region of US\$ 0.08 per person per year for all the four facilities. However, the operational and minor maintenance cost seems insignificant partly due to the fact that at least one of the repair works was carried out using existing spare parts from projects that provided the facilities and/or WATSAN caretaker or area mechanic fixed them at no cost to the community. This observation is common in communities which have been assisted by NGO and Donor Projects.

Capital maintenance

Again, there has not been any expenditure on capital maintenance cost (CapManEx) as there has been no handpump replacement or major repairs of the water facilities. Table 3 below presents the summary of the water services cost

Table 3: Cost of providing WASH services

Cost Components	Current Cost (2009) in US\$	
	Actual population	Design population
Capital investment (US\$/person)	40	33
Operational and minor maintenance expenditures (US\$/person/year)	0.08	0.31
Capital Maintenance Expenditure (US\$/person/year)	NA	NA

Tariffs

According to the WATSAN committee, water tariff is set and agreed upon by all community members in an open forum at any time deemed appropriate through the WATSAN committee's facilitation. Members of Dodorkope community are charged ¹GHP 5 (approximately US\$ 0.04) per 72 litres of water fetched from the water point system on "pay-as-you-fetch" basis. The water tariff is collected and kept by the WATSAN committee.

A majority of the respondents (58%) indicated that the water tariff was acceptable.

Sustainability

Records on revenue from water tariff, handpump repairs and maintenance, bank accounts are kept by the WATSAN committee. Vendors at the formal water systems are responsible for revenue collection and they are paid allowances of 20% of the total sales of water. An amount of GHC 50 is given to the WATSAN

¹ GHP is Ghana pesewa

committee per month as an allowance. However, the status of the WATSAN account was not made available to the research team. This suggests that, the community should be able to maintain all the water facilities.

CONCLUSION

The overall water service in terms of quantity accessed, accessibility by distance and crowding-with-reliability gives 98% of the respondents sub-standard and 2% of the respondents no service though individual services like quantity accessed and accessibility by distance were acceptable (basic and better).

On sanitation, 47% of the respondents have household toilets but a majority of the respondents (73%) are receiving no and sub-standard services while 27% are receiving improved and basic services. Hence all the inhabitants receive a substandard service.