



Dedesua community report

Cost of water and sanitation services in Dedesua in the Bosomtwe District, Ghana

Dedesua community with a population of 1,189 has four reliable formal water point systems which are delivering acceptable water service to a majority of the community members. A few households have household toilet facilities and the community's public toilets are also in dilapidated states. As a result more than half of the community members practice open defecation.

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WASHCost is 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 Dedesua in Bosomtwe District of Ashanti region.

The WASHCost team visited the Dedesua community in February 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 1,189 according to the regional Community Water and Sanitation Agency (CWSA) records and 58 households according to the Water and Sanitation (WATSAN) committee census. The inhabitants are mostly of Asante's ethnic group and their main occupation is farming (cash and food crop farming).

Figure 1 shows key water and sanitation facilities available in the community.

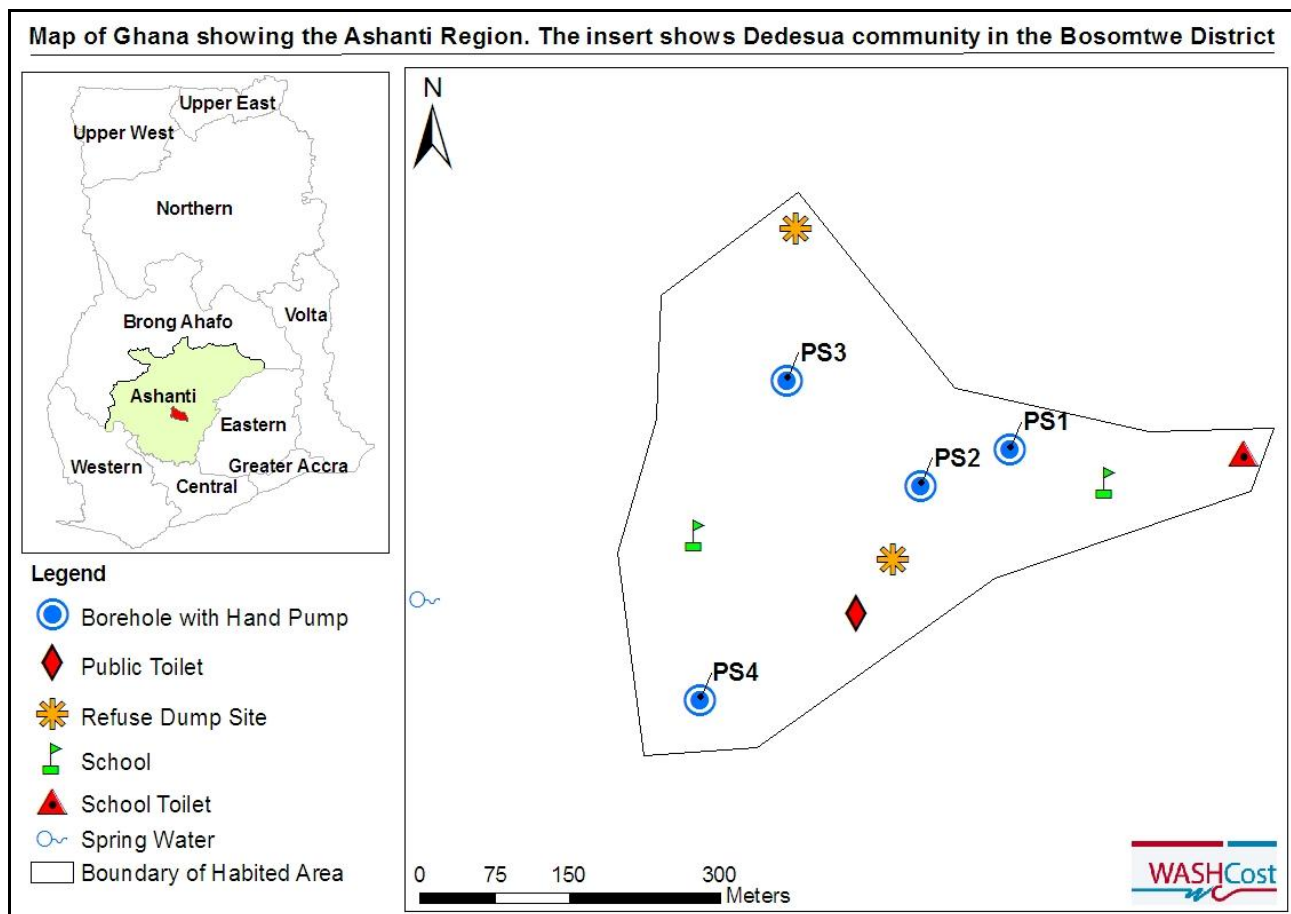


Figure 1: Map of community with water and sanitation facilities

WATER SUPPLY

Before the installation of a formal water source in 1997, the inhabitants of Dedesua were accessing water from two rivers namely Kakawere and Oda for domestic activities including drinking. These sources are still in use and are used mainly for other domestic chores, fishing and irrigation of farms. Due to the unreliable nature of the rivers especially in the dry seasons, the community

requested for the provision of a formal water source. The subsequent history of the development of Dedesua water supply is summarised in Table 1 below.

Currently there are four formal water sources available to the community. These water facilities were all functional during the time of visit although some had previously suffered some break downs.

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

Pre-1997	1997	2004	2009
Two river and harvested rainwater for domestic, non domestic and productive uses	A borehole fitted with handpump (PS4) provided by Government of Ghana (GoG) through the District Assembly. Community made contribution of GH¢ 250 (US\$ 238) towards the capital cost.	A borehole fitted with handpump (PS2) provided by GoG through the District Assembly. Community made contribution of GH¢ 250 (US\$ 238) towards the capital cost.	Two boreholes (PS1 and PS3) with handpumps provided by GoG. Community made contribution of GH¢ 250 (US\$ 238) towards the capital cost

Water consumption from formal and informal source

Average water consumption from formal sources showed seasonal variation, rising in the dry season (37 l/c/d) and falling in the wet season (29 l/c/d) when other sources are available (see Figure 2 below). Consumption per person per day was the same for informal sources in both wet and dry seasons. Much of the informal use of water in the wet season, particularly for productive use, is not captured in this data as people found it difficult to estimate their use of e.g. rainwater harvesting in the wet season.

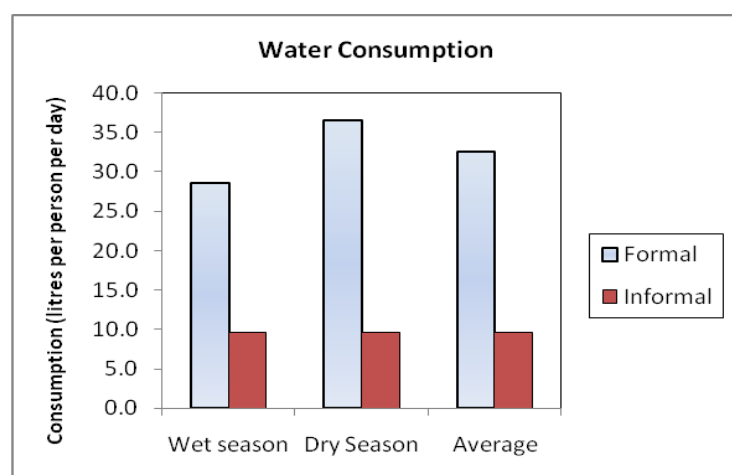


Figure 2: Average water consumption (l/c/d) per season

Water service levels in Dedesua

Generally, what matters most to people is how much water they can get, how far they have to travel to get it, the quality of the water and how often the service is available. These form the basis for indicators expressed as service levels – high, intermediate, basic, sub-standard (“limited”) and ‘no service’ as shown in Table 2 below (where all indicators are treated as equally important). According to CWSA guidelines, a basic service level entails receiving at least 20 litres of water per person a day and having a water point within 500 metres, which is shared among at most 300 users. The service level determined using the matrix is therefore services 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		

Quantity

The results of the survey revealed that 75% of the respondents in Dedesua actually use sufficient water quantities based on the national guidelines.

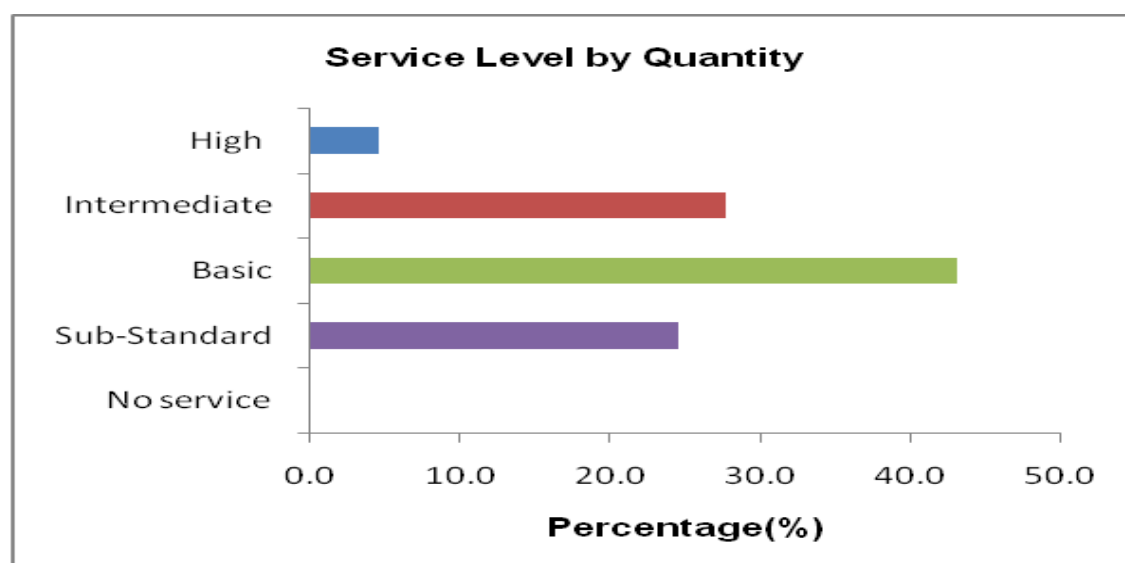


Figure 3: Percentage of respondents receiving a particular service

Accessibility

The distances from households to water point systems ranges from 13 – 199 metres (see Figure 1). Thus, all households get water from the formal sources within a range less than 500 metres in accordance with the CWSA norm. All the respondents are receiving a standard service in terms of access by distance.

Crowding with reliability

According to the CWSA norm, a water point system should serve 300 persons, thus the four reliable point systems should serve 1,200 users, but is serving 1,189 users. Hence the crowding with reliability standard is met.

Quality and Use

Some of the respondents, about 50% perceived the quality of the formal water to be good but the rest of the respondents who were not satisfied with the quality attributed it to its salty taste and hardness. However, no water quality test was carried out to confirm their perception.

The results for the overall water service revealed that, 75% of the respondents are receiving acceptable service (from basic to high) whereas 25% of the respondents received sub-standard service. This is because in terms of service level by distance, their maximum walking distance to the water facilities does not exceed the CWSA norm of 500m; and they also receive a standard service level by crowding – with – reliability because the Dedesua community has four (4) water facilities which are reliable.

SANITATION

Dedesua community has two public toilet facilities and an institutional (school) latrine provided by the community. The public toilet facilities are all Traditional Pit Latrines (TPL) whilst the institutional latrine (school) is Kumasi Ventilated Improved Pit (KVIP) technology. Some of the respondents (3.0%) mentioned they have household toilets which are either a Ventilated Improved Pit (VIP – 1.5%) or a Traditional Pit Latrine (TPL – 1.5%). The public toilet which was in a dilapidated state was patronised by about 42% of the respondents whilst the rest resort to open defecation and, dig and bury. Users do not pay any user fee for the public toilets.

The results based on the WASHCost sanitation service ladder (see more details in WASHCost Ghana Briefing Note 1) revealed that almost all the respondents (98%) have no sanitation service from whiles only 2% have improved service.

COSTS AND FINANCES

Cost data were 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 are 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\$ 7,121. This implies that the total investment that has been made in Dedesua for the 4 facilities is US\$ 28,484. The capital cost per person is US\$ 24 (see Table 3)

Operational and minor maintenance costs

Operational and minor maintenance for four boreholes with handpumps were reported over the period of their existence during which period each water facility had been repaired at least once. Some of the repair works included cracks in handle tube, broken handle rod and pipe. The operational and minor maintenance expenditure is US\$ 0.07 per person per year (see Table 3).

Capital maintenance

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: Cost of providing WASH services

Cost Components	Current Cost (2009) in US\$	
	Actual Population	Design Population
Capital investment (US\$/person)	24	24
Operational and minor maintenance expenditures (US\$/person/year)	0.07	0.07
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. The water tariff is collected by vendors who render accounts to the WATSAN committee. A tariff of¹GHp 5 (approximately US\$ 0.035) is charged for 18 litres of water fetched from the water point systems on pay-as-you fetch basis. Most of the respondents (about 69%) said the water tariff was acceptable, 18% said it was high and the remaining 13% were indifferent. This is an indication that more people are willing to pay for the water service received.

¹ GHp is Ghana pesewa

Sustainability

The revenue accrued as at February 2010 was GH¢ 140. A focus group discussion with the WATSAN committee revealed that repair works are carried out with funds accrued from sale of water. Considering that the operational and minor maintenance expenditure per capita per year is US\$ 0.07 per person which is US\$ 83 per year for the entire population for point systems, the cumulative annual revenue of GH¢ 140 as at February 2010 should be enough to pay for all annual operational and minor maintenance activities. However, the revenue may not be sufficient to pay for all capital maintenance expenditure.

Conclusion

The analysis of the overall service received by the community based on the water service levels showed that 75% of the respondents received an acceptable service (from basic to high) whereas 25% of the respondents were receiving sub-standard service. The revenue is sufficient to address operational and minor maintenance expenditure but not be sufficient to pay for all capital maintenance expenditure should the need arise.

Majority of the respondents (98%) have no sanitation service and only a few (2%) have improved service.