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**SUSTAINABLE WATER AND SANITATION SERVICES
FOR ALL IN A FAST CHANGING WORLD**

The state of handpump water services in Ghana: findings from three districts

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This paper presents findings of water service monitoring in three districts in Ghana, using the national water service monitoring framework, which has been developed, based on the norms and standards set for rural water supply by the Community Water and Sanitation Agency. Only 21% of handpumps were found to meet national norms and standards for water services in terms of reliability, accessibility, quality and quantity. Service providers who operate and maintain these handpumps also scored low on compliance with norms and guidelines related to governance, operations and financial management. The monitoring data showed positive correlations between service provider and service authority performance and service levels. Nevertheless, even service providers managing reliable handpumps were found to often not meet the benchmark on certain service provider indicators, which raises the question on whether the benchmarks on these indicators may have been set too high.

Background

Rural water supply is reported to cover 63% of the rural population of Ghana (CWSA, 2012), thereby putting the country on track to achieving the MDG target for water. However, behind this apparent success are a complex set of challenges.

A first challenge that needs to be considered is the relatively high level of non-functionality of water facilities. Across much of Sub-Saharan Africa, a substantial proportion of water supply facilities is believed to be either not-functioning or functioning sub-optimally, as illustrated by a study that found non-functionality of rural water supply facilities to be between 30% and 40% (RWSN, 2009).

A second headline challenge is sub-standard service delivery. Even when water facilities are functional, this does not mean that they are providing a service that meets all the national norms, in terms of reliability, quality, quantity and accessibility of the service.

A third challenge is the lack of conditions which need to be in place to ensure sustainable service provision over time. This includes the presence of well-performing service providers to operate and maintain the facilities and to ensure sustainable service delivery over time, as well as well-performing service authorities, responsible for monitoring, supporting and regulating these service providers.

Appreciating the degree of non-functionality and sub-standard service delivery and understanding the underlying reasons, is crucial for defining appropriate actions to improve the situation. In Ghana, the exact magnitude of non-functionality, sub-standard service delivery and challenges related to the performance of service providers and service authorities, has for a long time been unclear, as data on these issues have not been systematically collected, let alone regularly monitored.

Under the Triple-S initiative, the Community Water and Sanitation Agency (CWSA) and IRC have been developing and testing water service monitoring. As part of this, monitoring data is being collected and analysed on all improved water facilities in three districts on an annual basis. The concepts and methodology for data collection and analysis are presented in the accompanying paper by Kumasi et al. (2014). The objective of this paper is to provide insight into the handpumps service levels and performance of service

providers and the support they receive from service authorities (local government) and understand the correlation between these, by presenting the findings from the collected monitoring data.

Methodology

A framework for monitoring water services

As described in the accompanying paper by Kumasi et al (2014), the water service monitoring framework has been based on the national norms and standards set for rural water supply by the Community Water and Sanitation Agency (CWSA, 2014). Below we present the main indicators from this framework, used in this paper.

Service level indicators

Handpumps are considered ‘fully functional’ when water flows within 5 strokes and ‘partially functional’ when water flows, but not within 5 strokes. In both cases, handpumps are considered ‘functional’.

Service level indicators and minimum standard for handpumps have been defined as follows:

- **Quantity:** At least 20 litres per capita per day
- **Quality:** Ghana Standards Authority water quality standards (However, for practical reasons, the minimum standard applied is set as ‘perceived as acceptable by users’)
- **Coverage:** The number of people per hand pump should not exceed 300 in case of boreholes and 150 in case of hand dug wells.
- **Distance:** All users should be within 500 metres of the handpump
- **Reliability:** The handpump should provide water for at least 95% of the year, interpreted as at least 347 days of regular service without interruption.

A composite indicator for the overall water service levels is determined as follows:

- Level I: The handpump is not functioning or not used
- Level II: The handpump fails to meet the minimum standards on one or more service level indicators
- Level III: The handpump meets the minimum standard on all service level indicators

Service provider indicators

Service provider indicators describe the degree to which the service provider meets the norms and standards for fulfilling its tasks in operation, maintenance and administration of the service. Table 1 gives an overview of the service provider indicators and the benchmarks set for each indicator.

Table 1. Indicators and benchmarks for monitoring the performance of water service providers	
Indicator	Benchmark
Management and governance indicators:	
Small Community Water and Sanitation Management Team (WSMT-SC) composition	There is a WSMT-SC, which has been composed in line with the CWSA guidelines, and has received initial training
Record keeping	All records are kept and up-to-date
Political interference	Any change that had occurred in the WSMT-SC was not due to political or chieftaincy interference
Operational indicators:	
Spare parts	It takes 3 days or less to acquire spare part(s)
Area Mechanics	It takes 3 days or less to acquire the services of an area mechanic
Breakdown repairs	Breakdown repair is carried out within 3 days
Periodic maintenance	Routine maintenance is carried out
Water quality testing	Water quality sampling and analysis is done by certified institutions

Financial management indicators:	
Revenue -expenditure balance	Annual revenues are higher than annual expenditure
Financial management	There is a bank account and a cash book is kept up-to-date
Tariffs	There is a tariff

Service authority performance indicators

As described in Kumasi et al (2014), the service monitoring framework includes a set of seven indicators for monitoring the degree to which service authorities fulfil their functions of creating an enabling environment at district level and supervising and supporting water service providers. Here we focus on the indicator which is directly related to the direct support of the service authority to the service providers in the form of monitoring. In Ghana, this is undertaken by members of the District Works Department and Environmental Health Assistants. The benchmark for this indicator has been set as “The service authority monitors operation and maintenance of water facilities and the performance of service providers in terms of financial, technical and administrative performance on a regular basis and provides the direct support when needed.”

Data collection and analysis

Monitoring data is collected on an annual basis on all improved water facilities and water service providers in three districts: Akatsi District in Volta Region, East Gonja in Northern Region and Sunyani West in Brong Ahafo Region. This paper focusses on the monitoring data collected at the beginning of 2013. It presents similar findings to the ones presented in Adank et al (2013), based on the data collected in early 2012.

Local government staff responsible for monitoring and supporting water service providers collected the monitoring data and were involved in data verification and analysis. AKVO FLOW (AKVO, 2013), consisting of Android phone technology and online data storage, was used for data collection and storage. Water facilities and service providers were scored and benchmarked using logical formulas (in MS EXCEL), based on the collected data.

Levels of compliance of water service provision with national standards

Service levels

Of the 568 handpumps in the three focus districts, 81% were found to be functional. However, only around a fifth of handpumps (21%) were found to provide a service Level III, meeting the minimum standard on all five service level indicators. As shown in Table 2, handpumps are generally perceived by users as providing water of acceptable quality, but many handpumps failed to meet the minimum standard on at least one of the other service level indicators. Handpumps that failed to meet the minimum standard on only one service level indicator, did so mostly (66%) on either the distance or coverage indicator.

In Sunyani West, only 7% of handpumps were found to meet the minimum standards on all five service level indicators. This was to a large extent due to the fact that only 30% of handpumps in Sunyani West met the minimum standard on the distance indicator, of having most of the user population within 500 metres of the handpump. In East Gonja, only 35% of handpumps managed to meet the minimum level set on the ‘coverage’ indicator (which was not surprising, considering this district was found to have the least amount of handpumps, while area and population-wise it is the largest of the three districts). This played an important role in the low percentage of handpumps meeting the minimum standard on all five service level indicators in this district (12%).

Service level indicator	Proportion of handpumps
Functionality: Handpumps which provide water	81%
Service Level III: Handpumps which meet the minimum standard on all 5 service level indicators	21%
Reliability: Handpumps which provide water for at least 95% of the year	69%

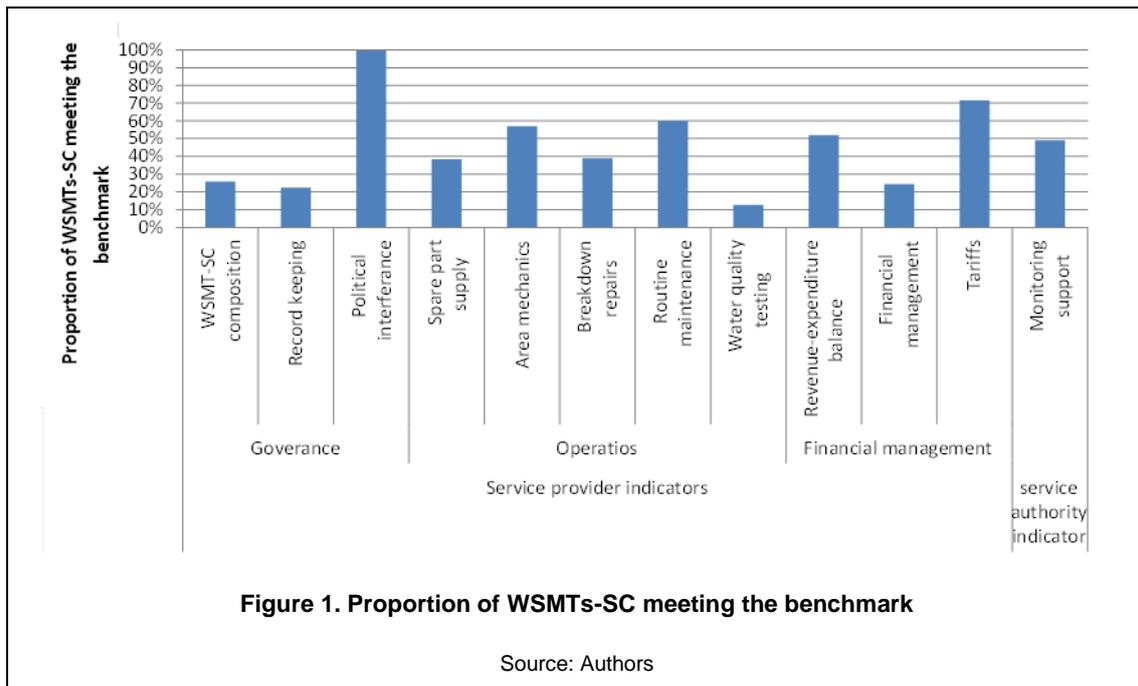
Coverage: Handpumps used by less than the maximum number of people set per handpump	62%
Distance: Handpumps with all users within 500 metres	54%
Quality: Handpumps with water quality perceived as acceptable by users	92%
Quantity: Handpumps with estimated water use of at least 20 litres per capita per day	61%

Service provider and service authority performance

The majority of handpumps were found to be managed by Small Community Water and Sanitation Management Teams (WSMT-SC), consisting of elected community members, taking care of the day-to-day operation and maintenance of one or more handpumps.

Figure 1 gives an overview of the proportion of WSMTs-SC meeting the benchmarks on the different service provider indicators. On only five of the 11 indicators, at least half of the WSMTs-SC manage to meet the service provider indicator benchmark. None of the WSMTs-SCs met the benchmark on all 11 indicators. Only 20% of WSMTs-SC managed to meet the benchmark on all three financial management indicators. The proportion of WSMTs-SC meeting all benchmarks on the governance and operational indicators was even smaller, at 9% and 4% respectively.

Figure 1 also shows that a little less than half of handpumps were managed by WSMTs-SC that received monitoring support from the service authority, the local government.



Correlations between handpump water services and performance of service providers and authorities

In this section of the paper correlations between handpump service levels and service provider performance are examined. Figure 2 shows the level of service provided by handpumps under different management arrangements. It shows that the proportion of non-functional or unused handpumps was found to be highest for the ones without a management structure. It also shows that the proportion of handpumps which meet the minimum standard on all 5 service level indicators was highest for handpumps managed by a Small Community Water and Sanitation Management Team (WSMT-SC) and lowest for handpumps without management structure.

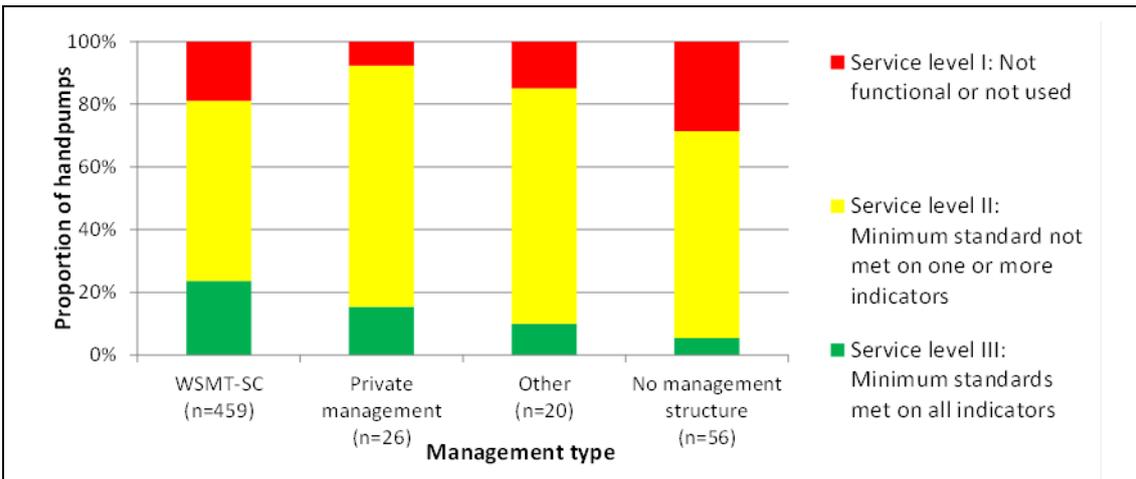


Figure 2. Handpump management and reliability

Source: Authors

It is worth considering the particular case of handpumps managed by WSMTs-SC. In order to get better insight into the correlations between the performance of WSMTs-SC and the level of service provided by handpumps, the level of service provided by handpumps managed by WSMTs-SC that perform well (i.e. they meet the benchmark on the service provider indicators) can be compared with the ones not performing well (not meeting the service provider indicator benchmark). The strongest positive correlation between the performance of the service provider and the level of service, was found for the indicators related to record keeping, revenue expenditure balance and tariffs, as shown in Figure 3.

The figure also shows a positive correlation between monitoring of WSMTs-SC and the level of service provided by handpumps. When comparing the handpumps which are monitored by the District Assembly (the service authority) with handpumps which were not, we see that the ones that did receive monitoring support, have a higher percentage of handpumps meeting all service level indicator benchmarks and a lower percentage of non-functional or unused handpumps.

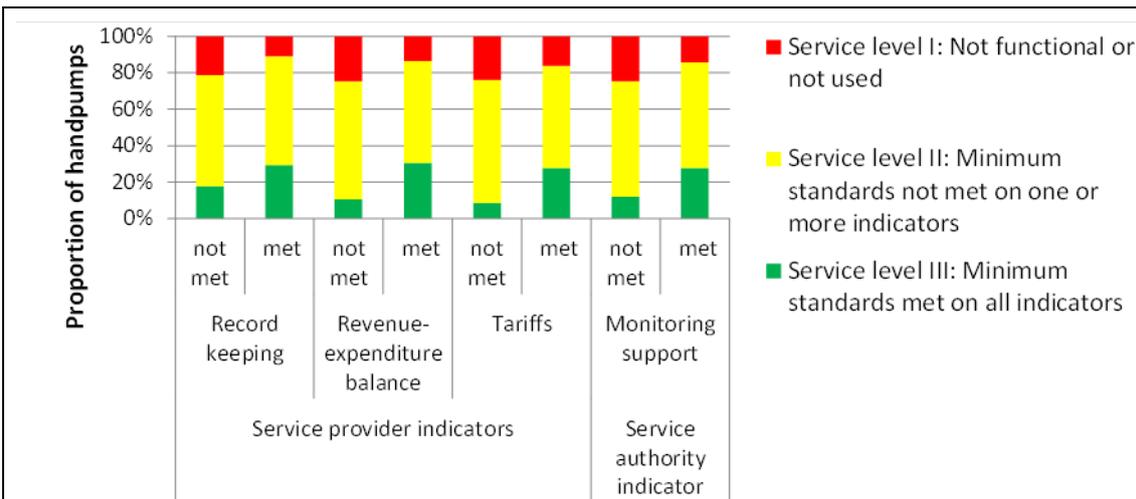


Figure 3. Service provider and authority performance and service levels

Source: Authors

Of the five service level indicators, we expected that reliability would have a positive correlation with the performance of service provider and authority. Figure 4 shows the service provider indicators and, as expected, there is a positive correlation between reliability and service provider performance on 9 of the eleven service provider indicators¹. The proportion of handpumps managed by WSMTs-SC meeting the benchmark on the nine service provider indicators, is higher for reliable than for unreliable handpumps. The indicators were ranked from weakest to strongest correlation between reliability and service provider performance, in terms of difference in percentage points. The strongest positive correlation was found between reliability and service provider performance on the following indicators: 1) revenue-expenditure balance, 2) area mechanics, and 3) spare part supply. For these indicators, the proportion of handpumps managed by WSMTs-SC that met the benchmark was more than 20 percentage points higher for reliable handpumps than for unreliable handpumps.

Conclusions

This paper has brought to light shocking levels of non-compliance of handpump water service with national norms and standards. Only one out of five handpumps was found to meet the minimum standard set on all five service level indicators and not one service provider was found to meet the benchmark on all eleven service provider indicators. Especially on the indicators related to record keeping, water quality testing and financial management, less than a quarter of WSMTs-SC managed to meet the service provider indicator benchmark. This raises the question of whether the benchmarks on these indicators may have been set too high, and maybe even whether there is a need to rethink certain ideas behind the community ownership and management model in Ghana.

Positive correlations were found between service provider performance and service levels and between reliability and service provider performance. Also a positive correlation was found between monitoring by the service authorities and service levels. However, even for reliable handpumps, the proportion managed by WSMTs-SC meeting the service provider indicators, was found to be low on indicators like financial management, WSMT composition and record keeping. This reaffirms the question on whether or not the benchmarks on certain indicators may have been set too high.

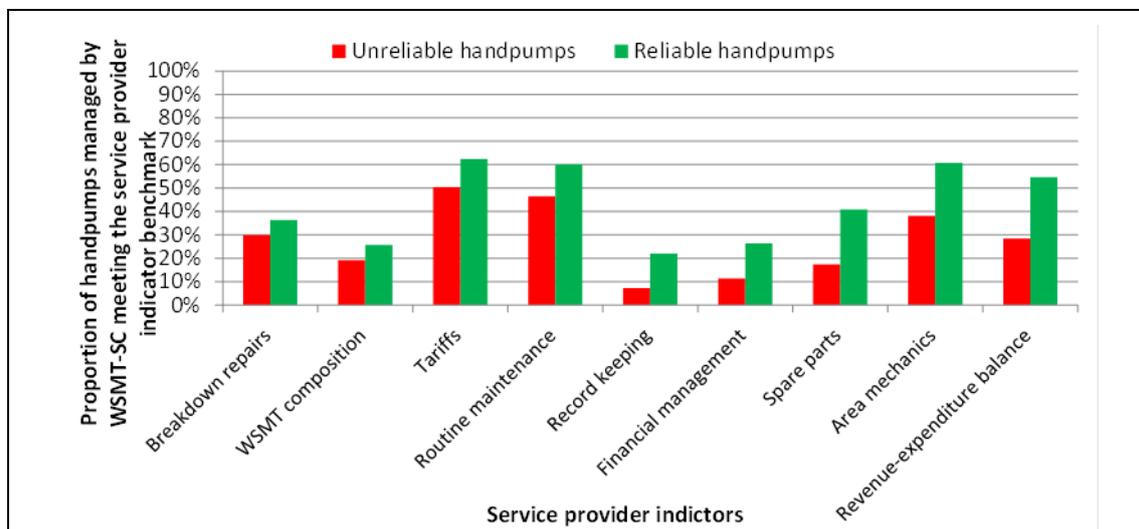


Figure 4. Service provider performance and reliability

Source: Authors

¹ No positive correlation was found between reliability and political interference and between reliability and water quality testing. Therefore these indicators are not shown in Figure 4.

Acknowledgements

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